

Other innovative aspects in the wood sector

Apolline OSWALD
Competitiveness Cluster Xylofutur - France

Summary



1. Who is Xylofutur ?
2. The EGURALT project
3. The Woodmarkets project

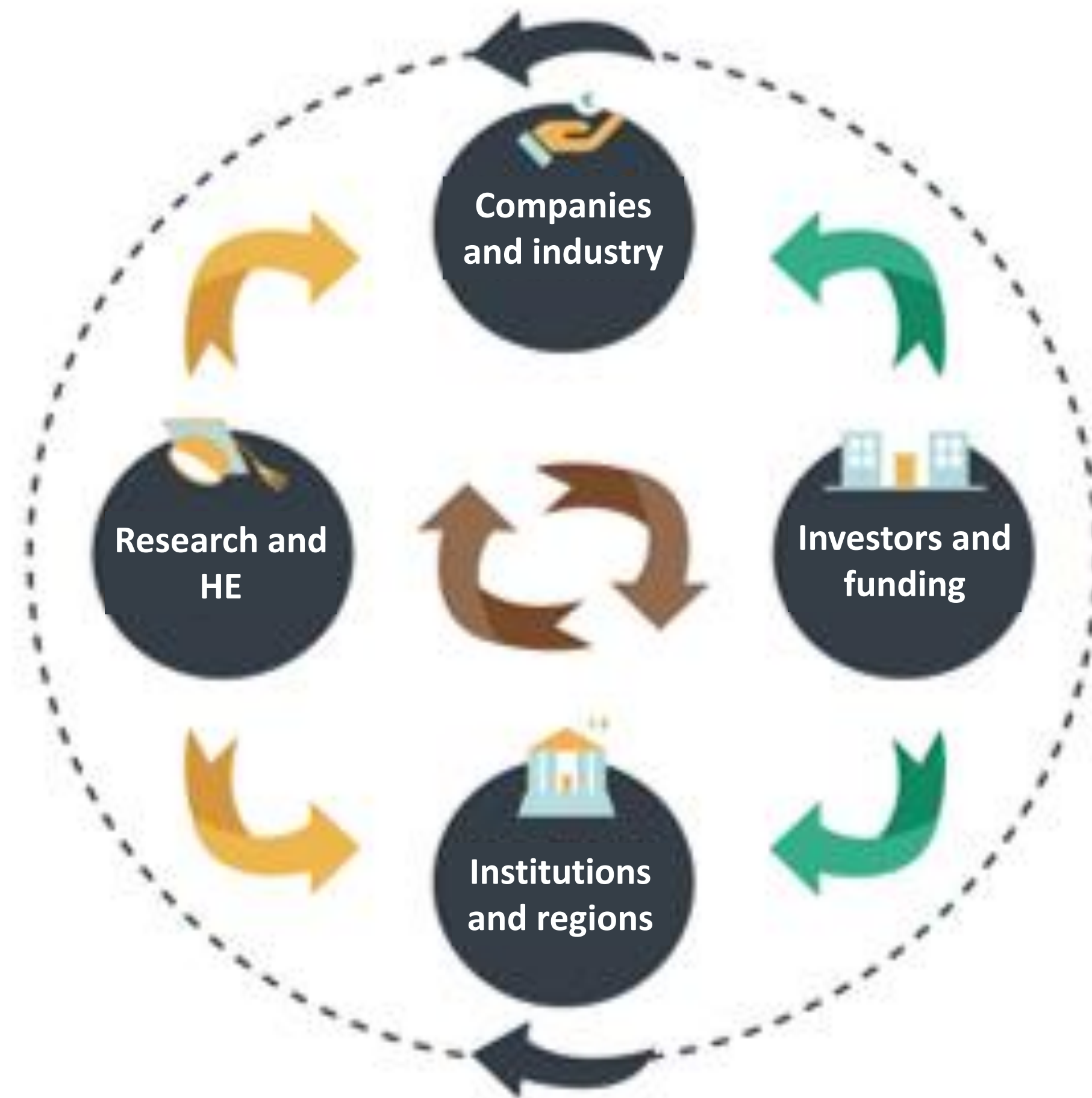
Who is Xylofutur ?



French Innovation network for the forestry and wood sector



270
Members



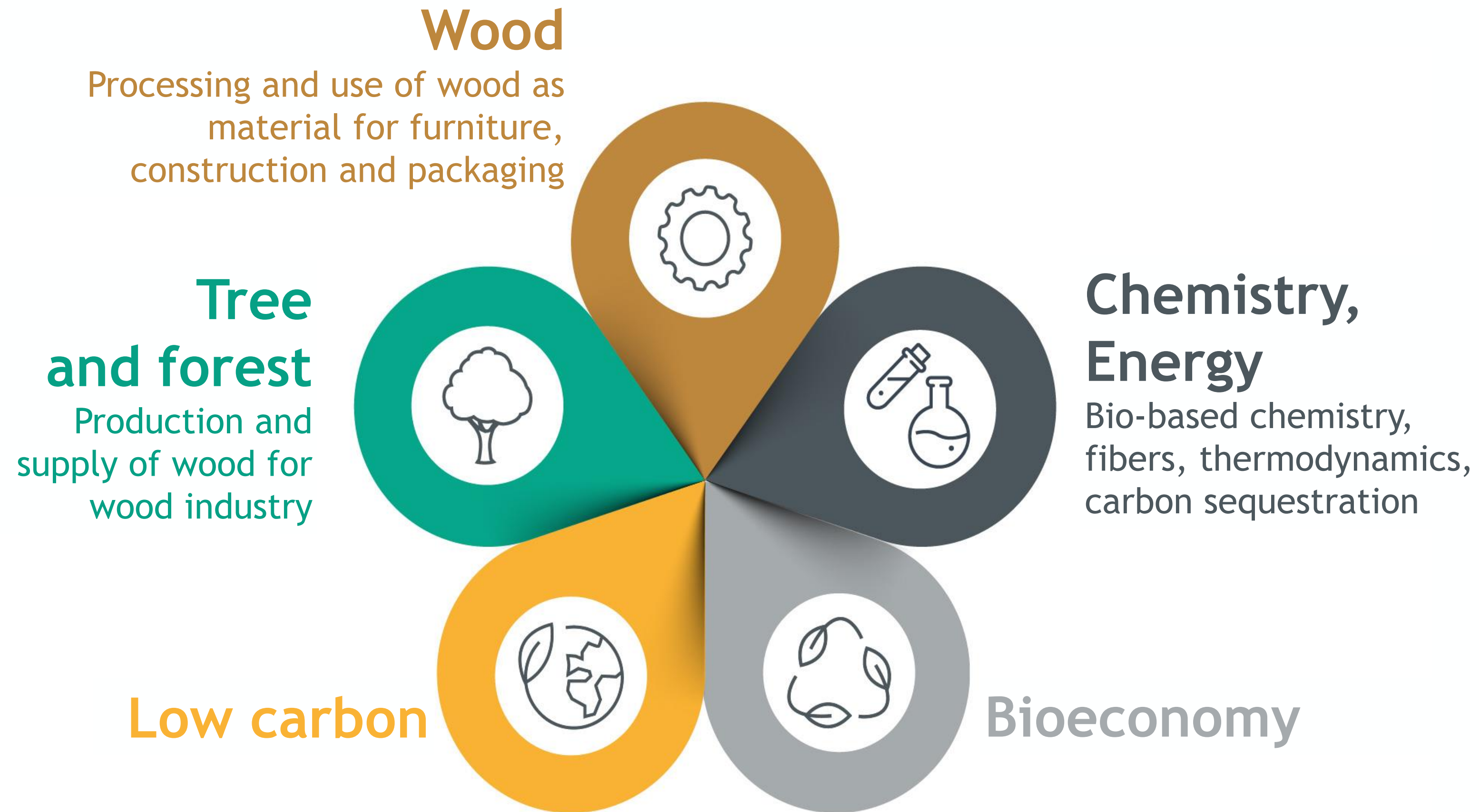
French Competitiveness Clusters

- National policy to support innovation
- Non-profit organisation
- National coverage
- Developing an innovation-enabling ecosystem through sustainable relations between stakeholders and decision-makers
- Facilitating the connections between academia and industry (in France and beyond)
- Enhancing the competitiveness of companies

Who is Xylofutur ?



French Innovation network for the forestry and wood sector



Who is Xylofutur ?



Links with the European politics (S3)



Chiffres clés nationaux

17millions

D'HECTARES DE FORÊT

2/3 feuillus 1/3 résineux

60milliards€
DE CA

430 000
EMPLOIS

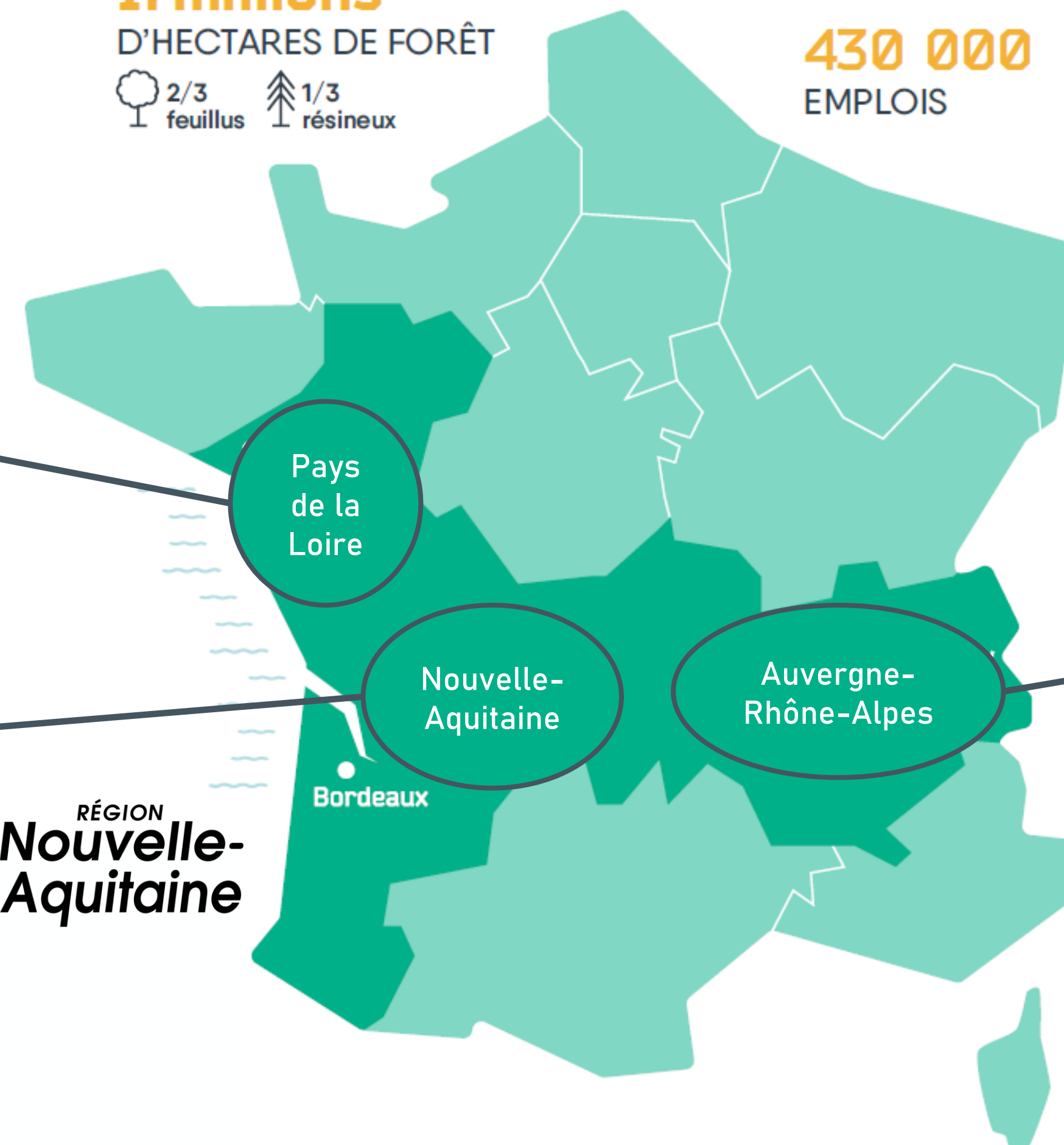


- * Bioresources
- * Advanced manufacturing
- * Digitalisation

- * Biomass, biorefinery
- * Eco-conception, timber and energy efficient buildings
- * Material chemistry
- * Laser and photonics
- * Digitalisation
- * Monitoring for sustainable management of natural resources (carbon stocking)



RÉGION
Nouvelle-Aquitaine



La Région
Auvergne-Rhône-Alpes

- * Smart and highly energy efficient buildings
- * Industry 4.0
- * Digitalisation
- * Agriculture and forestry
- * Sport, mountain and tourism

Who is Xylofutur ?



Our services

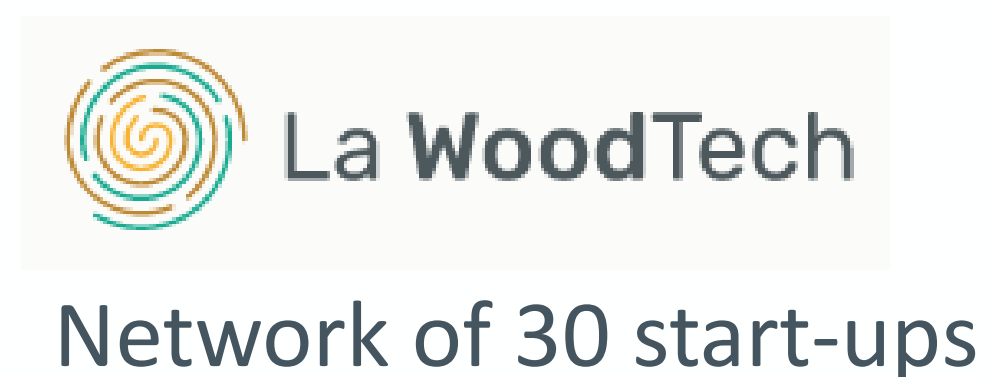
R,D&I Projects

Since 2005,
Xylofutur awarded

274
projects

- Technical and economic assessment by thematic committees (professionals from the sector)
- On behalf of the public authorities
- Leverage effect for public funding

Start-Ups



Carbone, Surveillance & Gestion forestière



Production & Exploitation forestière



Approvisionnement bois



Machine/Outils



Aménagement & Construction bois



Énergie



Chimie du bois

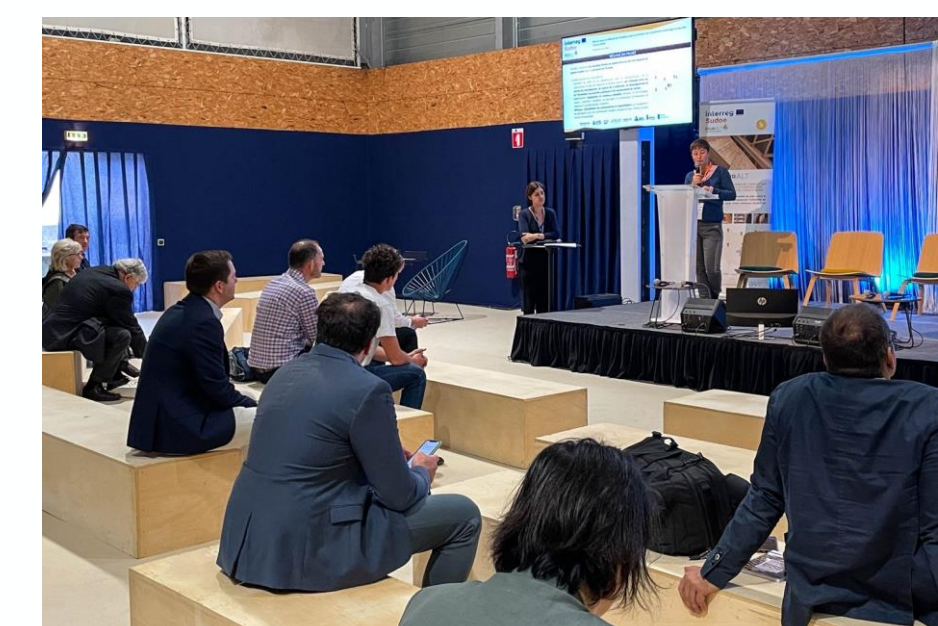
Europe



Involved in 3 europeans
projects



Communication & Animation



Who is Xylofutur ?



