WPLT LONG TERM

Deliverable DLT.2.6: Market Development Module

Date: 30/06/2020

Version: 1

Author: GreenFlex

Status: Private

Work Package LT:	Long Term
Deliverable 2.6:	Market Development Module
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Participants:	Digital Deconstruction partners
Type:	Report
Version:	1.2
Total no of pages:	25
Project Start date:	01/02/2023
Contractual delivery date:	01/01/2023
Actual delivery date:	30/06/2023
Keywords:	Dissemination strategy, market development, high potential sectors
Status:	Completed

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1. Introduction

The dissemination strategy is key to ensure a continuity in the work carried out during the project. It is important to understand to which stakeholders the solutions developed as part of the project could be useful, and for whom we are best placed on the market to meet their needs.

This dissemination strategy deliverable aims at assessing the sectoral opportunities and the futures developers of the Digital Deconstruction (DDC) system. Its second objective is to qualify the deployment strategies to address this market potential.

The deliverable divided in three main parts.

1. The first one defines **the sectors with the greatest potential for the DDC system** according to six main criteria and lists the main leaders of each sector in the four countries who could be the main potential users of the platform.

2. The second one lists **the future developers of the DDC system, which could bring their audience and attractiveness to the platform**.

3. The third and last part of the deliverable focuses **on deployment strategies** (tradeshows, demonstrator projects, professional organizations, etc.) **to address final users and future developers.**

2. High potential sectors and final users of the platform

In this part, the objective is to define the biggest sectoral opportunities within the geographical scope of the Digital Deconstruction project: France, Belgium, Luxembourg, and the Netherlands. To do so, we will:

- Define the sectors with the greatest potential according to several criteria.
- Analyze the opportunities and threats for the platform of the high potential sectors listed before.
- List the main leaders of each sector, which could be the main potential users of the platform.

2.1. What are the high potential sectors?

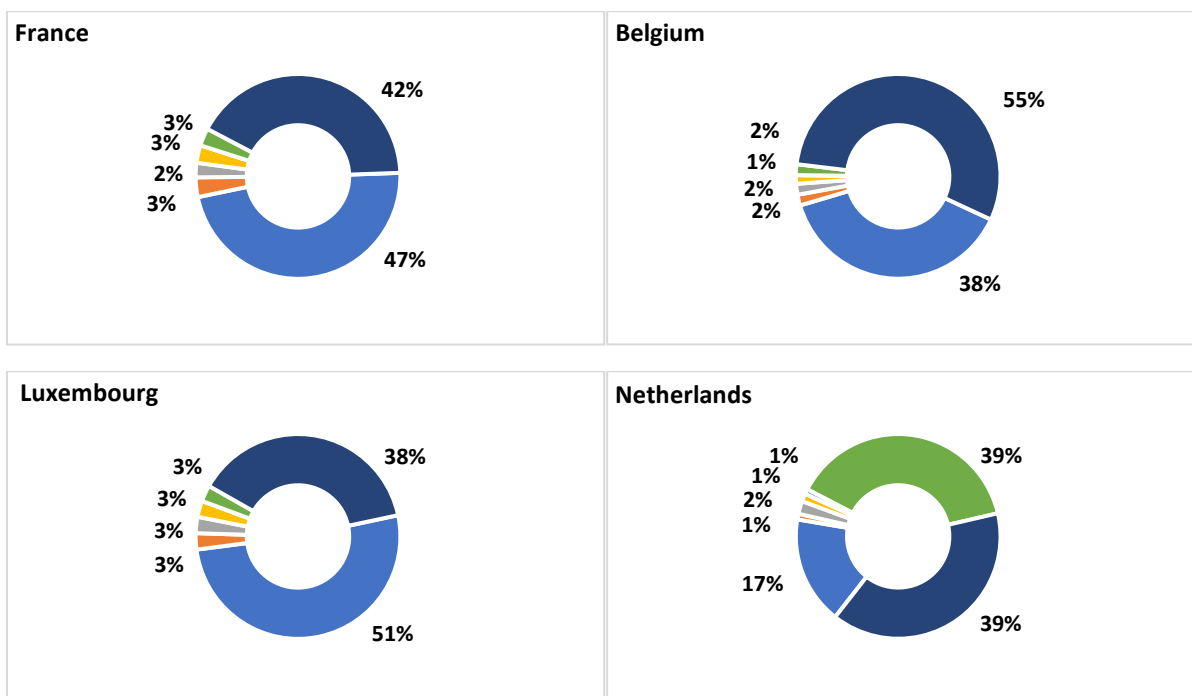### 2.1.1. Overview of the building stocks

First of all, let's have a look at the distribution of building stock (tertiary (a) and housing (b)) in order to have a large overview of the four main markets (France, Belgium, Luxembourg, and the Netherlands). **Considering this distribution and the characteristics of the platform, we can already make a first selection of the sectors with potential (c).**

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a) The tertiary building stock

The tertiary building stock (% of the total number of buidlings)

- Wholesale and retail trade
- Health care
- Sport facilities
- Others not mentioned (private and public offices, etc.)
- Hotels & restaurants
- Educational buildings
- Other

France

42%
3%
3%
2%
3%
47%

Belgium

55%
2%
1%
2%
2%
38%

Luxembourg

3%
3%
3%
3%
38%
51%

Netherlands

1%
1%
2%
1%
17%
39%
39%

Source: EU Building Stock Observatory, European Commission, 2017

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France, Belgium and Luxembourg have a similar distribution of their building stock, with a large majority of wholesale and retail trade buildings, and offices. The Netherlands differs a little with a smaller percentage of wholesale and retail trade buildings and a higher part of other buildings. Furthermore, in **France**, the distribution of the tertiary building stock in terms of m² is more precise and recent (2019). **Offices, retail and educational buildings concentrate 64%** of the surface area.

