SUSTAINABLE PLACES 2024

23-25 September 2024

Luxembourg

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

R2M RESEARCH TO MARKET SOLUTION

Circular and Bio-based Building Solutions WORKSHOP

Circular and Bio-based Building Solutions

Wednesday 25 Sep 2024 | 14:00-15:30 | European Convention Centre Luxembourg

BIO4EEB

EASI ZERo

Wood2Wood

DeCO2

MEZeroE

www.sustainableplaces.eu

Phase I: Opening

14:00 – 14:05 WELCOME STATEMENT Klaus Luig (3L)

Phase II: Projects overview (ie. Objectives, methodologies, lessons learned)

14:05 – 14:15 BIO4EEB Klaus Luig (3L)

14:15 – 14:25 EASI ZERo Phillipe Thoney (CEA)

14:25 – 14:35 REINCARNATE Andre Van Delft (Demo Consultants)

Q&A 1 _ 5 mins

14:40 – 14:50 DeCO2 Giulia Viero (IECCP)

14:50 – 15:00 W2W Akrivi Korba (ICCS)

15:00 – 15:10 MEZeroE Fabrizio Perrotta (R2M)

Q&A 2 _ 5 mins

15:15 – 15:30 CLOSING ROUND TABLE DISCUSSION

SUSTAINABLE PLACES 2024

Circular and Bio-based Building Solutions (Briefing Room CZ)

3L Klaus Luig

Co-funded by the European Union

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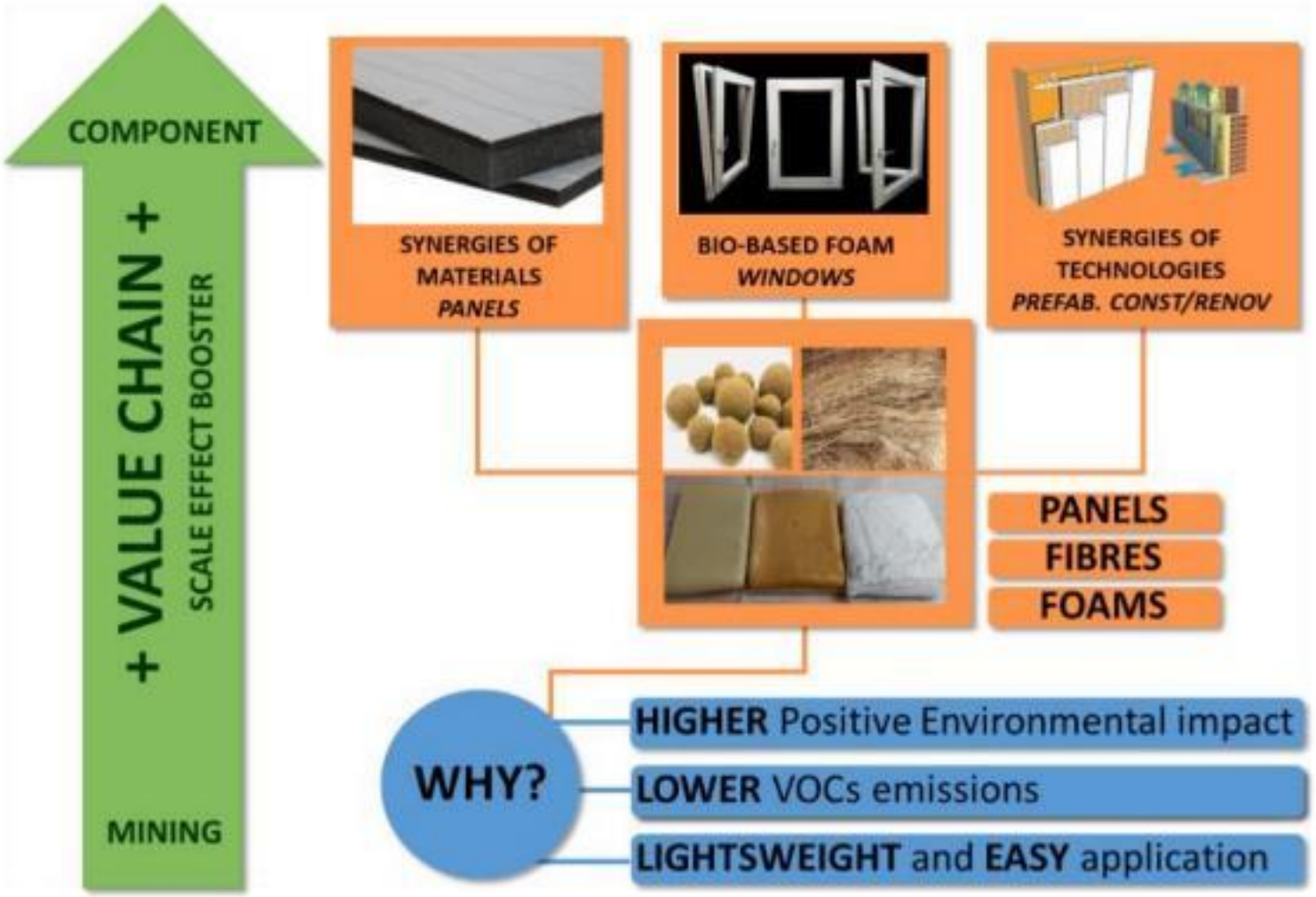
Project INTRO BIO4EEB in a nutshell