Some projects sealed but Xylofutur



Project SYLVAID

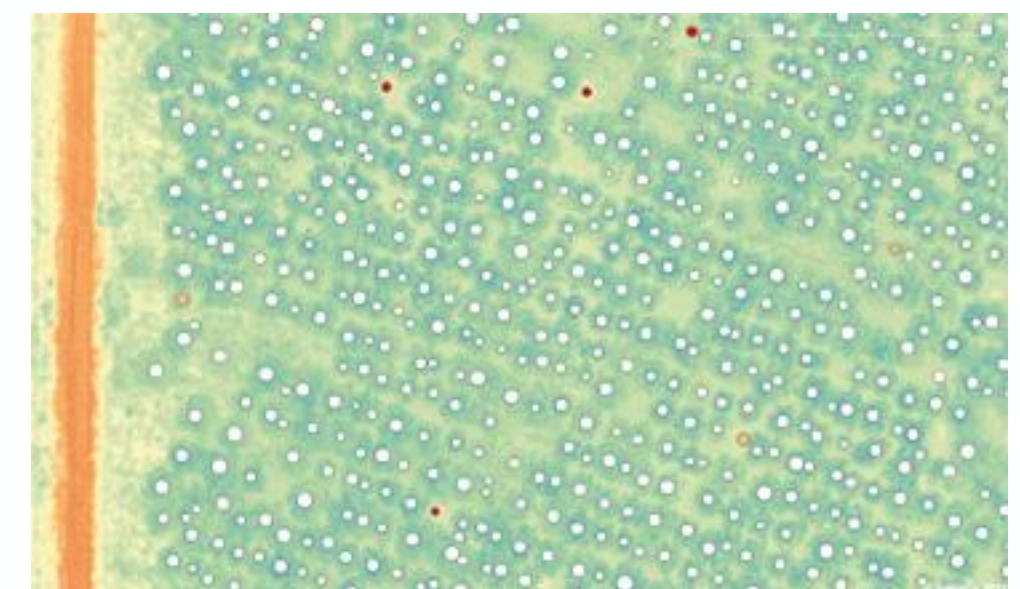
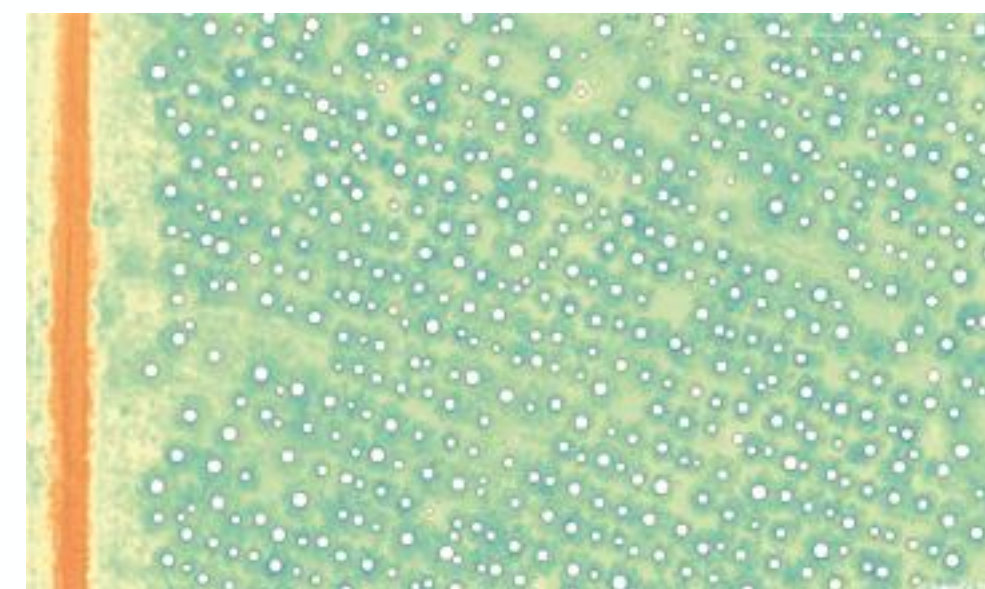
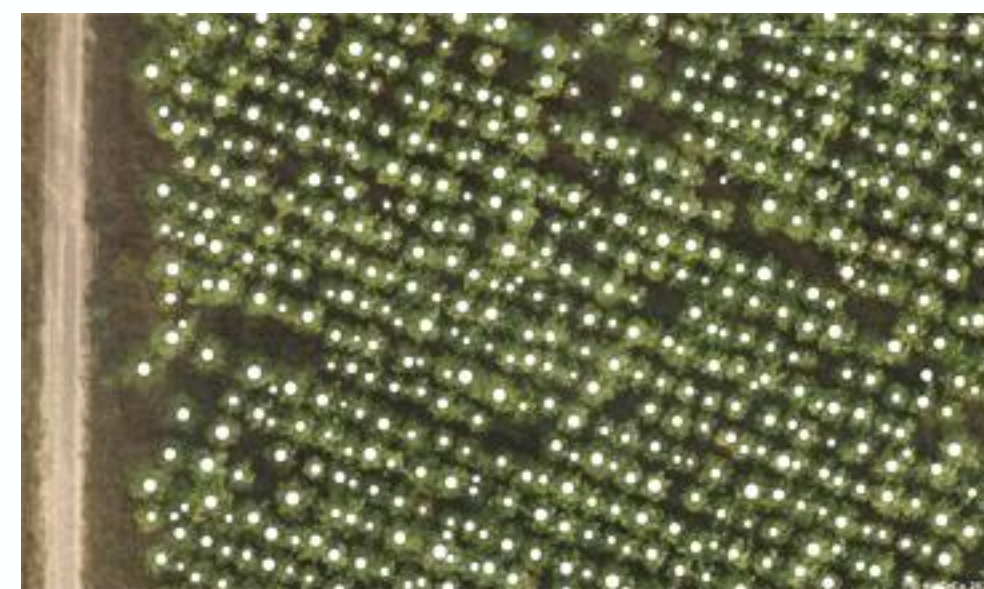
Drone-assisted imagery for forest management

PARTNERS :

- Sylgeco (Company)
- BIOGECO (Laboratory)
- ETF Nouvelle-Aquitaine (Association)

Observation: diseased specimens diffuse a specific "color" light

Solution: using a professional drone with a multispectral sensor



Who is Xylofutur ?



Some projects sealed but Xylofutur



Project WOODSEER

Characterisation of wood upstream of the forestry and timber industry in the context of inventory, log trade and primary processing

PARTNERS :

- SILVA (Laboratory)
- Georgia Tech Lorraine (Laboratory)
- ONF (National Body)
- LORIA (Laboratory)
- LIRIS (Laboratory)
- Foret et Bois de l'Est (Company)

Solution: providing detailed information on the nature, location and dimensions of internal defects in an automated manner (AI and machine learning)

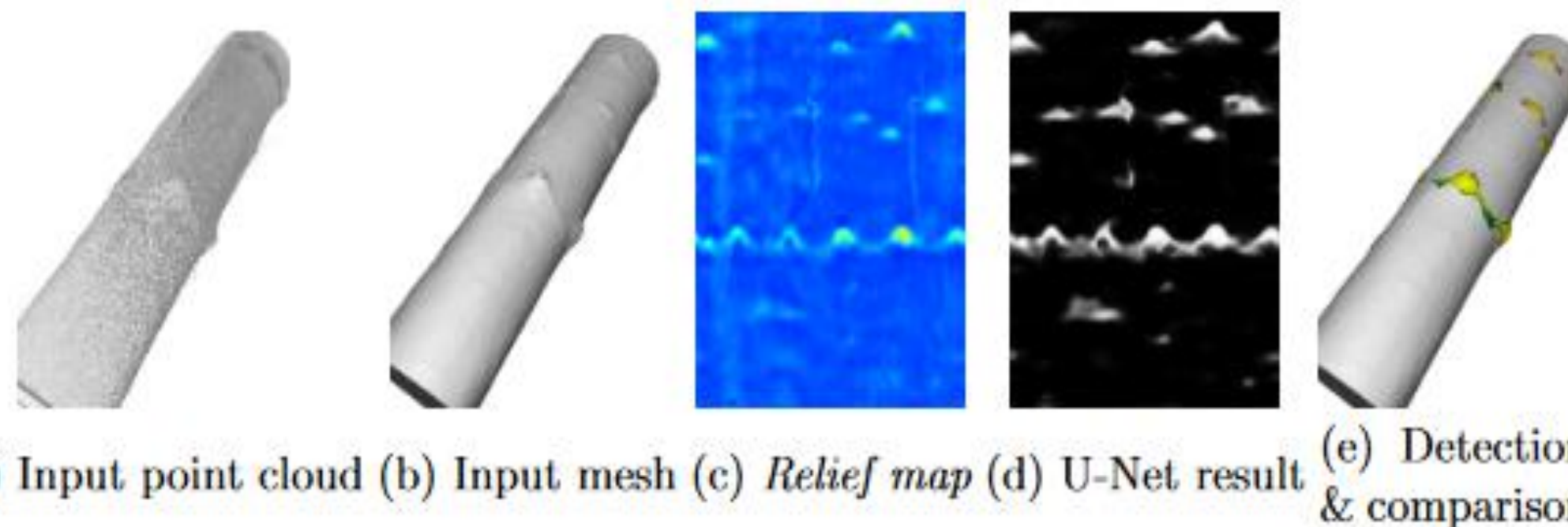


Fig.1: Overview of the proposed method: input LiDAR 3d points (a) and its reconstructed mesh (b) are used to construct the relief map (c) which is exploited in U-Net (d). The defects are segmented and compared to ground truth (e).



Who is Xylofutur ?



Some projects sealed but Xylofutur



Project BIOREDI

Biobased glue made of tannin for wood-based products

PARTNERS :

- Werzalit (Company)
- GDS Composite (Company)
- FORESA (Company)
- FCBA (Technical Center)
- Distillerie Vinicole du Blaye (Company)

Solutions :

Tanin from wine production residue



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

The EGURALT project is co-financed by ERDF funds within the framework of the Interreg SUDOE program.

 @eguralt

 @Eguralt-EU

 @Eguralt

www.eguralt.eu

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

PROJECT SUMMARY

EGURALT: “Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area”, is a European project that is part of the Interreg Sudoe programme...

€
FEDER
1.011.562,20

02/11/2020 –
30/04/2023

GENERAL OBJECTIVE: To make possible the application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area, thus contributing to the global fight against climate change by promoting the use of natural materials from sustainable and renewable sources



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

PROJECT SUMMARY

The project beneficiaries are multidisciplinary in nature:

1

Associations for timber construction promotion

2

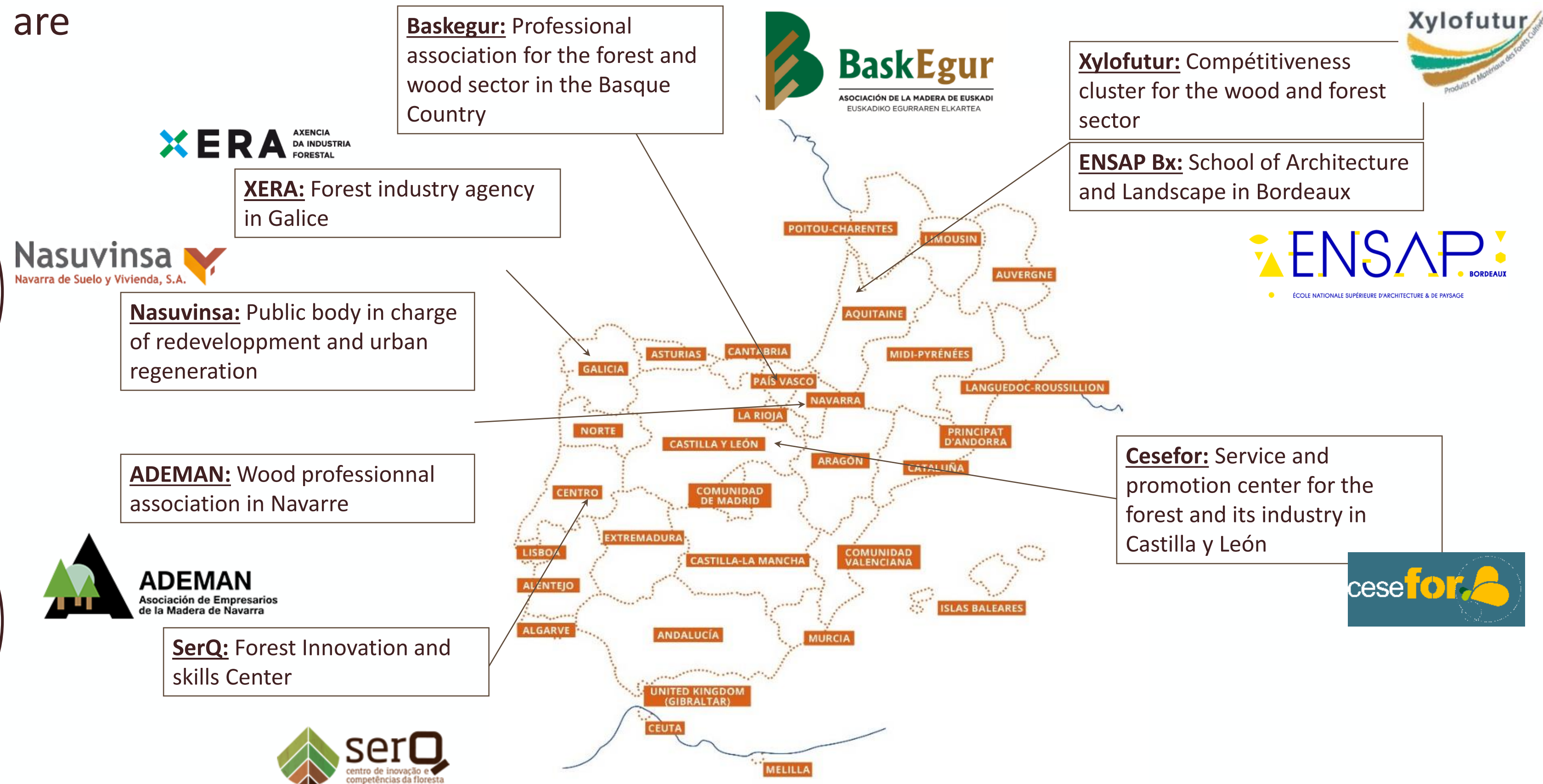
Research centers

3

Professional Associations

4

Teaching institutions

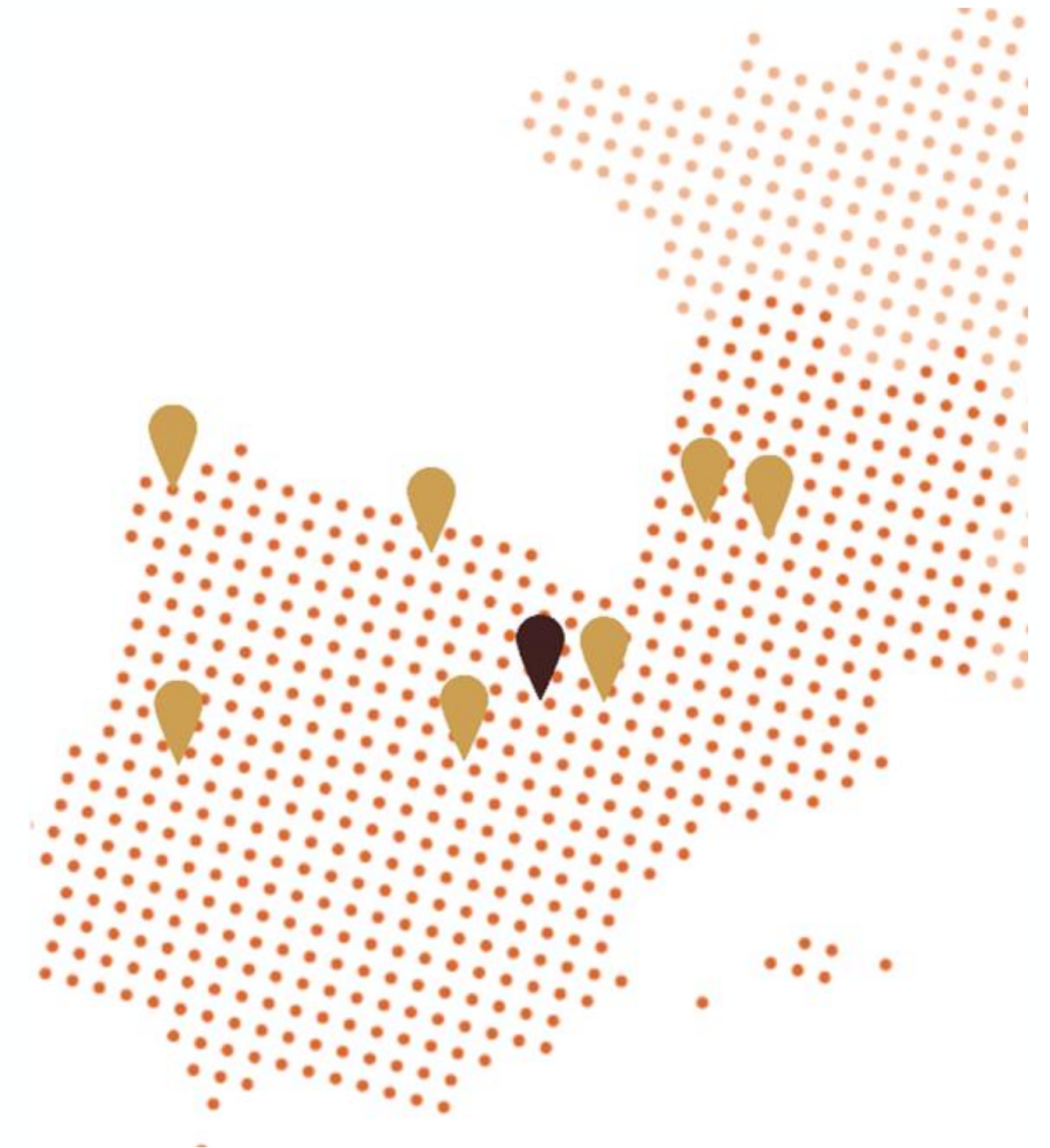


PROJECT SUMMARY

EGURALT is looking for new ways of **building in mid-and-high-rise with timber** in the SUDOE area

The main contributions will be:

- **Exchange of knowledge** between technological poles, public authorities and industry through stakeholder tables, study visits...
- Application testing of **new products / processes** and dissemination through workshops with industry (especially in SMEs) to improve the implementation of new solutions with higher added value in their portfolio.
- **Capitalization of knowledge** through training courses for wood advisors in the construction industry, awareness among the public and public authorities and international positioning through networks.