The tertiary building stock in France (% of the total surface area)
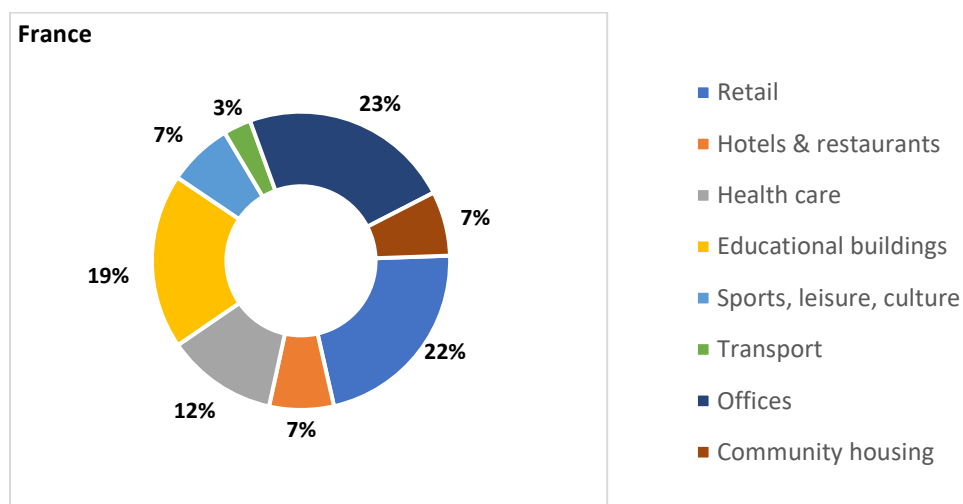
Source: CEREN, 2019

b) The housing building stock

Concerning the housing building stock, apartment blocks dominate largely in the Netherlands and in Belgium, and in France to a lesser extent, whereas single-family houses concentrate 71% of the total surface area in Luxembourg.

The housing building stock (% of the total surface area)

- Single-family houses   ■ Apartment blocks

France

67%   34%

Belgium

91%   10%

Luxembourg

29%   71%

Netherlands

85%   15%
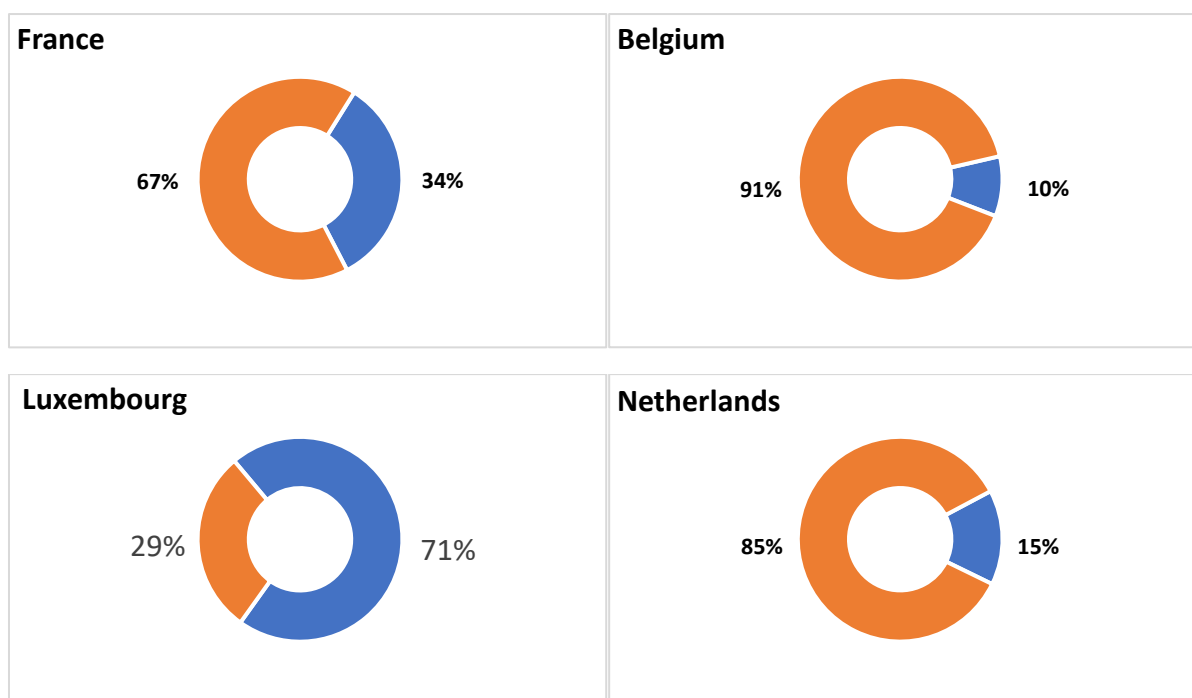
Source: EU Building Stock Observatory, European Commission, 2020

c) A first selection of the sectors with potential

Within the framework of the Digital Deconstruction project, we consider that high potential sectors have a regular renewal of assets, without too many security constraints and too specific building characteristics. Therefore, it **excludes the sectors of Health care and hotels & restaurants**. Concerning **individual houses, they are not a target of the DDC project** whose goal is to mass-market.