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Wrap up

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The BIO4EEB Mission – the bio-based game changer

The target is to support residential building´s construction performance extraordinary at all three hierarchical levels of construction parts simultaneously (building, component, material) by creating an amplified environmental impact and reducing additionally VOC emissions.

BIO4EEB will apply non-hazardous bio-based materials as e.g., Posidonia and various bio-based foams to develop and to proof the marketability of smart components for external and internal use as material application, pre-fab panels or windows.

The efficiency and effectiveness raises the market acceptance and establishes a unique selling proposition including a seven years RoI!

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The BIO4EEB Mission – the bio-based game changer

BIO4EEB closes the increasing gap of insulation material shortage caused by the regular growing demand and the mismatch caused by lacking production potential and the outcome of the current energy crisis by boosting the use of available bio-based qualified materials as alternative solutions.

The objective is to substitute using fossil resources for components and replace them at a comparable price value positioning.

New business models utilizing the complete economic value chain open the market for bio-based BIO4EEB solutions and products uplifting the generic bio-based material use and qualifying their application at a circular economy approach for creating a much greener EU building and construction industry real estate stock.

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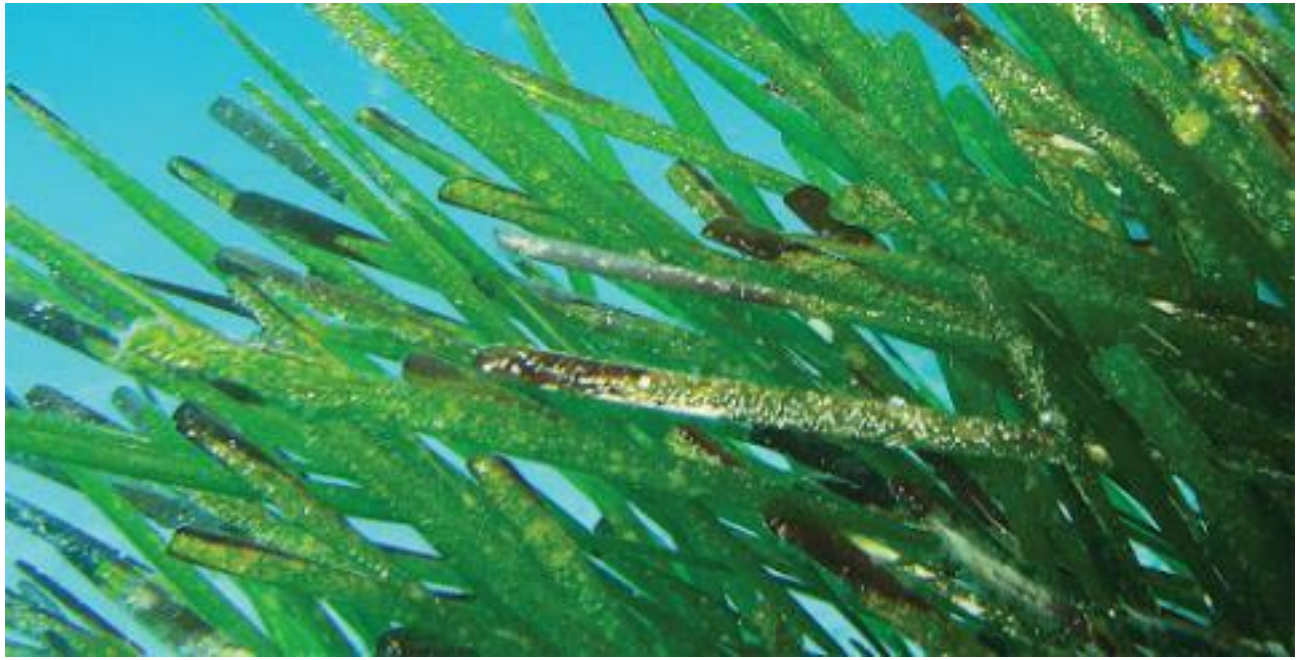
Waste to Wonder