PROJECT SUMMARY

GT. 1 Diagnosis, exchange of knowledge and study of opportunities

GT. T1 Project Management

GT. 2 Experimentation of new processes, products and technologies for optimizing the use of wood in construction

GT. T2 Project Communication

GT. 3 Dissemination, capitalization of knowledge and awareness of the change of paradigm towards sustainable wooden construction

GT. T3 Monitoring and evaluating the project

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

PROJECT SUMMARY

EGURALT aims to respond to the scarce knowledge of the potential of the timber sector for medium height construction and its added value through strategies of dissemination and promotion of the advantages associated with the use of wood and of the existing technologies at international level and available in the Sudoe area in particular, for the manufacture of engineered wood products for construction. **Project results:**

1

Guide to timber construction

2

Definition of an interdisciplinary training module

3

New pre-industrialization processes for floor slabs from local species

4

New social housing promotion processes

5

New products and technologies

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

FOCUS on WP1

WP1: Diagnosis, exchange of knowledge and study of opportunities

A1.1: Organization of transnational working groups of actors for the exchange and identification of opportunities

A1.2: Identification, analysis and study visits of reference experiences in the field of mid-rise wood construction

A1.3: Survey on the perception of wood construction in the SUDOE area

A1.4: State of the art of wood construction in the SUDOE area

A1.5: Elaboration of a guide of wood construction in the SUDOE region for the dissemination of the results

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

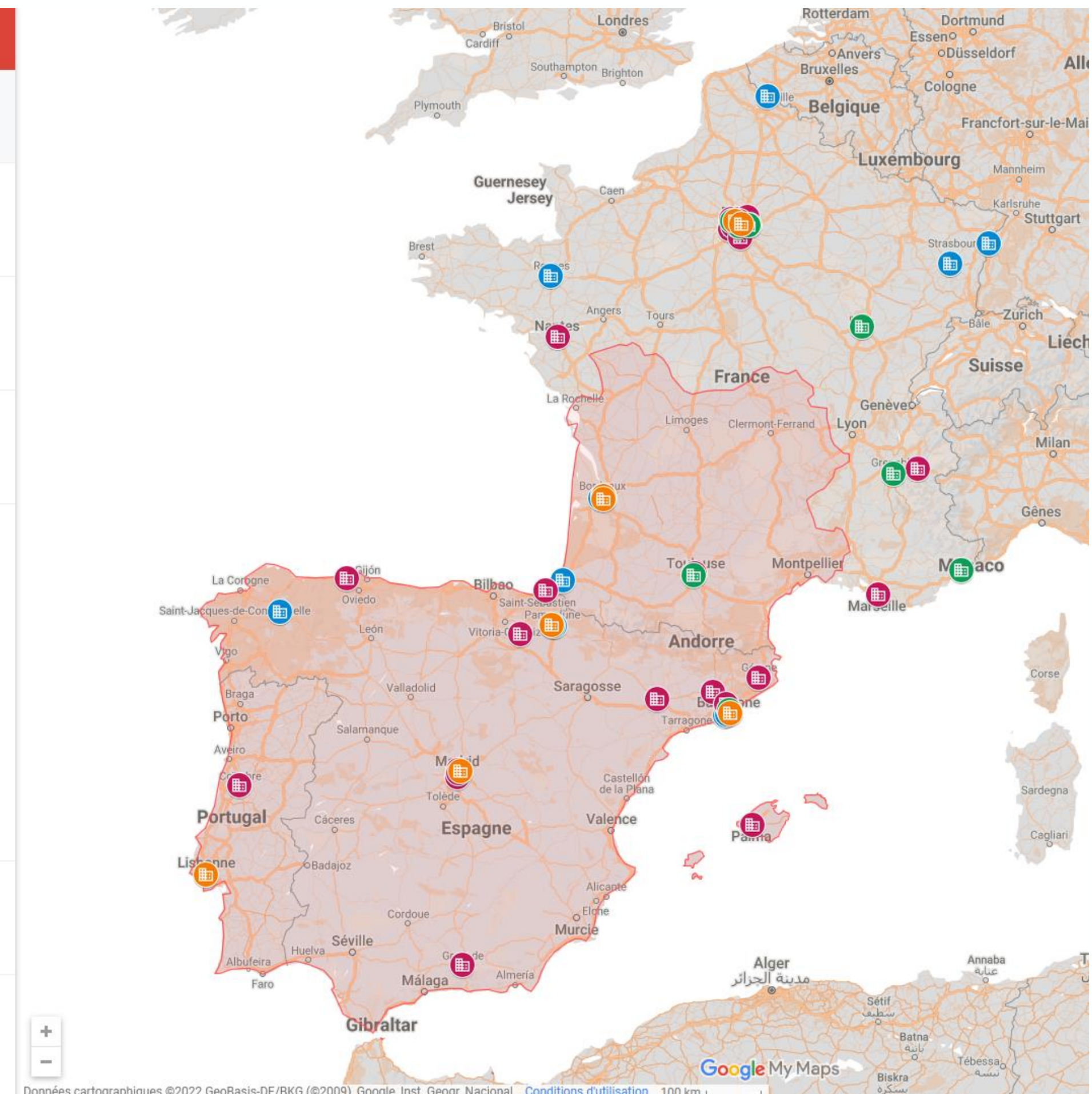
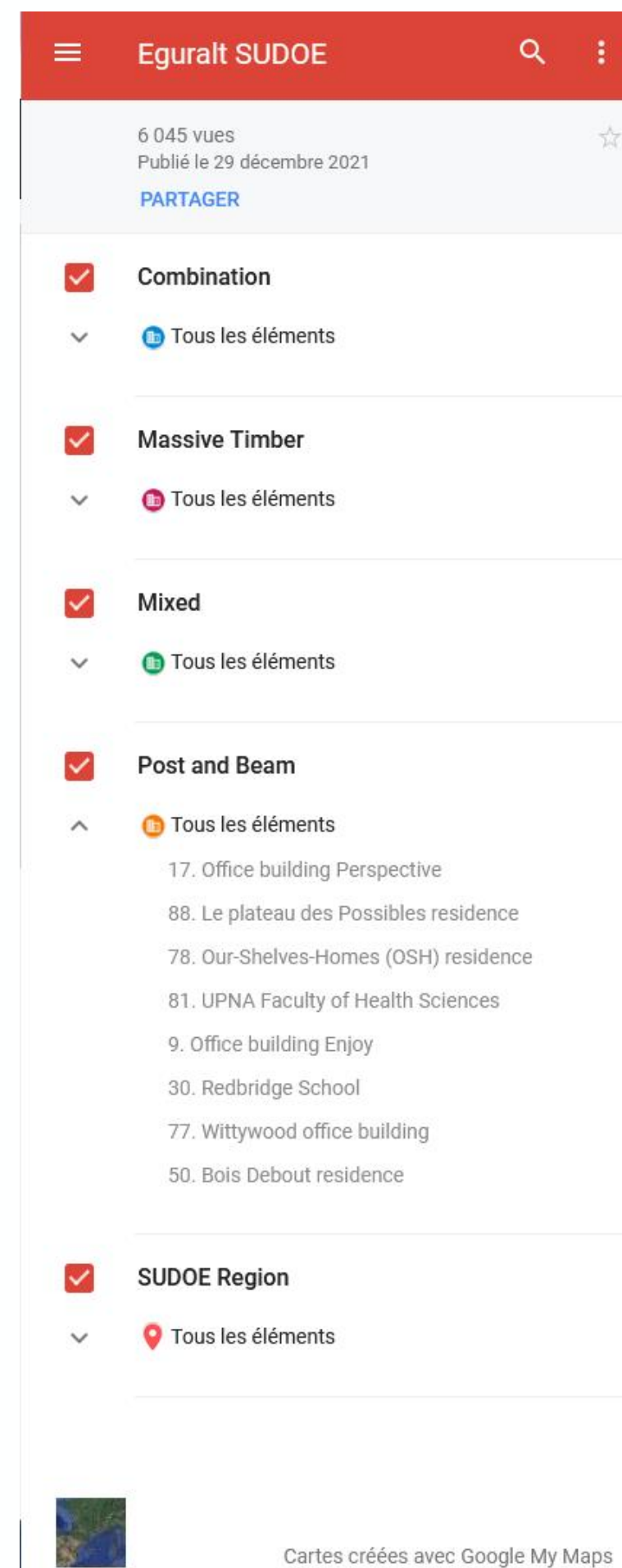
Identification of mid-rise and high-rise timber constructions FR, ES, PT

GOOGLE MY MAPS

<https://www.google.com/maps/d/u/0/viewer?mid=1TIRA8VkRVRmfJl-ri6eSo0keJ63G655B&ll=44.815557546721976%2C-0.5119131439729063&z=14>

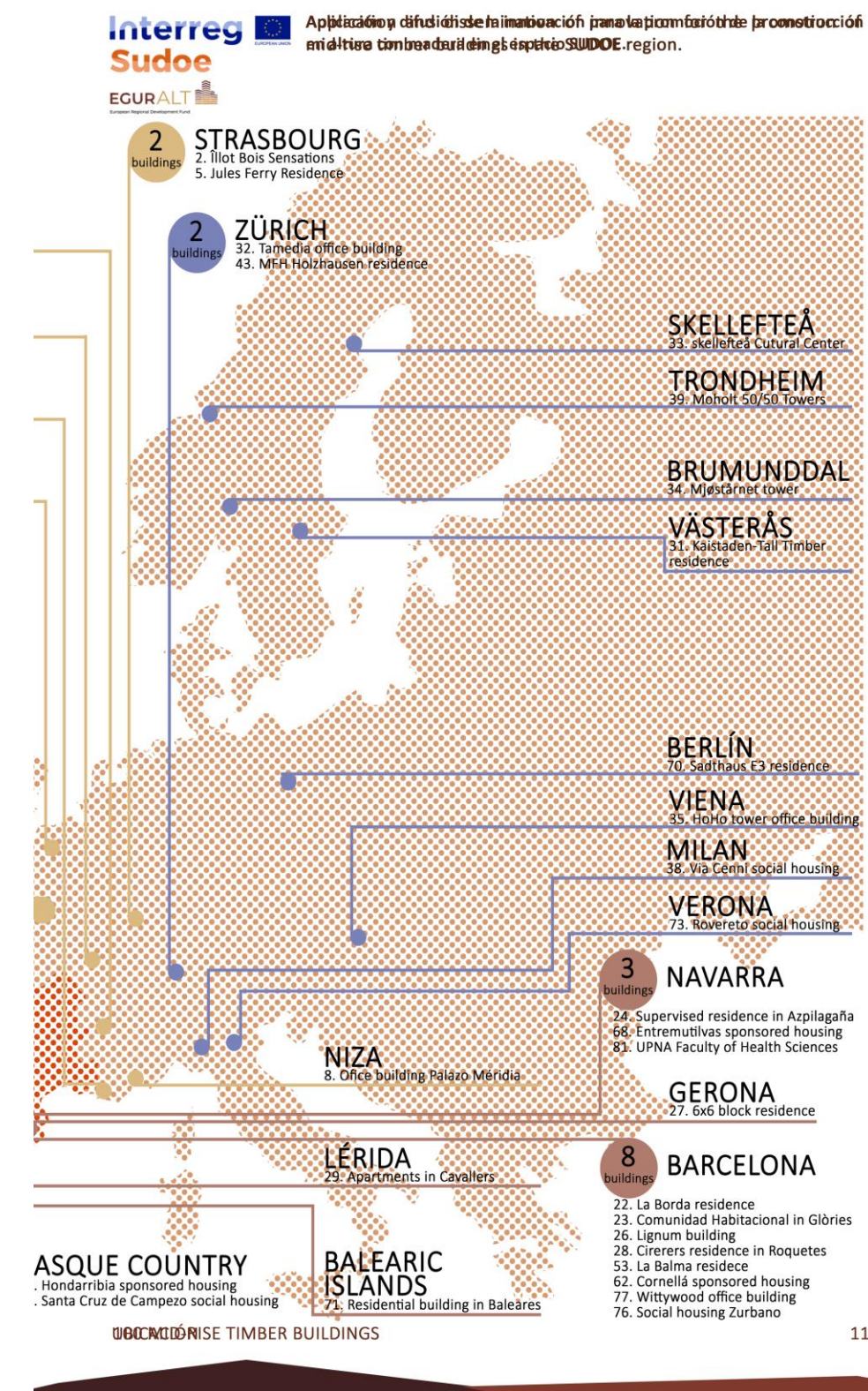
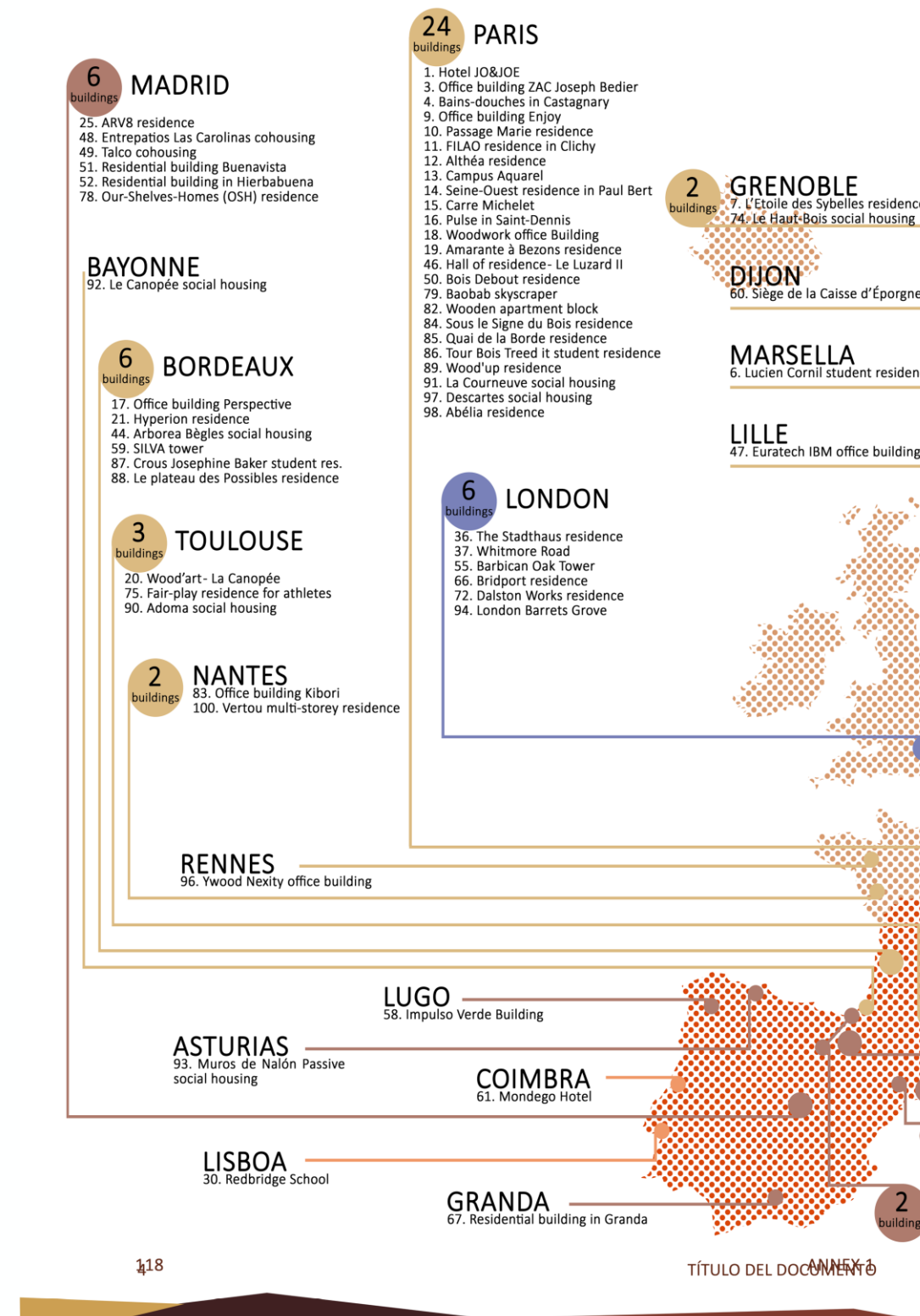
- Bibliographic research
- Tracking of current projects (news, specialized press, social networks, etc.)
- Exchanges with architects and builders