As a consequence, we will evaluate in the next part the market potential of the 7 following sectors: offices, retail, education, sport, leisure, & culture, transport & logistics, collective housing, and social housing.

2.1.2. The definition of the sectors with the greatest potential

a) Methodology: the evaluation criteria

In order to evaluate the interest and the relevance of the sectors for the platform, we made up a list of 6 main criteria:

- Complexity of the building stock: typology and variety of construction materials on the deconstruction/construction sites. The more complex and diverse the materials, the more they will require digital tools like the ones of the Deconstruction platform (3D-Scan, R-BIM, etc.). The complexity of the building stock includes also the notion of availability of building plans and possibly BIM models : the interest of digital tools is significant when it doesn't exist digital data on the building and when the plans are no longer accessible.

- Replicability: capacity to reproduce the strategies built for a project on other projects located on the same site (reuse in-situ) or another site (reuse ex site). The more similar the buildings and the materials, the greater the degree of replicability.

- Investment capacity: ability of a company or a public organization to finance new projects, such as deconstruction programs, and capacity to endorse financial losses for a certain time to achieve profitability.

- Innovation capacity: ability to implement a new or improved product (good or service), like a deconstruction platform, process or organizational method. The innovation capacity of a structure may be influenced by its size, its practices, its culture, its governance as well as by its sector of activity, its geographical location, the dynamism of its competitors or its partners, etc.

- Regulatory compliance: set of laws, regulations, directives and standards to which a company, organization or sector must comply.

- Exemplarity: which can be cited as an example, which can be set up as a model to follow and be reproduced. The State, public organizations and local authorities have a big influence by being able to open the way to new practices.

b) The potential analysis

	Complexity of the building stock	Replicability	Investment capacity	Innovation capacity	Regulatory requirements	Exemplarity	TOTAL
Offices	+	++	++	+	++	+	**9**
Retail	+	+	+	+	++	-	**5**
Education	++	++	+	-	++	++	**7**
Sport, leisure, culture	++	-	-	-	++	+	2
Transport & logistics	+	+	++	+	++	-	**6**
Collective housing	+	+	-	-	+	-	0
Social housing	++	++	++	++	+	++	**11**

Methodology: one + is equal to 1, two + are equal to 2 and so on; one - is equal to -1, two – are equal to -2 and so on. The total for every sector is the addition of all the grades on every criterion.

As the table below shows it, there are clearly 5 high potential sectors, which add up 5 point or more:

- Offices (private and public)
- Retail
- Education
- Transport & logistics
- Social housing.

We will draw the opportunities and threats of each sector in the next part.

c) High potential sectors: the opportunities and threats for the platform

Offices

Opportunities	Threats
• High potential of replicability considering the similarities between office buildings and materials and their geographic proximity (especially business districts) • Difficult economic conditions in the office real estate (rise in vacancies, decrease of the demand) could lead to new opportunities, such as the renovation of buildings integrating changes in the usage (from office to collective housing, etc.) in which reuse has a strong role. • Strong capacity to innovate and to invest (especially for the main office landlords) • Growing attraction for digitisation • Higher environmental commitment within the real estate asset valuation strategies • General trend in favor of renovation and "urban recycling" rather than construction	• Deterioration of credit conditions and rise in interest rates. • Low complexity of the offices building stock lowering the interest the use of the platform

Retail

Opportunities	Threats
• Complexity of the building stock of shopping mall • High potential of replicability, especially in large commercial areas • Hight potential for materials storage • Capacity to innovate and to invest (especially for the main office landlords) • Growing digitization, especially during the buying process • Growing integration of the environmental dimension • General trend in favour of renovation rather than construction	• Difficult economic conditions in retail property due to consumer trends and the covid crisis • Deterioration of credit conditions and rise in interest rates • Low complexity of the supermarkets building stock (materials with low added value, high amounts of concrete that can't be reused) lowering the interest the use of the platform

🏭 Transport & logistics

Opportunities	Threats
• Hight potential for materials storage • High potential of replicability, especially in large logistics areas • Capacity to innovate and to invest. • Growing integration of the environmental dimension • General trend in favour of renovation and conversion of wastelands (3 editions of the "Fonds friches" in France since 2021) rather than construction	• Low complexity of the logistics building stock (materials with low added value, high amounts of concrete that can't be reused) lowering the interest the use of the platform • Deterioration of credit conditions and rise in interest rates

🏫 Education

Opportunities	Threats
• High volume of finishing materials and equipment suitable for reuse • High potential of replicability Grants, subsidies and programs in favor of the renovation of educational buildings supported by the State and the local authorities • Willingness to set an example in terms of energy efficiency. • General trend in favour of renovation and conversion of materials, in connection with raising awareness among younger generations	• Limited capacity of the State and local authorities to invest in renovation and deconstruction • Limited capacity to innovate • Deterioration of credit conditions and rise in interest rates

🏢 Social housing

Opportunities	Threats
• High volume of finishing materials and equipment suitable for reuse • High degree of replicability of buildings constructed at the same period • Capacity to innovate and to invest. • Boom of the use of BIM by social landlords • France: numerous support schemes for HLM organizations for the rehabilitation of social housing • Commitment of social landlords in ongoing programs to renovate their stock in order to value it, be exemplary, restore the image, improve occupant comfort, etc.	• Deterioration of financing conditions for social landlords

2.2. Who could be the key potential users of the platform?

The goal here is to list the main leaders of the 5 high potential sectors listed before in our 4 countries. These leaders possibly own a large building stock and as a consequence represent big potential owners and supports of deconstruction/construction projects and services like the DDC platform. For example, a big French office landlord company like Gecina could use the services of the Digital deconstruction platform for several buildings of the same area.

2.2.1. Offices

Main office landlords in France in 2021[*]

Office landlord	Country of origin	Office assets in France		
		Rental income (M€)	Lettable area (m²)	Value of portfolio (M€)
Gecina	France	490,4	1,4 million	16 100
Icade	France	343,9	908 025	6 300
Covivio	France	305,3	1,2 million	10 000
Société Foncière Lyonnaise	France	174,6	279 661	6 700
Foncière Atland	France	161,4	nd	137 owned 3 000 managed
Société de la Tour Eiffel	France	87,4	598 450	1 462
Fiducial Real Estate	France	58,7	281 433	594
Vitura	France	63,3	198 624	1 560
Foncière Inea	France	51,9	426 342	1 090
Unibail-Rodamco-Westfield (URW)	France	37,2	212 100	3 236

(*) Ranking by rental income from office assets in France / Source: Xerfi according to office landlords

Office landlords in Belgium in 2022[*]

Office landlord	Country of origin	Office assets in Belgium		
		Rental income (M€)	Lettable area (m²)	Value of portfolio (M€)
Befimmo	Belgium	133[1]	590°744	2 100
Wereldhave	Netherlands	48[3]	60°100	835[3]
Intervest Offices	Belgium	25	192°520	358
Nextensa	Belgium	20	262°276[2]	410
Banimmo	Belgium	5	53°040	111
Cofinimmo	Belgium	nd	450 000	1 400
MVGM	Netherlands	nd	nd	nd

(*) Non-exhaustive list, ranking by rental income
(1) Total rental income of the group / (2) Including retail buildings / (3) Retail and office buildings
Source: operators

Office landlords in Luxembourg in 2022[*]

Office landlord	Country of origin	Office assets in Luxembourg		
		Rental income (M€)	Lettable area (m²)	Value of portfolio (M€)
Acron	Switzerland	nd	nd	nd
Befimmo	Belgium	nd	17 202	173
Ceetrus[1]	France	nd	57 029	nd
Inowai	Luxembourg	nd	nd	nd
LaSalle	United States	nd	nd	nd
MVGM	Netherlands	nd	nd	nd
Nextensa	Belgium	8	34°000	187

(*) Non-exhaustive list, ranking by alphabetical order / (1) Asset management entrusted to Nhood, a mixed real estate operator
Source: operators

Office landlords in the Netherlands in 2022[*]

Office landlord	Country of origin	Office assets in the Netherlands		
		Rental income (M€)	Lettable area (m²)	Value of portfolio (M€)
ARC	Netherlands	nd	nd	nd
DHS	Netherlands	nd	31 363	nd
MVGM	Netherlands	nd	nd	nd
Savills	Netherlands	nd	nd	nd
Union Investment	Netherlands	nd	nd	nd
VastNed	Netherlands	nd	nd	nd

(*) Non-exhaustive list, ranking by alphabetical order
Source: operators

2.2.2.   Retail

Main retail landlords in France in 2021[*]

Office landlord	Country of origin	Retail assets in France			
		Rental income (M€)	Lettable area (m²)	Mall and retail parks	Value of portfolio (M€)
Unibail-Rodamco-Westfield (URW)	France	417,2	1,58 million	21	13 670
Klépierre	France	298,8	nd	43	8 240
Altarea	France	162,5	946 000	38	5 300
Frey	France	80,6	551 000	nd	1 330
Hammerson	United-Kingdom	60	> 340 000	21	1 150
Compagnie de Phalsbourg	France	nd	730 000	6	1 800
Redevco	Netherlands	nd	160 000	35	1 400

(*) Ranking by rental income from retail assets in France
Source: Xerfi according to retail landlords

Main retail landlords owned by distributors in France in 2021[*]

Office landlord	Distributor	Country of origin	Retail assets in France		
			Lettable area (m²)	Retail sites	Value of portfolio (M€)
Foncière Ceetruc	Auchan/New Immo Holding	France	1,7 million	582	3 749
Carmila	Carrefour	France	> 1 million	129	4 400
Mercialys	Casino	France	813 000	50	3 138
Etixia	Kiabi	France	324 000	90	686
Galimmo	Cora	Belgique	230 000	52	663
Immo Mousquetaires	Les Mousquetaires	France	130 568	1 433	nd
Cora	Cora	Belgique	> 125 000	61	nd
Ingka Centres	Ikea	Suède	76 090	1	nd