→ Possibility to add unidentified projects



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Identification of 100 wooden midrise building in the world



Identification of 100 wooden midrise building in the world

Interreg Sudoe Aplicación y difusión de la innovación para la promoción de la construcción en altura con madera en el espacio SUDOE.

EGURALT

2006

MFH Holzhausen residence

SWISS Steinhausen Floors 7
Architect: Scheitlin-Syfrig Residencial

It is the first six-storey timber-framed residential building to be constructed in Switzerland. The building contains two commercial premises and nine residential units. The basement and the timber core are made of reinforced concrete. The next five floors and the penthouse are constructed of timber frame.

Exterior view of the building:
<https://n9.cl/wm04r>

2008

Sadthaus E3 residence

GERMANY Berlin Floors 7
Architect: Kaden Klingbeil Residencial

This 12.50x13.90 metre building combines wood and concrete in its structure. The concrete, for fire protection reasons, appears in the party wall, in the installation cores and in the staircases. In addition, the floor slabs have a mixed system of wood and concrete, as a layer of concrete is poured on top of the CLT panel. These slabs are supported by GLT posts and beams. What is striking about this building is that, despite the fact that it is made of wood, this material is hardly visible anywhere. This is due to the strict German fire regulations.

Building main entrance from Esmarchstraße.
Plataforma Arquitectura

2009

The Stadthaus residence

UK London Floors 9
Architect: Waugh Thistleton Architects Residencial

The tower is a cellular structure with apartments in a honeycomb pattern around a central core. At the time of its construction, it was the tallest residential building built with CLT panels. The panels are used as walls, floor slabs as well as for stair and elevator cores. The building was completed in 49 weeks, saving an estimated five months compared to concrete construction. Only eight weeks were required to assemble the structure.

Aerial view of the finished building
Will Pryce <https://n9.cl/cagpy>

2011

Santa Cruz Campezo social housing

SPAIN Santa Cruz de Campezo Floors 5
Architect: Otaduy Aristizabal Residencial

The site where this building is located has the particularity of containing an archaeological remains of the town wall. This conditions the project, which opts to build a first level of concrete and steel posts to leave the archaeological remains free. From this level onwards, the rest of the floors use CLT panels as structural elements.

Main façade:
Egoín <https://n9.cl/udzpz>

Bridport residence

UK London Floors 8
Architect: Karakusevic Carson Architects Residencial

This residential building chose to use timber for the structure as a matter of weight limit. One of the city's main drainage pipes runs underneath the building. A massive timber structural system was chosen using CLT panels in the walls and floors and even in the stair and lift cores. A 55 mm concrete layer is poured over the floor slabs to improve the acoustic and fire performance of the CLT panels.

Exterior view of the building.
Baumad <https://n9.cl/vpzz8u>

2012

Forté apartments

AUSTRALIA Docklands Victoria Floors 10
Architect: Lend Lease Residencial

At the time of its construction, it was the tallest timber-framed residential building in the world at 32.17 metres. The entire structure is made of CLT panels following the massive timber structural system.

Exterior view of the building.
Sciffre <https://n9.cl/zwcjy>

UBC Earth Systems Science building (ESSB)

CANADA Vancouver Floors 6
Architect: Perkins+Will Cultural

This L-shaped building is organised in two wings connected by a large atrium space. The south wing contains laboratories, offices and teachers' offices. This wing is built with a traditional concrete structure. The north wing is the one with the wooden structure combining GLT pillars and beams, CLT panels and wood-concrete composite panels. This is the area where the classrooms are located.

Exterior view of the building.
Martin Tessier - Plataforma Arquitectura.
<https://n9.cl/2g6wo>

(...)

2021

Cornellá sponsored housing

SPAIN Cornellá de Llobregat Floors 6
Architect: Peris+Toral Arquitectes Residencial

At the time of construction, it was the largest residential building in Spain built with a wood structure based on CLT panels. It is formed by 3,60x3,60 grid which creates the living spaces. The ground floor houses municipal equipment and commercial premises, the rest of the floors house dwellings. From the first floor upwards, the structure is completely made of wood and the volume of wood used is kept to a minimum. CLT panels are only used in the floor slabs and facades. The interior structure is made of glulam beams and posts. This structure is based on a reinforced concrete slab.

Entrance façade on Avenida de la República Argentina.

6x6 block residence

SPAIN Gerona Floors 6
Architect: Bosch Capdeferro Residencial

The project proposes the design of a 35 apartment block based on program flexibility criteria and seeking an important reduction of the carbon footprint throughout the life cycle of the building. The use of cross-laminated timber panels (CLT) for the construction of the volume above ground raises a bearing wall building typology. CLT panels are used both for slabs and walls. There are spans of maximum six meters long. Even the stairs and elevator core is made of CLT panels. The ground floor has been built with a 35 cm thick solid reinforced concrete slab. At the east side of the building there are two steel gantries between the ground and the first floor.

Main Façade from Tomás Arterias Artau st.

Cirerers residence in Roquetes

SPAIN Barcelona Floors 8
Architect: Celobert cooperativa Residencial

The building is located in the Roquetes neighborhood in Barcelona. It has 32 flats distributed over 8 floors. It is built on a plot of land owned by the city council and given to the Sostre Cívic cooperative for self-management. A unique feature of the building is that each floor has common areas that house laundry rooms, storage, bicycle parking, a study area, and a space for leisure activities.

Building seen from Dones de Nou Barris square.
Celobert cooperativa <https://n9.cl/9ko3r>

2022

SILVA tower

FRANCE Bordeaux Floors 18
Architect: Studio Bellecourt Mixed

The project consists of a set of three buildings that include housing, offices, commercial premises and a parking lot. The tallest building, the residential building, is 50 meters high and uses wood as its main material. The floor slabs are made of CLT panels obtained from local forests. The bracing of the structure is made by triangulations, visible on the facade, also made of wood. In this case, these structural elements are made of glulam.

Residential building infographics:
Bellecourt architectes <https://n9.cl/bv20s>

Future projects

Office building T3 Bayside

CANADA Toronto Floors 10
Architect: 3xn Architects Offices

The project consists of two buildings with a total of 45,000 m2. The buildings will house different uses such as offices, commercial premises, community spaces... The structure is designed in wood using laminated wood posts and beams and CLT panels in the floor slabs.

Building infographics.
Urban Toronto <https://n9.cl/9ko3r>

Baobab skyscraper

FRANCE Paris Floors 35
Architect: MGA Mixed

This project aims to be the tallest timber-framed building in the world. The 35-storey tower will be located in Paris. It is a building with a mix of uses inside: student residence, commercial premises, social housing and a bus station on the ground floor.

Building infographics.
Ecoconstrucción <https://n9.cl/4u1n6>

Comunidad Habitacional residence in Glòries

SPAIN Barcelona Floors 8
Architect: Cierito Estudio Residencial

Comunidad Habitacional is a 300 social housing Project consisting of eight floors built with wooden structure that combines CLT panels with glulam beams. The project is in "Illa Glòries" a urban block limited by Gran Via, Las Glòries square, "Els Encants" market and the National Theater of Catalonia.

Exterior infographics from las Glòries square.
Cierito Estudio <https://n9.cl/95gex>

Residential building in Hierbabuena

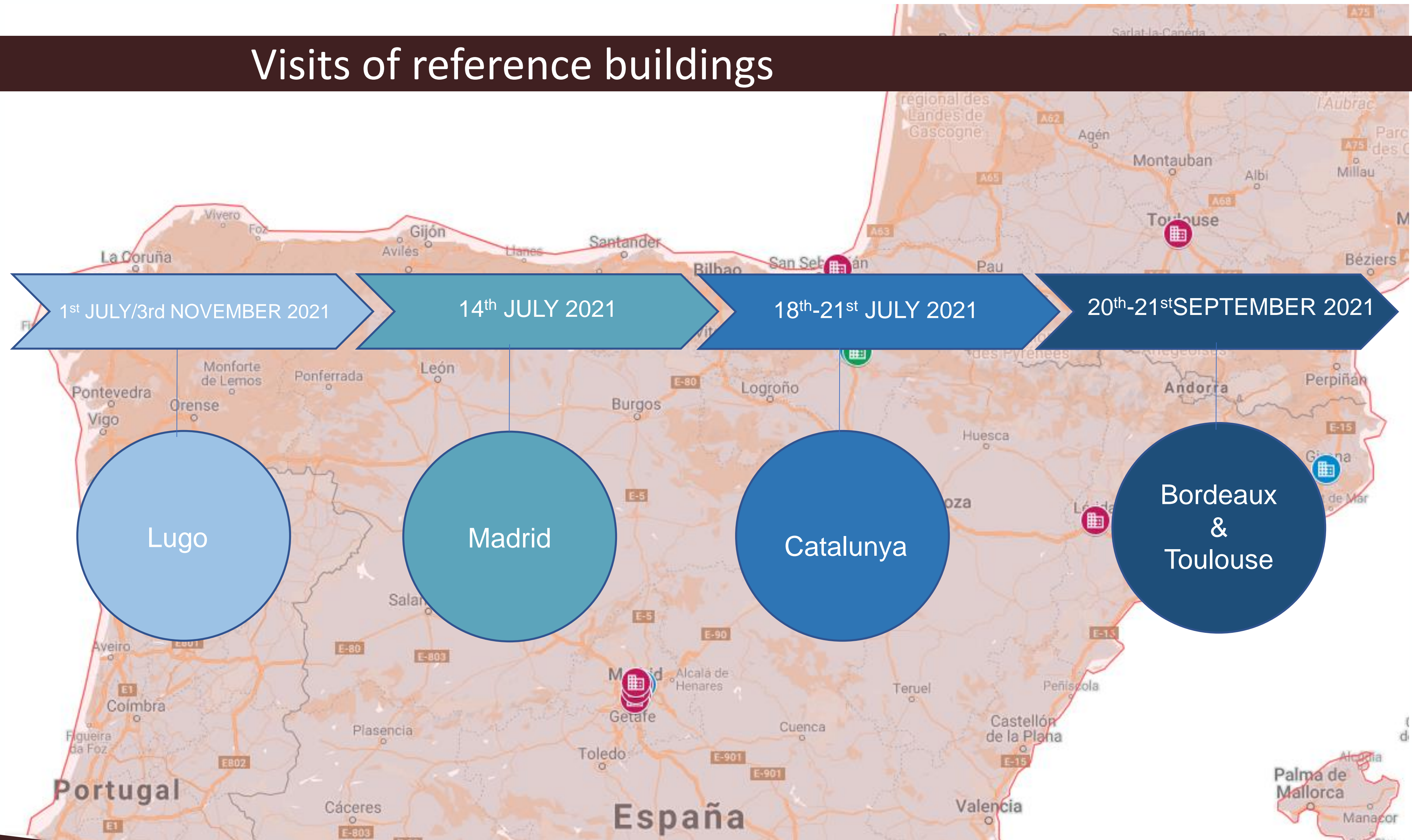
SPAIN Madrid Floors 5
Architect: b720 Fermín Vázquez Arquitectos Residencial

It is a building designed with passive-haus criteria located in the district of Tetuán in Madrid. A wooden structure based on CLT panels was chosen in search of sustainability. In addition, a ventilated façade was chosen, also made of wood. Eight dwellings, storage rooms and communal areas are distributed over its five floors.

Residential building infographics:
Bellecourt architectes <https://n9.cl/bv20s>

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings

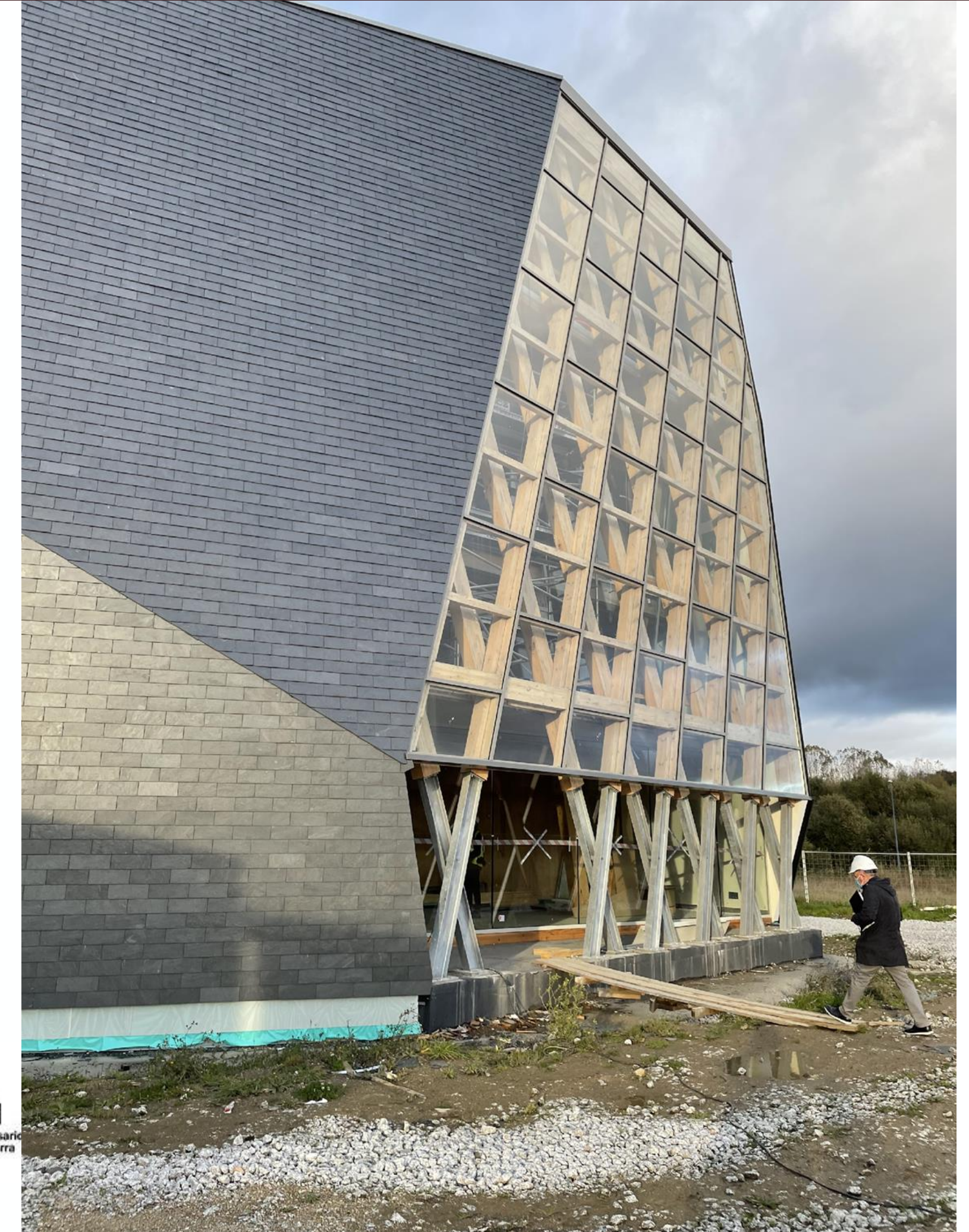
Lugo



“Impulso Verde” building, in Lugo. LIFE “Lugo Biodinámico”