(*) Ranking by retail lettable area in France
Source: Xerfi according to retail landlords

Retail landlords in Belgium in 2022[*]

Office landlord	Country of origin	Retail assets in Belgium			
		Rental income (M€)	Lettable area (m²)	Mall and retail parks	Value of portfolio (M€)
Wereldhave	Netherlands	48[1]	224 600	9	835[1]
Galimmo	Belgium	nd	159 700	7	nd
Eurocommercial Properties	Netherlands	nd	47 000	1	578
Klépierre	France	nd	30 000	1	nd
Nextensa	Belgium	4	10 929	2	73
VastNed	Netherlands	nd	nd	111[2]	nd

(*) Ranking by retail lettable area in Belgium / (1) Retail and office buildings / (2) Commercial tenants
Source: Xerfi according to retail landlords

Main retail landlords in Luxembourg in 2022[*]

Office landlord	Country of origin	Retail assets in Luxembourg			
		Rental income (M€)	Lettable area (m²)	Mall and retail parks	Value of portfolio (M€)
Nextensa	Belgium	21	116°000	8	305
Cactus Immobilier	Belgium				
Ceetrus[1]	France	nd	35 969	1	nd
Galimmo	Belgium	nd	12 200	1	nd
Firce Capital	Luxembourg	nd	nd	nd	nd
Inowai	Luxembourg	nd	nd	nd	nd

(*) Ranking by retail lettable area in Luxembourg / (1) Asset management entrusted to Nhood, a mixed real estate operator.
Source: Xerfi according to retail landlords

Main retail landlords in the Netherlands in 2022[*]

Office landlord	Country of origin	Retail assets in the Netherlands			
		Rental income (M€)	Lettable area (m²)	Mall and retail parks	Value of portfolio (M€)
Nieuwe Steen Investments	Netherlands	59	382 000	491	1,3 Md€
Wereldhave	Netherlands	56	345 800	22	856 M€
Unibail-Rodamco-Westfield (URW)	France	77	291 400	3	1 662
Klépierre	France	nd	238 574	4	nd
VastNed	Netherlands	nd	nd	254[2]	nd

(*) Ranking by retail lettable area in the Netherlands / (1) Commercial tenants / (2) Retail and office buildings
Source: Xerfi according to retail landlords

2.2.3. Social housing

Main social landlords in France in 2020

Social landlord	Subsidiaries in the sector	Social housing managed	Turnover
Action Logement	53	1 050 476	8 715 M€
CDC Habitat	13	535 319	2 656 M€
Habitat en Région	20	> 237 000	1,4 Md€
Groupe Arcade-VYV	15	174 369	712 M€
Habitat Réuni	36	171 000	1 058 M€
Paris Habitat	8	125 414	981 M€
ICF Habitat	6	95 000	477 M€

(*) Ranking by number of social housing managed in France / Source: Xerfi according to social landlords

Main social landlords in Belgium in 2022*

Social landlord	Subsidiaries in the sector	Social housing managed
Société Wallonne du Logement (SWL)	64	103 000
Société du Logement de la Région de Bruxelles-Capitale (SLRB)	16	40 000
Wonen in Vlaanderen	42	nd

(*) Ranking by number of social housing managed in Belgium / Source : operators

Main social landlords in Luxembourg in 2022*

Social landlord	Subsidiaries in the sector	Social housing managed
Fonds du Logement	1	2 000
Adhoc Habitat participatif	nd	nd

(*) Ranking by number of social housing managed in Luxembourg / Source: operators

Main social landlords in Netherlands in 2022*

Social landlord	Subsidiaries in the sector	Social housing managed
Eigen Haard	nd	51 154
De Alliantie	nd	nd
Vestia (Ratos Group)	nd	nd
Woonstad Rotterdam	nd	nd

(*) Ranking by number of social housing managed in Netherlands / Source: operators

2.2.4.   Transport & logistics

Main logistics companies in France in 2022[*]

Logistics company	Country of origin	Logistics turnover in France	Warehouses in France
ID Logistics	France	776	106
Geodis	France	680	50
GXO Logistics	United States	640	80
STEF	France	617	90
FM Logistic	France	nd	34
Kuehne+Nagel	France	510	45
Daher	France	nd	nd
C-Logistics	France	392	12
Viapost	France	nd	32
Rhenus Logistics	Germany	350	30

(*) Ranking by logistics turnover in France / Source : Supply chain magazine, Edition 2022 du Top 120 des 3PL

Main logistics companies in Belgium in 2022[*]

Logistics company	Country of origin	Added value in Belgium (M€)	Employees	Storage surface in Belgium (m²)
Deutsche Post	Germany	452	4 765	352 925
Katoen Natie	Belgium	401	4 200	2 512 500
Fedex	United States	311	2 954	96 600
H.Essers	Belgium	246	2 907	1 073 800
UPS	United States	212	983	9 600
PSA	Belgium	204	589	30 000
Sea Invest	France	196	404	489 000
Kuehne+Nagel	France	168	2 175	409 400

(*) Ranking by added value In Belgium / Source: Link2Logistics Management, December 2022

Main logistics companies in Luxembourg in 2022[*]

Logistics company	Country of origin
CFL Multimodal	Luxembourg
DB Schenker	Germany
DSV	Danemark
Logwin	Luxembourg
Transalliance	Luxembourg

(*) Ranking by alphabetical order / Source: operators

Main logistics companies in the Netherlands in 2023[*]

Logistics company	Country of origin	Index score
DHL Supply Chain	Germany	86,6
Ceva Logistics	France	80,1
DSV Solutions /Road	Danemark	66,7
GXO Logistics	United States	66,6
Postnl Logistics Solutions	Netherlands	64,4
Kuehne+Nagel	France	63,3
DB Schenker	Germany	55,9

(*) Ranking by index score, which reflects the size of the logistics operations of companies in the Netherlands, but also the level of logistics innovation in different areas / Source: Logistek & BCI Global, Top 100 of Logistics Service Providers in the Netherlands 2023

Main train stations managers in France, Belgium, Luxembourg and the Netherlands in 2022

Train stations managers	Country of origin	Turnover (Md€)	Train stations managed in the country
SNCF	France	41,5	3 029
SNCB	Belgium	2,2	551
CFL	Luxembourg	1,1	68
ProRail	Netherlands	1,5	397

Source: operators

Focus on the wasteland in France: The winners of the wasteland recycling fund.

The wasteland can also be an interesting opportunity as deconstruction/construction projects as well as in situ storage locations of building stock. In France, the Government has deployed a fund to finance wasteland recycling operations and the transformation of already artificialized land in 2021, as part of "France Relance". The fund finances:

- The recycling of wasteland and the transformation of already artificialized land (acquisition, depollution, demolition), within the framework of urban development operations.
- The conversion of polluted wasteland from former classified facilities (ICPE industrial sites or mining sites), as part of a call for projects from ADEME.

A first envelope of €300 million had been announced as part of France Relance. Given the success of this fund and the needs expressed by the territories, almost all of this envelope will be committed from the first year, in 2021 and the Prime Minister announced on May 17, 2021, the mobilization of an additional envelope. of 350 million euros to be committed by the end of 2022.

Finally, there were 3 editions of the wasteland fund:

- Edition n°1 in 2021: 544 projects selected for a total amount of nearly €290 million.

- Edition n°2 in July 2021: 503 projects selected for a total amount of nearly €280 million.
- Edition n° in February 2022: 264 projects selected for €121 million.

To have a look at the details of the projects selected, there is an interactive map at this address : https://www.ecologie.gouv.fr/laureats-du-fonds-recyclage-des-friches

2.2.5. Education

Main public educational buildings in France in 2022[*]

Educational building	Structure of management and investment (construction, reconstruction)	Number of establishments
Primary school	The town	48 580
Secondary school	The department	6 960
High school	The region	3720
Universities	The state	72

(*) Primary, secondary and higher education
Source : Ministère de l'Education nationale et Ministère de l'Enseignement supérieur et de la Recherche

Main public educational buildings in Belgium in 2022[*]

Educational building	Structure of management and investment (construction, reconstruction)	Number of establishments
Wallonia-Brussels Federation[*]	Direction Générale des Infrastructure (DGI) au sein de la Fédération Wallonie-Bruxelles	500
Flelish Community[**]	Agence pour l'Infrastructure de l'Enseignement (AGIOn)	4 065

(*) Primary, secondary and higher education, boarding schools
(**) Nursery, primary and secondary education, part-time arts education, university colleges
Sources: Fédération Wallonie-Bruxelles, Statista

Main public educational buildings in Luxembourg in 2022[*]

Educational building	Structure of management and investment (construction, reconstruction)	Number of establishments
Educational building	The town/municipality	240

(*) Primary and secondary education / Source: Edustat

Main public educational buildings in the Netherlands in 2022

Educational building	Structure of management and investment (construction, reconstruction)	Number of establishments
Primary school	The town/municipality	6 100
Secondary school	The town/municipality	641
Universities	N/A	55

Source: Statista

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3. Futures developers of the platform

The second objective of the document is to list the future developers of the DDC System. These companies could bring their audience and attractiveness to the platform. We can make out three main types of developers:

- Key partners of the platforms: marketplaces and other technological contributors.
- Engineering offices and PEMD diagnosticians.
- Producer responsibility organizations

3.1. Marketplaces

With the audience they generate, digital trading platforms for construction products could bring attractiveness to the DDC platform. A marketplace could indeed be an entry door to the DDC platform: potential customers could discover the deconstruction services of the DDC while searching online on the marketplace. The DDC platform would benefit from the network effects linked to the marketplace: the more materials, the more customers, and reciprocally.

To have a good overview of the digital trading platforms for construction products, you can read the _D.LT.1.4 Blueprints for regional marketplaces._ Appendix 1 of the document includes the general table of the 45 considered platforms, provides a general characterization and a light SWOT analysis for each of the 38 platforms within the scope.

3.2. Technological contributors

Technological partners providing collection of different services through the modules could also be key to the development of the DDC platform. Like marketplaces, they could bring a commercial and visibility opportunity to the DDC platform, and reciprocally. By highlighting the fact that their service is compatible with a set of services and a platform with broader functionalities, they can attract customers.

To see the potential future technological partners, let's make a list of competitors of the 3D-Scan module. As the R-Bim is a very specific technology developed by GTB-Lab, there is no competitors on the market.