5 storeys – 19m

* *European funding LIFE Project²*



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings

Catalunya



OSH Residence – 5 storeys – 14m

Buenavista Residence – 5 storeys – 16,3m

ARV8 Residence – 7 storeys – 23m

Share Residence La Carolinas – 4 storeys – 16,6m

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings

Catalunya



6x6 block Residence in Girona— 6 storeys — 22m
85 VPP Residence in Cornellà
Social Housing la Borda— 7 storeys — 26m
La Balma Residence — 6 storeys — 23m
Wittywood Office — 5 storeys — 22m



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings

Bordeaux



Hyperion Tower – 16 storeys – 57m
 Perspectives Office – 7 storeys – 30m
 Le plateau des Possibles – 5 storeys – 15m
 Arborea apartments – 5 storeys – 17m
 CROUS-Joséphine Baker – 4 storeys – 14m

Xylofutur- ENSAPBx-Cesefor-Uva

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Visits of reference buildings

Toulouse



Wood'Art Appartments and Commercial center – 10 storeys – 36m

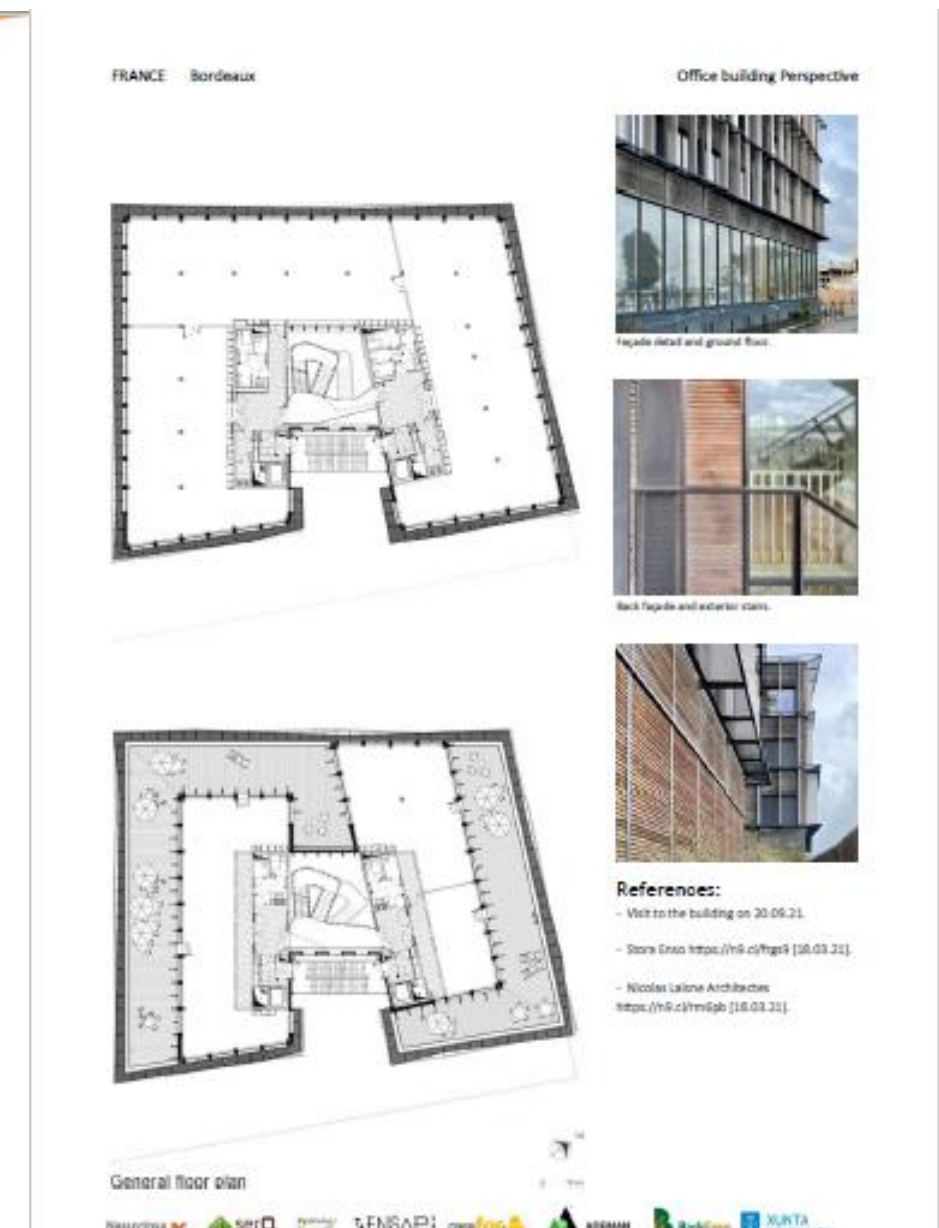
Social Housing Adoma – 4 storeys – 14m

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Technical Datasheet of the visited buildings

28

Technical
Datasheets



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Detailed analysis of 7 buildings



20. WOOD'ART - LA CANOPÉE
FRANCE – Toulouse - 2022



21. HYPERION RESIDENCE
FRANCE – Bordeaux 2022



22. LA BORDA RESIDENCE
SPAIN – Barcelona 2018



58. IMPULSO VERDE BUILDING
SPAIN – Lugo 2021



53. LA BALMA RESIDENCE
SPAIN – Barcelona 2021



62. CORNELLÁ SPONSORED HOUSING
SPAIN - Cornellá de Llobregat 2021



77. WITTYWOOD OFFICE BUILDING
SPAIN – Barcelona 2022

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Detailed analysis of 7 buildings

1. General Informations
2. Technical Informations
3. Other Informations
4. Durability

GENERAL INFORMATION

Building use: **Residential**

Height and floors			
26 m	Height	7	Floors above ground
		0	Basement floors
Surfaces			
3.000 m ²	Built-up area	607 m ²	Ground floor area
28	Dwellings	m ²	Dwelling average area
Economical aspects			
2.460.000 €	Budget (no taxes)	820 €/m ²	Budget / built-up area
	Timber structure budget		

22. LA BORDA RESIDENCE

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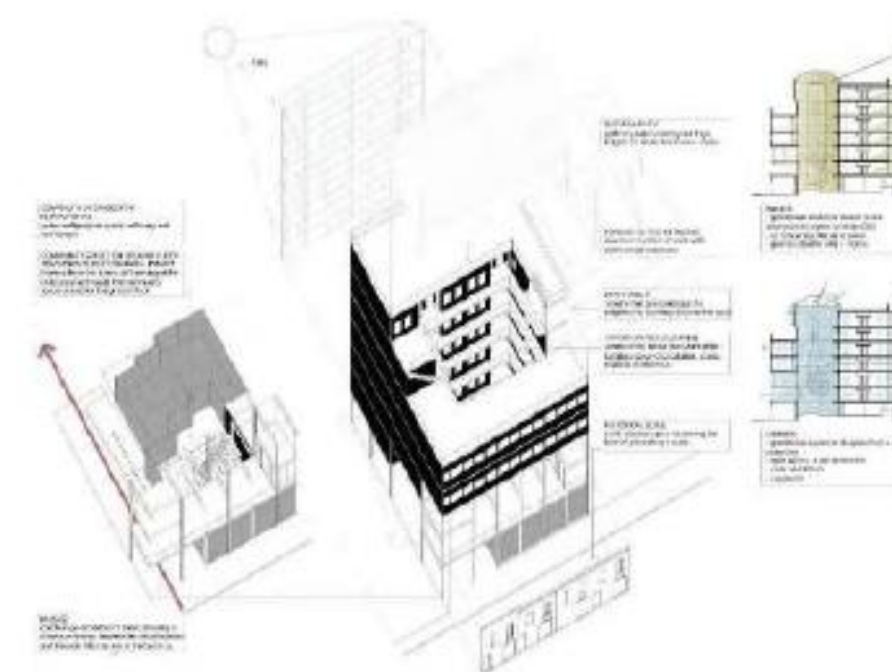


Fig. 7 Climatic axonometry. LACOL SCCL

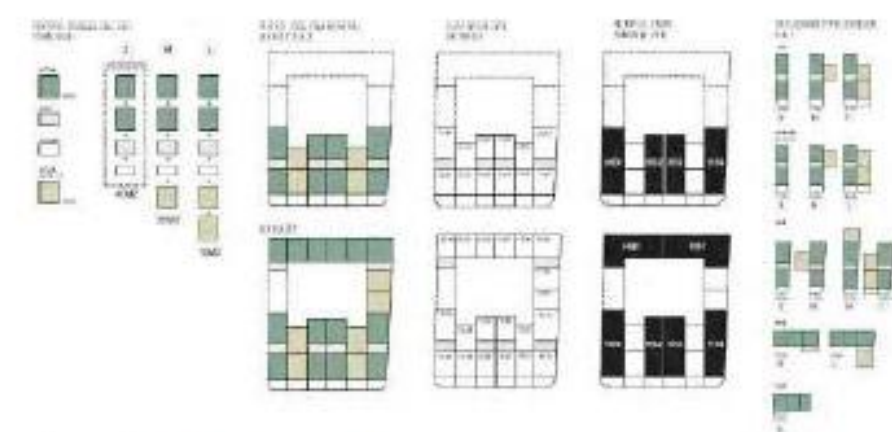


Fig. 6 Housing typology. LACOL SCCL

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ANNEX 3

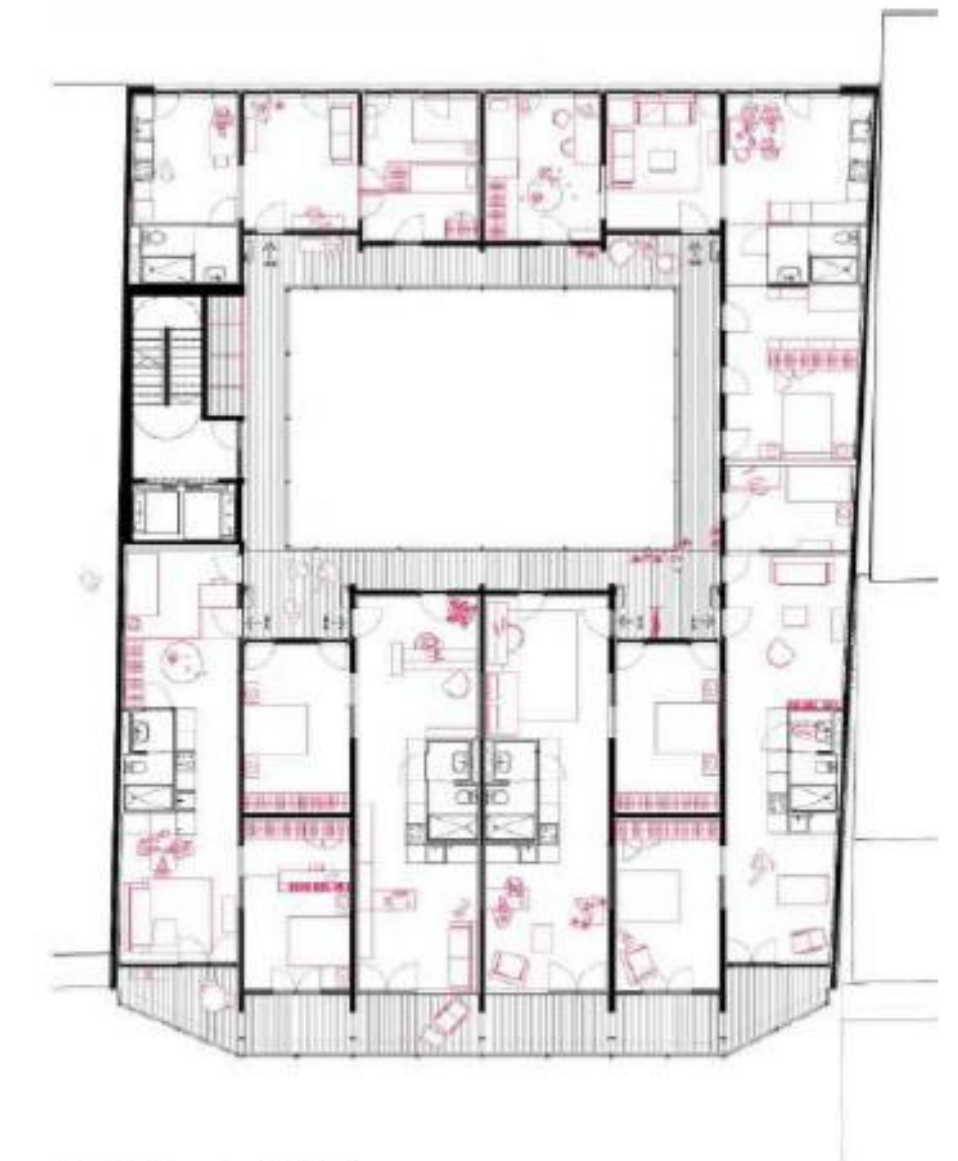


Fig. 12 Third floor plan. LACOL SCCL

22. LA BORDA RESIDENCE

339

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Detailed analysis of 7 buildings

1. General Informations
2. Technical Informations
3. Other Informations
4. Durability

TECHNICAL DATA

Structural system:

Combination

Bracing system:

CLT walls

Floors above ground:

1 Concrete floor

6 CLT floors

Timber products used:

- 5-layer CLT panel 120

mm thick on slabs

- 3-layer CLT panel 100

mm thick on walls.

- 5-layer CLT panel 120

mm thick on staircase.

- GLT posts

- GLT beams

STRUCTURE SOLUTION

The structure of this building is mainly timber based, combining glulam posts and beams, and CLT walls and floor slabs. Concrete is used just on ground floor posts and partially on second floor.

Stiffness of the whole structure is achieved using CLT walls along the entire floor and CLT walls on the communication core.

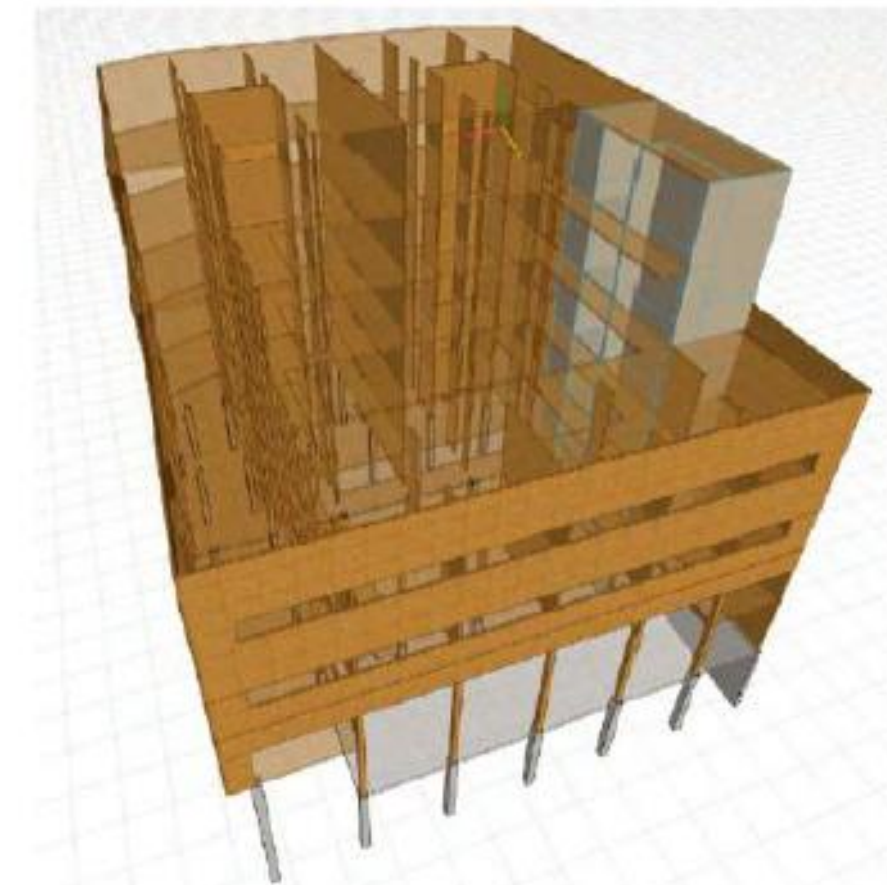


Fig. 27 Structure volumetry. Miguel Nevado.

22. LA BORDA RESIDENCE

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ANNEX 3

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ANNEX 3



Fig. 33 Several pictures of the construction process during structure phase. LACOL SCCL.

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Detailed analysis of 7 buildings

- General Informations
- Technical Informations
- Other Informations**
- Durability

MISCELLANEOUS

Construction timing			
16 months	Entire building	6 weeks	Timber structure phase
Wind actions			
Terrain category IV	Area in which at least 15% of the surface is covered with buildings and their average height exceeds 15 m.		
Slenderness			
1,2	Entire building	2,3	Partial slenderness

22. LA BORDA RESIDENCE

339

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Detailed analysis of 7 buildings

- 1. General Informations
- 2. Technical Informations
- 3. Other Informations
- 4. Durability

SUSTAINABILITY

Timber specifications			
<i>Pinus radiata</i>	Specie	Basque Country (ES)	Origin
700 m³	Volume	0,29 m³/m²	Volume of wood per built-up area
		80 %	Percentage of structure made of wood
Transport			
630 km	Distance of transportation	18	Number of trucks needed
		No	Special transportation
CO ₂ benefit			
297 t	Embroidered CO ₂	-10 t	Transport CO ₂ emissions
		287 t	Potential CO ₂ benefit

22. LA BORDA RESIDENCE

361

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

FOCUS on WP1

WP1: Diagnosis, exchange of knowledge and study of opportunities

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Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Survey on the perception of wood construction

1

To the general population

- Residential Path
- Representation of the building materials
- Representation of wood construction
- Personal Data

Online Survey

Espagne = 413 answers
France = 380 answers
Portugal = 400 answers

1193
answers

2

To the inhabitants of wooden houses

- Same
- Evaluation of the housing

Online Survey + face to face discussion

Espagne = 56 answers
France = 58 answers

114
answers

Survey on the perception of wood construction

		In which kind of building would you like to live?	In which building would you <u>least</u> like to live?
South-West France	Representative sample Survey 1	Wood (51,3%) Concrete (38,7%) Steel (10%)	Steel (47,4%) Concrete (26,8%) Wood (25,8%)
	Representative sample Survey 2	Wood (46,6%) Concrete (43,1%) Steel (8,6%)	Wood (34,5%) Steel (34,5%) Concrete (29,3%)
Spain	Representative sample Survey 1	Concrete (76,5%) Steel (13,1%) Wood (10,4%)	Wood (63,9%) Steel (18,2%) Concrete (17,9%)
	Representative sample Survey 2	Wood (90,9%) Concrete (9,1%) Steel (0%)	Steel (59,3%) Concrete (39,3%) Wood (1,9%)
Portugal	Representative sample Survey 1	Concrete (76,3%) Wood (15,7%) Steel (8%)	Wood (53,3%) Steel (33,2%) Concrete (13,5%)

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Survey on the perception of wood construction

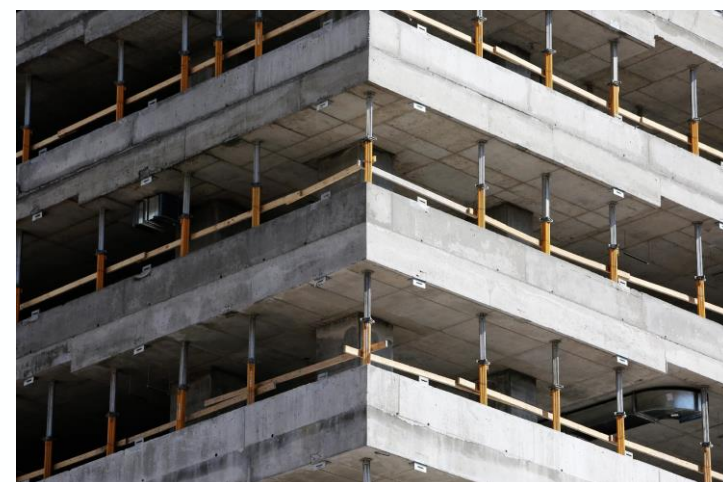
Concrete

+

- Lifespan
- Robustness
- Construction quality
- Security

-

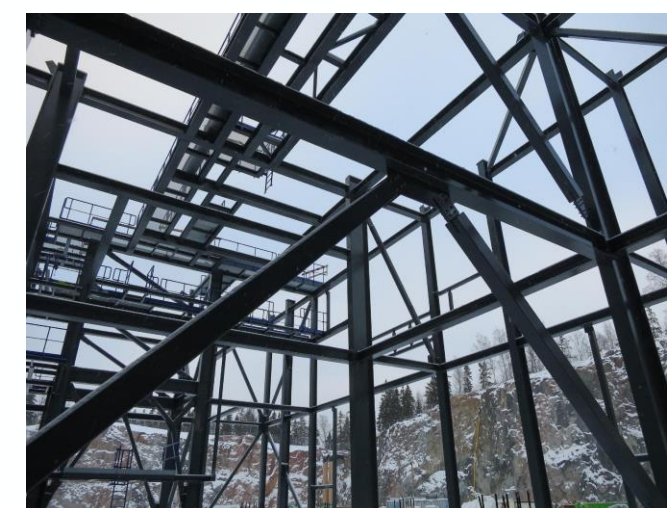
- Esthetics
- Construction quality
- Thermic comfort
- Sustainability



Steel

- Lifespan (S1)
- Security (S1)
- Robustness (S1-S2)

- Esthetics



Wood

- Esthetics
- Thermic comfort
- Sustainability

- Lifespan
- Security
- Robustness



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

FOCUS on WP1

WP1: Diagnosis, exchange of knowledge and study of opportunities

A1.1: Organization of transnational working groups of actors for the exchange and identification of opportunities

A1.2: Identification, analysis and study visits of reference experiences in the field of mid-rise wood construction

A1.3: Survey on the perception of wood construction in the SUDOE area

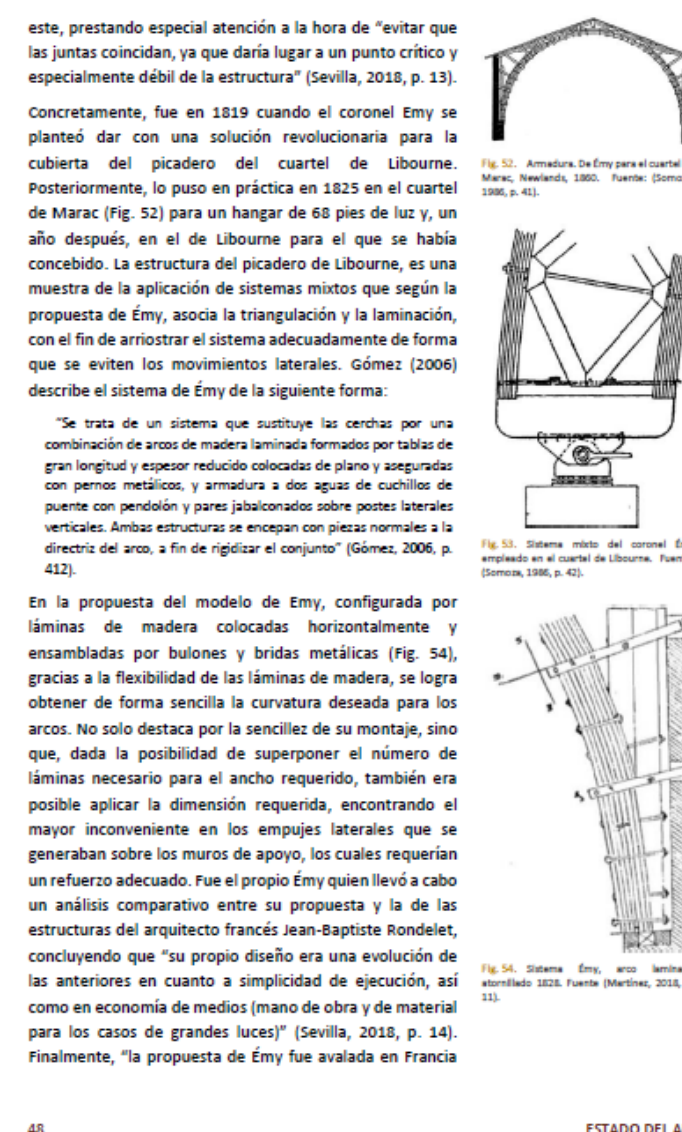
A1.4: State of the art of wood construction in the SUDOE area

A1.5: Elaboration of a guide of wood construction in the SUDOE region for the dissemination of the results

State of the art report on wood construction and the regulation limits

State of the art

- 1 - Evolution of construction techniques
- 2 - High-rise timber constructions
- 3 - The new materials
- 4 - Timber industry
- 5 - Structural timber products
- 6 – Structural typologies in high-rise buildings



State of the art report on wood construction and the regulation limits

Comparisons between French, Spanish and Portuguese standards and regulations

- **Visual and mechanical grading systems**
- **Structural design : ELU, ELS, vibrations**
- **Durability**
- **Fire reaction and resistance**
- **Acoustics**

State of the art report on wood construction and the regulation limits

Regulation limits

Comparison of the grading systems FR, ES, PT :

Visual grading

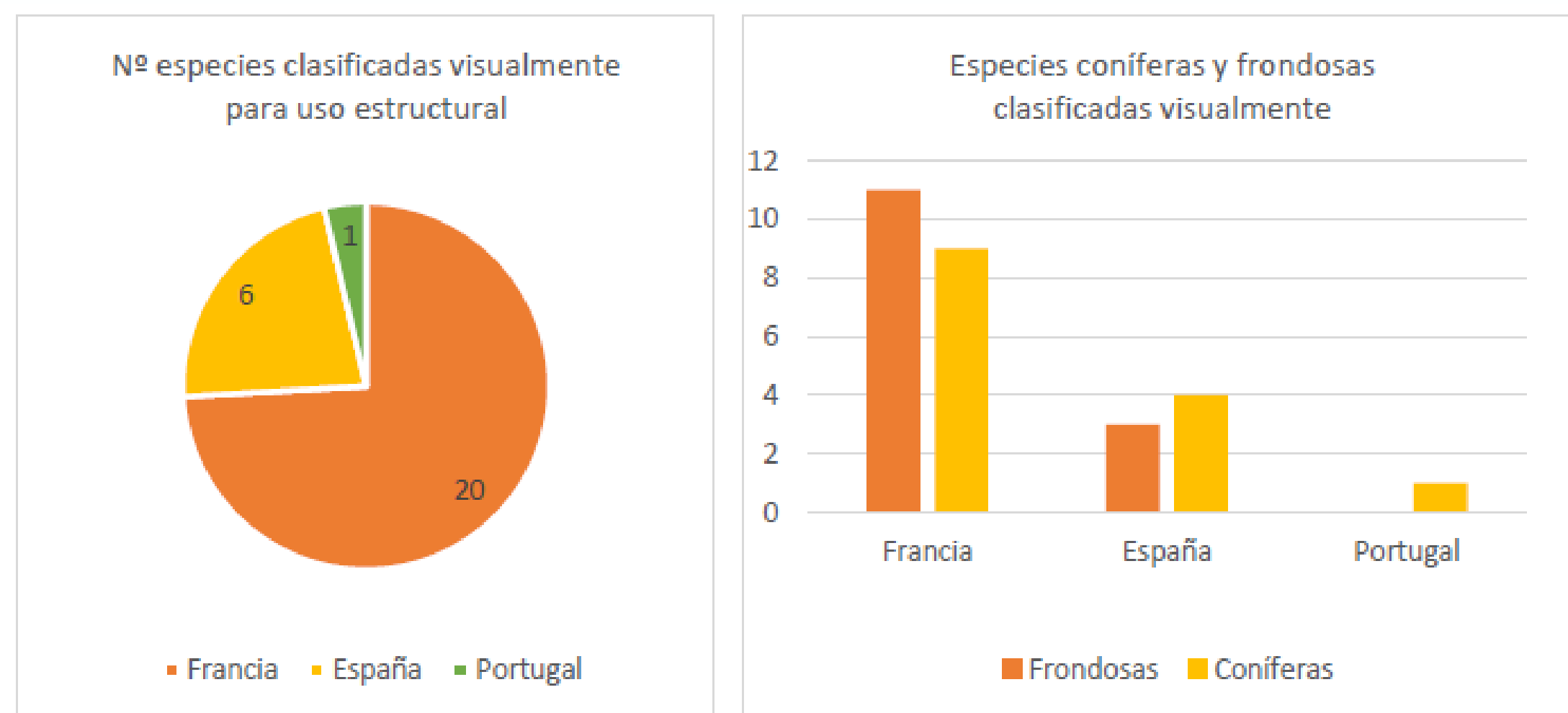


Fig. 102. Núm. de especies clasificadas visualmente para uso estructural (izq.) y distribución entre coníferas y frondosas por país (dch.). Fuente: elaboración propia.

Mecanical grading

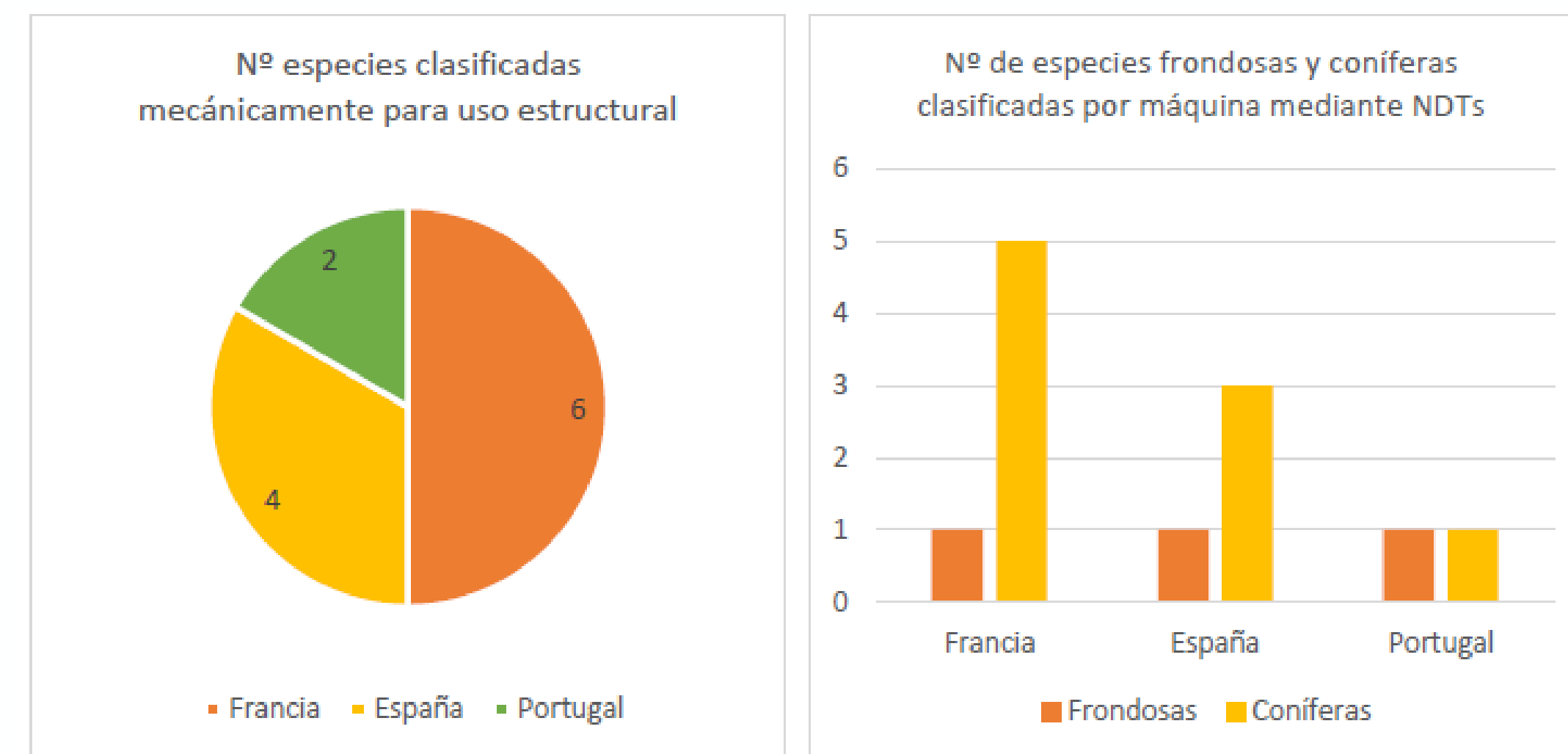


Fig. 104. Núm. de especies clasificadas por máquina (izqda.) y distribución entre coníferas y frondosas por país (dcha.). Fuente: elaboración propia.