Main 3D-Scan Competitors in the world[*]

Competitor	Country of Origin	Date of creation	Revenues	Net income	Number of employees
BIM-Y	Luxembourg	2016	nd	nd	6
Cupix	United States	2015	2,3 M$ (2022)	nd	86
Openspace	United States	2017	8,1 M$ (2022)	nd	283
Spinalcom	France	2009	nd	293 k€ (2021)	16
Stonal	France	2017	2,45 M€ (2021)	-2,4 M€ (2021)	72
Ursaleo	United States	2017	1,1 M$ (2022)	nd	9
Wizzcad	France	2013	nd	-726 k€ (2019)	36

(*) Non-exhaustive list, ranking by alphabetical order

3.3. Engineering offices and PEMD diagnosticians

Engineering offices could play an important promoter of the DDC platform by using and showing its benefits as a project management expert for reuse ("Assistant à maîtrise d'ouvrage réemploi" – AMO) in the construction/deconstruction projects. As there is a very large number of engineering offices, it's not relevant to list them.

Moreover, for the French market especially, we can also name PEMD Diagnosticians as future developers of the DDC System. The platform and the 3D scan module in particular could indeed offer time savings and precision on the PEMD diagnosis of existing resources on the building to be deconstructed.

3.4. Producer responsibility organizations

The Extended Producer Responsibility (EPR) is a policy that makes manufacturers and importers responsible for what happens to the packaging of their products after it has reached its post-consumer stage. This means that companies must pay a fee to a Producer Responsibility Organisation (PRO), which in turn collects, disposes, and recycles their packaging.

PRO can thus play an important role in the future development of the DDC System by providing deconstruction materials they are responsible for to reuse it in new construction projects.

Morevover, as companies pay for the waste they produce, if they do more reuse, they pay less. So partnering between deconstruction platform and PRO allows to have a unique interlocutor, reduce the costs for the company, and to ensure that materials intended for reuse are quickly directed to new sites.

Every EU member state has a list of recognised Producer Responsibility Organisation (PRO). We can inventory the Producer Responsibility Organisations implicated in construction/deconstruction projects within the geographical scope of the Digital Deconstruction project: France, Belgium, Luxembourg, and the Netherlands.

Producer Responsibility Organisation (PRO) implicated in construction/deconstruction projects in France

Country	Name of the PRO	Date of creation	Type of waste
	Valobat	2021	Building waste
	Valdelia	2012	Professional furniture waste
	Eco-maison	2011	Household materials and objects
	Ecominéro	2021	products or building materials of mineral origin

Source: PRO

4. Deployment strategies for the DDC system?

The last part of the dissemination strategy includes deployment strategies for the DDC System, outlining specific avenues for the introduction of the technology as a ready-to-use product. We can propose six different channels to address final users of the potential sectors and futures developers of the platform:

- Tradeshows.
- Data sprints.
- Demonstrator projects and bilateral meetings.
- Professional organizations.
- Incubators, accelerators and collaborative portals.
- Partnerships.

In the appendix , we will list examples or initiatives already lead by Greenflex and/or other partners of the consortium.

Pour exploiter les dynamiques créées durent les événements RIH,

4.1. Tradeshows

Events related to construction and real estate are very interesting as meeting points of numerous final users of the potential sectors and futures developers of the platform we listed before. We can for example list the main events in France and tick the ones GreenFlex participated to as a member of the DDC consortium.

Main construction and real estate events in France[*]

Event	Topic	Location	Previous edition	Presence of GreenFlex	Next edition
Artibat	Construction and public works	Rennes	October 2022		From 18/10/2023 to 20/10/2023
Batimat	Construction	Paris	October 2022	●	From 30/09/2024 to 03/10/2024
BePositive	Energy transition of buildings and territories	Lyon	March 2023		?
BIM World	Digital construction and sustainable development	Paris	December 2022	● (2021)	From 03/04/2024 to 04/04/2024
H'Expo	Social housing	Lyon => Nantes	September 2022		From 03/10/2023 to 05/10/2023
Intelligent Building Systems	Energy performance of buildings	Paris	November 2022		17-18/10/2023
Intermat	Sustainable Solutions & Technologies for the construction industry	Paris	April 2018		From 24/04/2024 to 27/04/2024
MAPIC	Retail property market	Cannes	November 2022		From 28/11/2023 to 30/11/2023
SIBCA	Low carbon real estate	Paris	September 2022		From 20/09/2023 to 22/09/2023
SIMI	Real estate business	Paris	December 2022		From 12/12/2023 to 14/12/2023

(*) Non-exhaustive list, ranking by alphabetical order / Source: operators

4.2. Data sprints

A data sprint, hackathon or dataviz challenge designates any event of variable duration during which people come together to solve problems, classically by developing IT tools but not necessarily. The particularity of data sprints is that data is made available, and it constitutes the essential material for the work of the participants. It is a co-creation format, combining over a short period of time (two days and one night in the case of the Dataviz Challenge) various profiles and skills within project teams, in a friendly working atmosphere, under the sign of collective intelligence, sharing of skills and knowledge.