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

FOCUS on WP1

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Product : Guide of wood construction in the SUDOE region

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Guide of timber construction in the Sudoe region

1. Trends and opportunities
2. Perception study
3. State of the art
4. Identification of 100 wooden midrise building in the world
5. Detailed analysis of 7 buildings
6. Case study of a prototype CLT building for social housing

Download the guide on the EGURALT website:
www.eguralt.eu



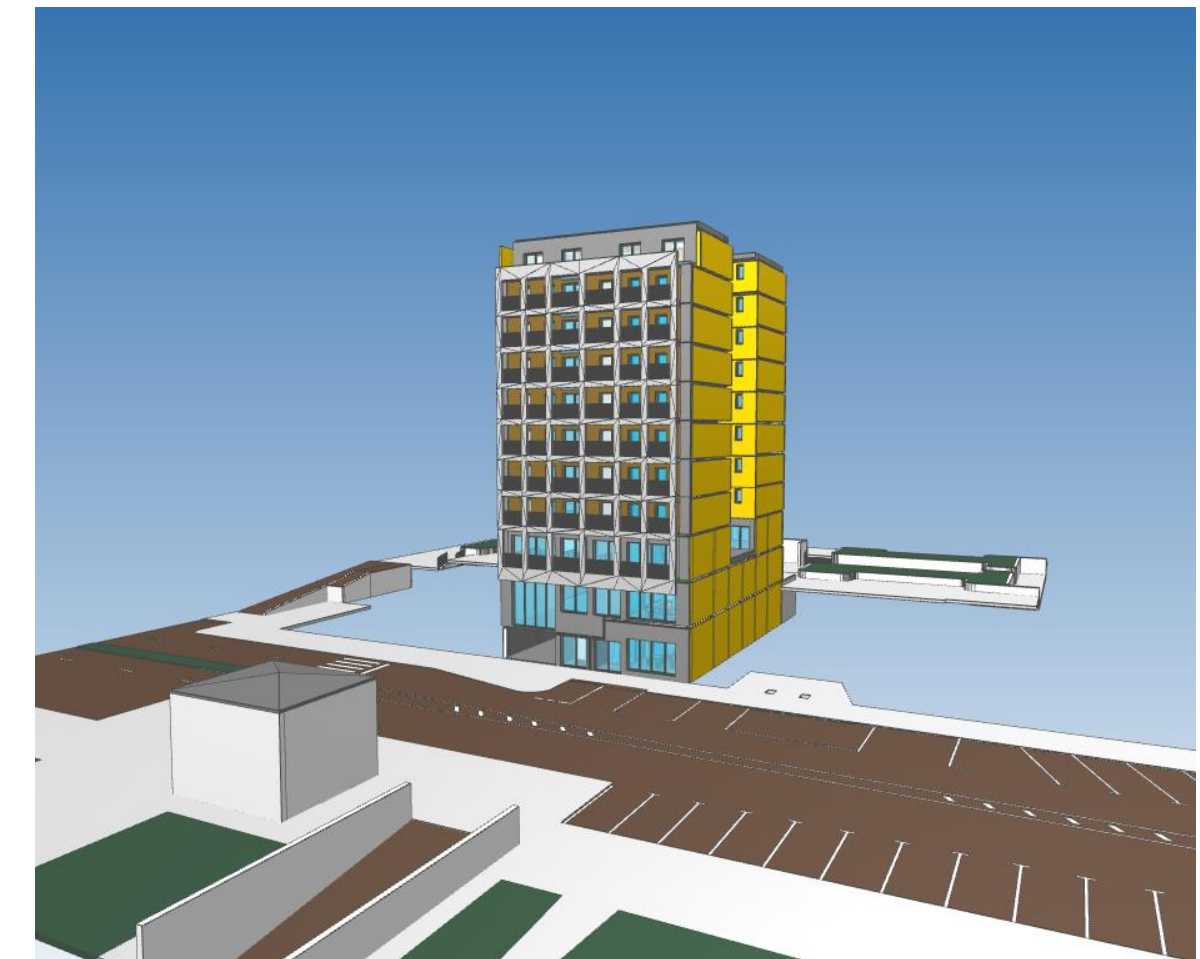
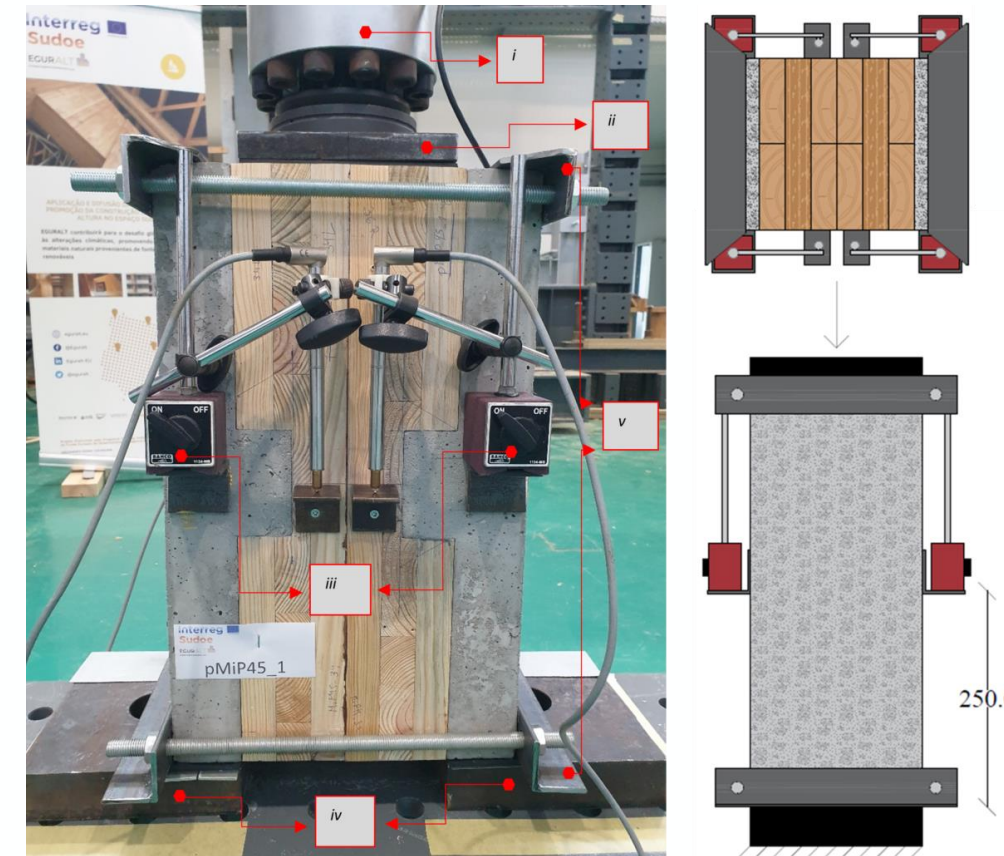
FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

A2.1: Experiments in public housing promotion

A2.2: Experimentation with pre-industrialization processes

A2.3: Experimentation of new products and technologies to optimize the use of wood in the construction of mid-rise buildings



FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

Exp 1 - Research and experimentation in green procurement processes

Exp 2 - Application of BIM (Building Information Modelling) technology in a social housing project

Exp 3 - CLT+concrete panel with local species - Assemblies

Exp 4 - CLT+concrete panel with local species - Local wood

Exp 5 - Wooden floor modules with local species

Exp 6 - Glued laminated timber from local hardwoods – Characterization of the wooden boards

Exp 7 - Glued laminated timber (glulam) from local hardwoods – Characterization of the beams

Exp 8 - Passive or semi-active thermal mass in timber-frame wall

Exp 9 - Solutions to improve the durability against subterranean termites and the fire reaction of CLT panels

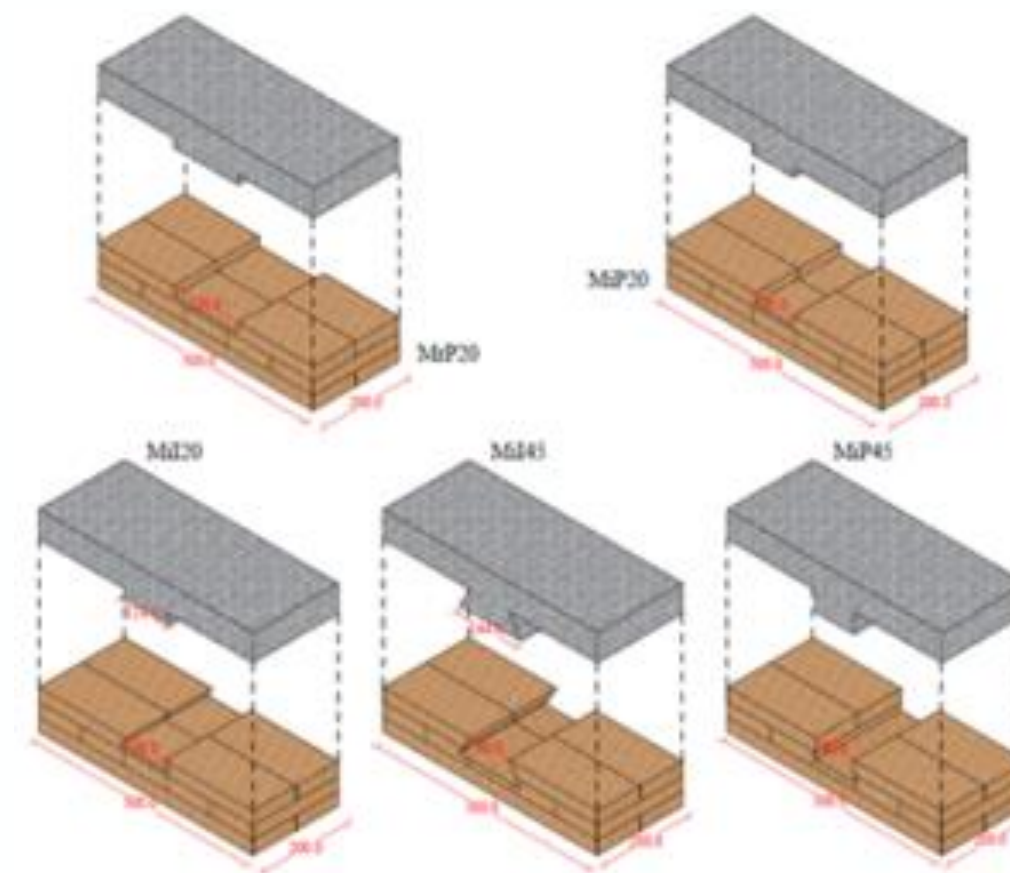
**Watch the
video on our
Youtube
channel !**

FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

Exp 3 - CLT+concrete panel with local species - Assemblies

- Species used: i) Maritime pine, ii) Radiate pine and iii) Scots pine;
- Notch configuration:
 - Depth of the notch: i) 20 mm and ii) 45 mm;
 - Length of the notch: i) 150 mm (reference) and ii) 90 mm;
 - Angle with axis: i) perpendicular and ii) inclined.
- Concrete type: i) in-situ, ii) prefabricated and iii) with steel fibres.

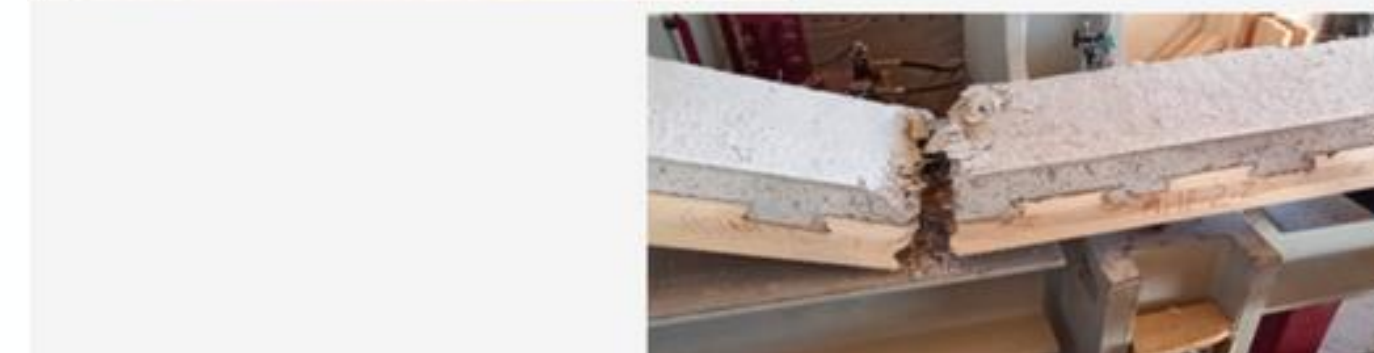
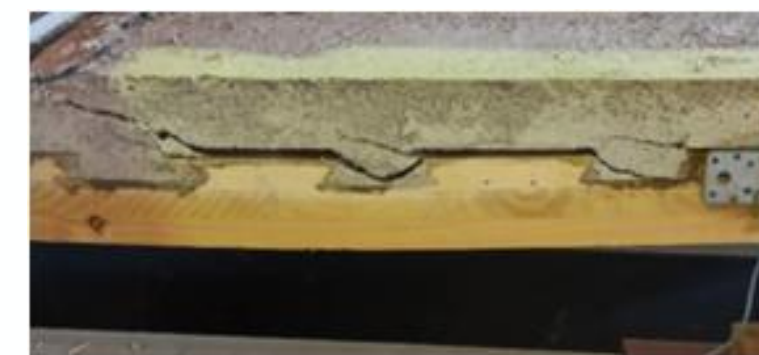


FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

Exp 4 - CLT+concrete panel with local species - Local wood

- Bending test of the CLT+concrete panels
- Maritime Pine and Radiata Pine were tested
- Determination of the mechanical performance:
 - Effective stiffness
 - Load carrying capacity
 - Slip Modulus
 - Longitudinal and transversale natural frequencies of vibration



Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

Exp 5 - Wooden floor modules with local species

- Bending tests on 9 modules
- Ridge beam = LSL or C24
- Different types of connections



FOCUS on WP2

WP2: Experimentation on new processes, products and technologies to optimize the use of wood in construction

Exp 9 - Solutions to improve the durability against subterranean termites and the fire reaction of CLT panels

- Tests on impregnability
- Technology watch report on 50 referenced products
- Test on 4 products on flame propagation



FOCUS on WP3

WP3: Dissemination, capitalization of knowledge and sensibilisation to the paradigm change towards a sustainable construction using wood

A3.1: Development of video demonstrations and organization of workshops for the dissemination and transfer of WP2 products

A3.2: Development of a training module on mid-rise timber construction to introduce knowledge in schools of architecture, higher and secondary education

A3.3: Collaborations and alliances with international mid-rise wood construction networks