As the platform is based on an open-source model (for more information, see DLT.1.1 Detailed Business Model Prototype), organizing a data sprint or a dataviz challenge is really accurate. It is indeed the opportunity for the consortium to initiate an open data approach by directly meeting an audience of internal and external re-users for data sets. These re-users can be members of the consortium, or any organization interested in the DDC system (competitors, IT start-ups, etc.). It is also a good mean to make publicity of the DDC system and its services and benefits.

4.3. Demonstrator projects and bilateral meetings

Demonstrators are pilot sites for experimentation and validation of project developments. There are immersive sharing spaces where potential final users, partners and other organizations interested can concretely realize what a digital deconstruction project looks like and therefore project themselves into this type of approach. Today, digital tools are tested on 5 pilot buildings in order to assess their relevance and improve their development with regard to needs.

Furthermore, bilateral meetings with potential users or partners can be organized in order to democratize the approach.

4.4. Professional organizations

It can also be interesting to integrate professional organizations in order to network with the different members. Events organized by the professional federations can be perfect occasions to make the promotion of the DDC system to them. We can list some French professional federations to integrate.

Professional federations in the construction industry in France[*]

Professional federation	Objective	Date of creation
buildingSMART France	Foster digital transformation of construction through the development of openBIM	1996
Centre Scientifique et Technique du Bâtiment (CSTB)	Imagine the buildings and cities of the future by guiding and securing sustainable construction and renovation projects	1947
Fédération des Distributeurs de Matériaux de Construction (FDMC)	Represent the distribution of building materials in the supply chain	nd
Syndicat Professionnel du Réemploi dans la Construction (SPREC)	Promote the sector of reuse of materials in building and public works, support the development of practices and develop quality standards	2022

(*) Non-exhaustive list, by alphabetical order / Source: operators

4.5. Incubators, accelerators and collaborative portals

In the same idea, it can be interested to integrate incubators, accelerators and collaborative portals related to circular economy and/or construction in to order to promote the platform. For example:

- Opalis: platform for the reuse of construction and renovation materials. The site shows an overview of professional retailers who sell building materials coming from old, dismantled buildings. Opalis also provides technical documentation on the most common construction products on the reuse market (main characteristics, frequency of release, availability, indicative prices, etc.). A third part describes recent realizations in which reuse materials have been applied successfully and in an inspiring way. The last section contains useful documents and links for visitors who want to gather additional information.

- Grand Paris Circulaire: collaborative platform for the circular economy of operators of the Grand Paris. The territorial portal aims to federate the metropolitan ecosystem of the circular economy around knowledge and sharing. It has various objectives: connect the organizations of the territory, promote initiatives in the territory, foster cooperation and bring out synergies, encourage the development of projects and thus promote the transition of the metropolitan territory towards the circular economy. Grand Paris Circulaire has joined the Network of collaborative platforms for the circular economy, which brings together more than 18 000 members and values nearly 1 200 feedbacks. This network is currently made up of territorial platforms like Genie.ch in the Canton of Geneva, RECITA.org in Nouvelle Aquitaine, ECLAIRA in Auvergne-Rhône-Alpes, etc.

- CSTB'Lab: start-up accelerator launched int 2017 that hosts start-ups from the construction world and gives them access to a scientific environment to help them develop products/services with high added value for the building sector.

5. Conclusion

The work presented in this deliverable aimed at providing an assessment of the sectoral opportunities and the futures developers of the Digital Deconstruction (DDC) system and qualifying the deployment strategies to address this market potential.

According to our analysis, based on the goals of the DDC project and a list of 6 main criteria (complexity of the building stock, replicability, investment capacity, innovation capacity, regulatory compliance, exemplarity), there are clearly **5 high potential sectors to target**: **offices (private and public), retail, education, tansport & logistics, social housing**.

For every sector, in every 4 countries (France, Belgium, Luxembourg, the Netherlands), we listed the main **leaders. These leaders possibly own a large building stock and as a consequence represent big potential owners and supports of deconstruction/construction** projects and services like the DDC platform.

Then, we **listed the future developers of the platform, which could bring their audience and attractiveness to the platform**. We can make out three main types of developers:

- As key partners of the platforms, **marketplaces and other technological contributors** like 3D Scan companies could bring a commercial and visibility opportunity to the DDC platform, and reciprocally. By highlighting the fact that their service is compatible with a set of services and a platform with broader functionalities, they can attract customers.
- **Engineering offices and PEMD diagnosticians** could use and show the benefits of the platform as a project management expert for reuse in the construction/deconstruction projects.
- **Producer responsibility organizations (PRO)** could provide deconstruction materials they are responsible for to reuse it in new construction projects.

Finally, we can recommend **six different main channels** to deploy platform and address final users of the potential sectors and futures developers:

- **Tradeshows,** especially events related to construction and real estate as meeting points of numerous final users of the potential sectors and futures developers of the platform we listed before.
- **Data sprints**, as an opportunity for the consortium to initiate an open data approach by directly meeting an audience of internal and external re-users for data sets.
- **Demonstrator projects and bilateral meetings,** as immersive sharing spaces where potential final users, partners and other organizations interested can concretely realize what a digital deconstruction project looks like and therefore project themselves into this type of approach.
- **Professional organizations,** in order to network with the different members, especially during events organized by these federations.
- **Incubators, accelerators and collaborative portals** in order also to network with the different members.
- **Partnerships.**