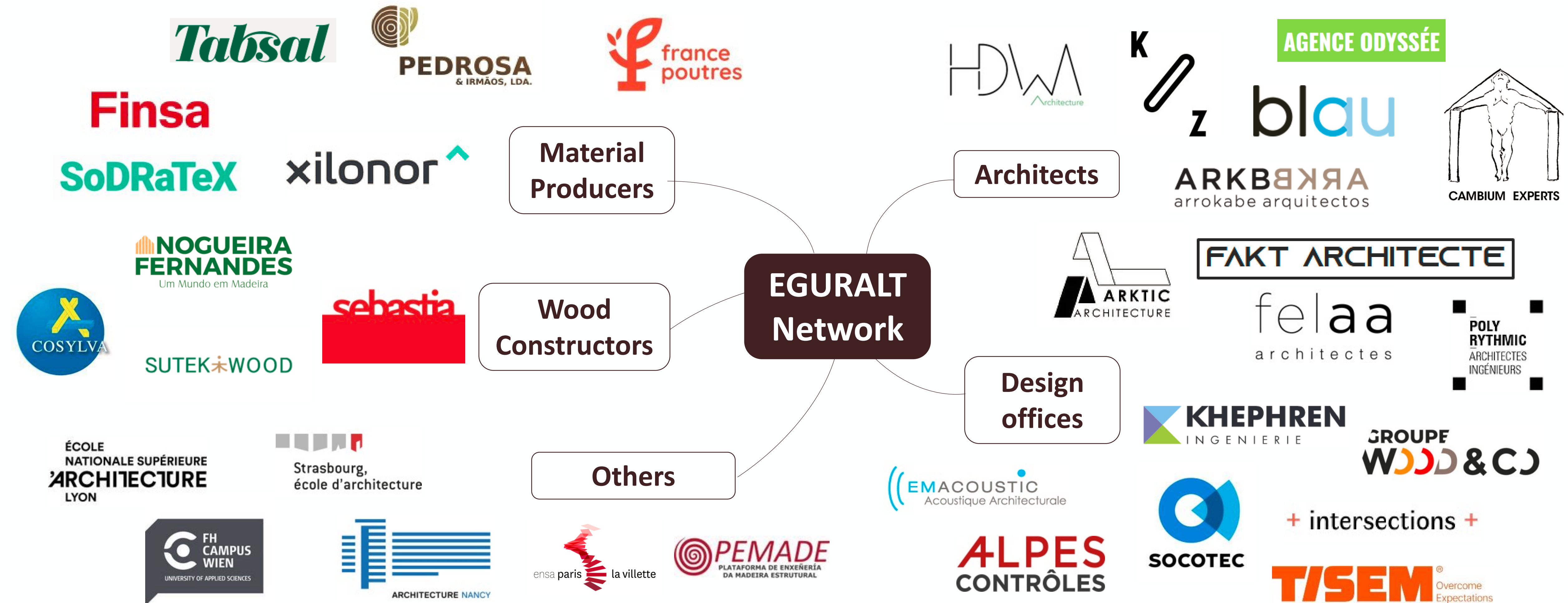
A3.4: Awareness campaign for the population and public authorities on the advantages of wood as an ecological and sustainable building material

Products :

- Videos of the experimentations
- Network of agents involved in mid et high-rise timber construction
- Interdisciplinary training modules on high-rise timber construction

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Network of agents involved in mid et high-rise timber construction



FOCUS on WP3

WP3: Dissemination, capitalization of knowledge and sensibilisation to the paradigm change towards a sustainable construction using wood

A3.1: Development of video demonstrations and organization of workshops for the dissemination and transfer of WP2 products

A3.2: Development of a training module on mid-rise timber construction to introduce knowledge in schools of architecture, higher and secondary education

A3.3: Collaborations and alliances with international mid-rise wood construction networks

A3.4: Awareness campaign for the population and public authorities on the advantages of wood as an ecological and sustainable building material

Products :

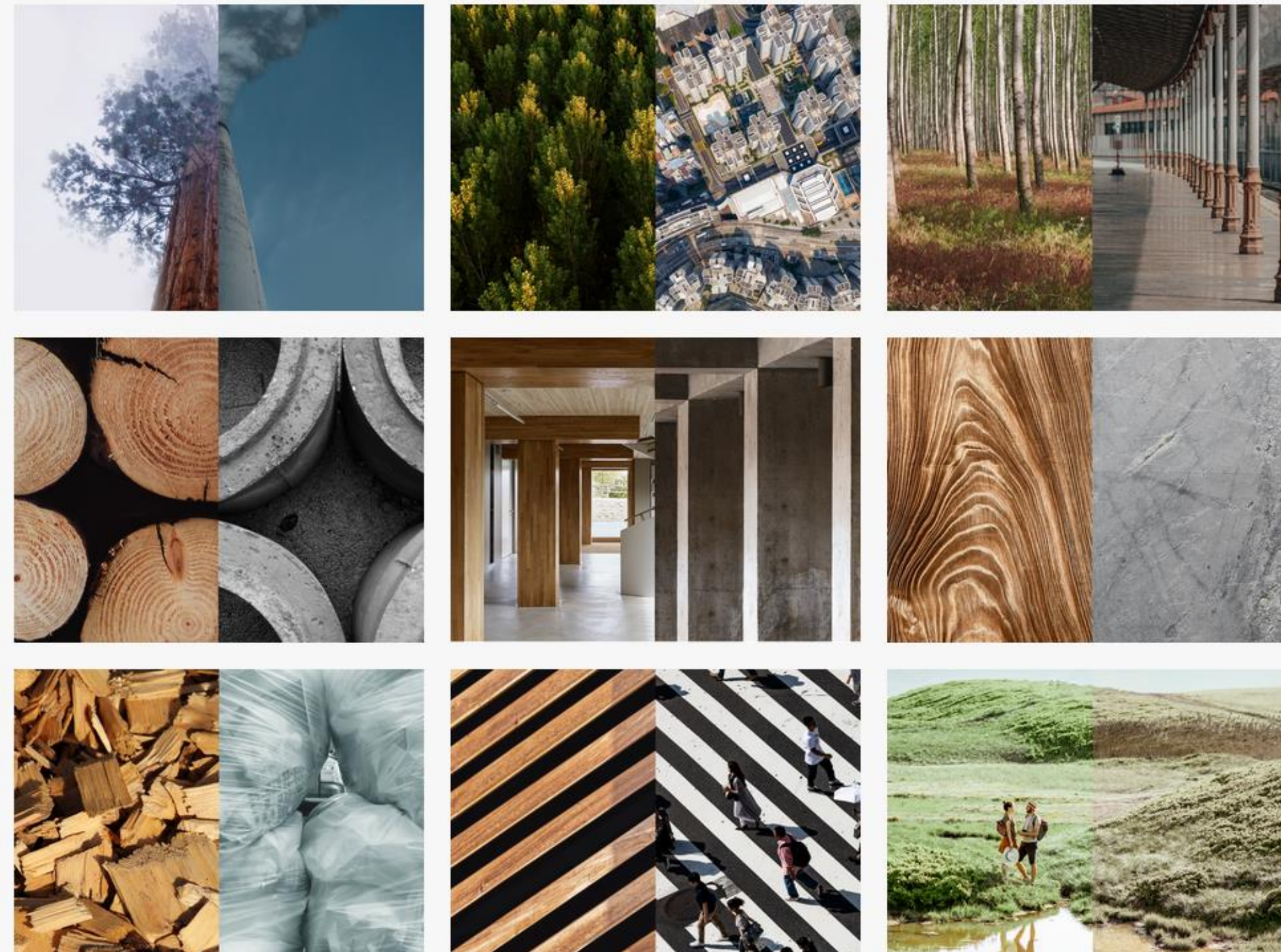
- Videos of the experimentations
- Network of agents involved in mid et high-rise timber construction
- Interdisciplinary training modules on high-rise timber construction

Application and dissemination of innovative solutions for the promotion of mid-rise timber construction in the SUDOE area.

Awareness campaign

9 REASONS

Better, wooden



Interreg
Sudoe



WOODMARKETS

European Regional Development Fund

WOODMARKETS

La transformación digital al servicio de la industria
maderera del espacio SUDOE

Presupuesto FEDER: 1.170.297,75 €

Proyecto cofinanciado por el Programa Interreg Sudoe a través del
Fondo Europeo de Desarrollo Regional (FEDER)



The 4 project activities that took place in a fairly linear fashion



CAPITALIZACIÓN

Ayudar a satisfacer las necesidades actuales y futuras de las empresas inspirándose en o re-utilizando lo que ya existe

*CAPITALISATION

Helping to meet the current and future needs of businesses by drawing on or re-using what already exists



DIAGNÓSTICOS DE DIGITALIZACIÓN

Identificar con precisión los desafíos y necesidades prioritarias de la integración digital de las empresas del sector maderero

*DIGITALISATION DIAGNOSTICS

Identifying the challenges and priority needs for the digital integration of companies in the timber sector



HERRAMIENTAS Y SERVICIOS PARA LA DIGITALIZACIÓN

Desarrollar o adaptar herramientas y servicios digitales para empresas del sector maderero

*TOOLS AND SERVICES FOR DIGITISATION

Developing or adapting digital tools and services for companies in the wood sector



FORMACIÓN

Te ofrecemos acciones formativas para que tu empresa mejore sus capacidades y competencias en temas digitales

*TRAINING

training actions so that companies can improve its skills and competences in digital issues



CAPITALIZACIÓN

Ayudar a satisfacer las
necesidades actuales y
futuras de las empresas
inspirándose en o re-
utilizando lo que ya existe

Creation of a module for
capitalizing on digital
projects/solutions available
online

Project title	Keywords	Sector	Website
IoT Valley (Internet of Things)	Formation et accompagnement IoT, connectique, robots	Others	link
Application Logistock - Digibois et l'application Logistock	Management, production, logging, wood processing, software	Forestry	link
APTEFORMA - Aula Digital de Formaci?n	Training, tecnolog?as	Others	link
ART	Indicateur d'impact	Construction, building	link
B2BMarket	B2B, platform, marketplace, habitat	Wood industry, furniture industry	link
Basoa 4.0	project, implantation, public, funds	Forestry	link
BIM Training	BIM, Autodesk Revit	Others	link
Build in Wood	timber BIM library, wood value chain, build, construction	Construction, building	link
Capforet, Intereg - Interreg Capforet	Capteurs en foret, suivi des stocks en forêt, chantiers	Forestry	link
Chaîne Numérique	Logistic, data exchange, supply chain, data flows, FORETDATA, EMOBOIS	Forestry	link
ChainWood	Blockchain Technology, wood traceability, forest owners, transport, timber lots, wood supply chain, App, EUTR	Forestry	link
Cubica	Volume, estimate, wood, forest	Forestry	link
DAEMON4 ERP	gestion empresa, ERP, madera, mueble, contabilidad.	Wood industry, furniture industry	link
DIGIBOIS	DIGIBOIS	Wood industry, furniture industry	link
DIGIBOIS - Web marchand	site web, e-commerce, vente, design, ux	Wood industry, furniture industry	link
DIGIBOT DESARROLLO DE GEMELOS DIGITALES EN OPERACIONES ROBOTIZADAS		Wood industry, furniture industry	
Digital Twin -Digital Enterprise	Digital Twin, Digital Enterprise	Others	link
DIGITALODS ? Digitalizaci?n B2B y alineaci?n a los objetivos de desarrollo sostenible	B2B, ODS	Wood industry, furniture industry	
DITRAMA Digital Transformation Manager	Digital Transformation, skills, training, furniture sector	Wood industry, furniture industry	link
E-globulus	Forest management, Forest planning, Greater economic return	Forestry	link
e-Monte cubicar	estimating wood volume, standing trees, web	Forestry	link

<https://www.fbs.cat/woodm/experiencies.php>



DIAGNÓSTICOS DE DIGITALIZACIÓN

Identificar con precisión los desafíos y necesidades prioritarias de la integración digital de las empresas del sector maderero

Three main themes were identified:

- Wood traceability along the value chain
- Data management in companies
- Product marketing

SWOT matrix summarising the surveys

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Reactivity	Finding staff	Boosting markets	Raw material supply
Diversity	Competition	Little competition	Regulation(different from other countries)
Involvement	In-house competence	Regulatory developments	Concrete and fossil fuel lobbying
Respect for the environment	Limited resources		
Experiences	Prices		



HERRAMIENTAS Y
SERVICIOS PARA LA
DIGITALIZACIÓN

Desarrollar o adaptar
herramientas y servicios
digitales para empresas del
sector maderero

List of projects supported by the Woodmarkets partners

Tool for the certification of the legal origin of wood	The objective of this digital solution is to ensure that all traceability information is processed and managed in an automated manner and can be used to obtain certification of the origin of the wood and the corresponding administrative declarations. In this way, in addition to guaranteeing the chain of custody and traceability of forest products, the administrative and legal procedures related to the EUWR system will be automated and it will be easier to obtain the corresponding	FEVAMA
Tool for the traceability of wood from the forest to the industry	The objective of the tool must be to guarantee the traceability of the wood from the forest to the industry, from the beginning of the whole forestry process to the reception of the wood by the industry that processes it.	BASKEGUR
Tool for Inventory Management	Digital solution to take into account the management of stocks according to several types of materials and different stages of wood processing	CRITT-BOIS FIBOIS XYLOFUTUR FORESPIR
Tool(s) to improve the efficiency of production and commercial management	Efficiently connect production with sales, automating the process. Software such as CAD/CAM, wood construction production management software (BIM, ...). ERP solutions to automate the generation of technical documentation. Digitise the management and monitoring of production. Stock management, project management, administration.	FBS



HERRAMIENTAS Y
SERVICIOS PARA LA
DIGITALIZACIÓN

Desarrollar o adaptar
herramientas y servicios
digitales para empresas del
sector maderero

List of projects supported by the Woodmarkets partners

Creation of aggregation databases of wood species, wood products and preservatives	This digital tool is intended to be a tool for collecting, storing and managing information on wood species, wood products and wood preservatives on the market in a database.	SERQ CIEBI
Merchant web tool for 1st transformation	"Integration of a commercial website for a wood processing company. The design should take into account the different usage scenarios and potential customers. The site provides an optimal experience. A notable constraint is the interoperability with the company's inventory management and accounting tools.	CRITT-BOIS FIBOIS XYLOFUTUR FORESPIR
b2b tool for companies in the wood and furniture value chain	Implementation in companies and improvement of a tool to produce product catalogues; manage contacts, requests and sales; store product information on certifications and sustainability.	AIDIMME
Tool for the traceability of wood from the forest to the work or building	BoisLocal.org digital tool allowing the registration of the origin of the wood batch in the sawmill and its follow-up in secondary processing until its installation during a construction site, and facilitating the communication on the circuit of the wood: km travelled, stages of processing	AVBP

Numerous events to raise awareness and provide training in digital technologies



FORMACIÓN

Te ofrecemos acciones formativas para que tu empresa mejore sus capacidades y competencias en temas digitales

« Lancement de Boislocal :
l'application qui permet de tracer le bois
de la forêt jusqu'au chantier »

Interreg Sudoe WOODMARKETS

BoisLocal, BOIS DES PYRÉNÉES, BOIS DES TERRITOIRES DU MASSIF CENTRAL, SMARTB

ATELIER SUR LES ERP - projet WOODMARKETS

Amélioration de votre gestion et production
Quelle est l'importance d'un ERP dans votre entreprise ?

21 janvier 9h00 - 12h30 EVENEMENT GRATUIT

PUBLIC CIBLE : Entreprises de la filière forêt bois

OBJECTIFS : Sensibiliser les acteurs de la filière à l'importance de l'intégration d'un ERP dans leur entreprises pour l'amélioration de leur gestion et de leur production.

LIEU :

- En présentiel : DIGITAL113 Toulouse, Portes Sud IMM3, 12 rue Louis Courtois de Viçose
- En distanciel : Le lien de connexion sera envoyé aux personnes inscrites

CONTACT :

- FORESPIR : sebastien.chauvin@forespir.com, vanesa.garcia@forespir.com
- CRITT BOIS : jeremy.gelsler@critt-bois.com
- FIBOIS OCCITANIE : a.kenler@fiboisoccitanie.com
- XYLOFUTUR : lucas.depedro@xylofutur.fr
- AVBP : irene.senaffe@communesforestieres.org

INDUSTRIA 4.0 Y TRANSFORMACIÓN DIGITAL DEL SECTOR MADERA, CARPINTERÍA Y MUEBLE DE LA COMUNITAT VALENCIANA

Jueves 27 de octubre, a las 18:00 h

Presenta:
Julián Giménez
Dir. de Contenidos de Cadena SER Comunitat Valenciana

#EncuentrosSER

Síguelo en directo en radiovalencia.es @radiovalenciaSER @radiovalencia

Patrocinador: **FEVAMA**
Con el apoyo de: **GENERALITAT VALENCIANA**

Many thanks for your attention

Apolline OSWALD

Competitiveness Cluster Xylofutur - France