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Challenges e.g. Posidonia

The material is natural and does not contain any additives. The thermal conductivity of the insulation material is 0.039 W/(m K). And this value is retained even if the fibers absorb more than three times their own weight in water vapor.

They can buffer the moisture and gradually release it again. With a specific heat storage capacity of over 2500 J/(kg K), the potential Posidonia solution achieves excellent summer thermal protection that is up to 300% higher than the values of all other insulation materials.

Thanks to its high silicate content, the material is non-flammable and therefore has fire behavior according to building material class B2. The absence of proteins ensures resistance to rotting and high mold resistance.

Thanks to its resource-saving processing, Posidonia thermal insulation has the lowest primary energy consumption of all insulation; 99.9% less than mineral insulation materials. Numerous awards speak for the high ecological quality.

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BIO4EEB

Challenges and prejudices e.g. Posidonia

- Higher Initial Costs
- Limited Availability and Supply Chain Issues
- Ownership of waste bias
- Performance and Durability Concerns
- Regulatory and Certification Hurdles
- Lack of Awareness and Education
- Cultural and Industry Resistance
- Technical Challenges
- Life Cycle Assessment (LCA) and Environmental Impact
- S-LCA and SRL analysis integration
- Market Demand and Consumer Perception of materials
- Investment and Innovation

BIO4EEB addresses these challenges simultaneously applying a multifaceted approach, including policy support, industry collaboration, fosed research and development, and efforts to raise awareness and educate stakeholders about the benefits and potential of bio-based building materials.

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Demo Cases

Real demo cases

Five real demo cases where selected representing 3 climate zones (Continental, Mediterranean and Oceanic) and 5 different building typologies: 1) Multifamily multistorey residential refurbishment in Lithuania; 2) Historical/protected single family residential refurbishment in Spain; 3) Single family residential refurbishment / new construction in Germany; 4) Rural single family residential refurbishment in Czech Republic and 5) Multifamily multistorey residential new construction in France. More details around each of these demo cases is provided in the following sections.

5 REAL DEMO CASES

Virtual demo cases

The virtual demo-cases will serve as a test-bed of assessing several different technological solutions and their potential environmental, economical and social impact. The selected virtual demo cases are representing parts of the European residential building stock with high replicability potential. Together with the real demo cases they cover the main residential building types (by size, historical protected status, age etc.) from the dominant climates (Middle European Continental, Oceanic, Mediterranean Climate). The demo cases were selected by relying on the TABULA-Episcope building typology.

3 VIRTUAL DEMO CASES

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The 5 Objective SCOPE

Objective 1: Development of affordable user centric envelope solutions aligned with market needs, and applicability to different building typology.

Objective 2: Development of new environment friendly, lightweight and cost-effective bio-based insulation materials and their adaptability for improving ventilated façades for building and renovation to go near nZEB standards.

Objective 3: Demonstration of the circularity, adaptability of the BIO4EEB solutions for an easy installation in real operational environment and their replicability using virtual demo cases.

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The 5 Objective SCOPE

Objective 4: Development of multicriteria and multi-stakeholder platform for improving the decision-making process for selecting the best energy efficient renovation strategy and promoting building stock renovation.

Objective 5: Facilitate the development of the BIO4EEB solutions through synergies with existing relevant Open Innovation Test Beds (OITBs) and to improve the project dissemination & communication through clustering with sister projects as well as to extent the BIO4EEB outcomes to Latin American construction market sectors.

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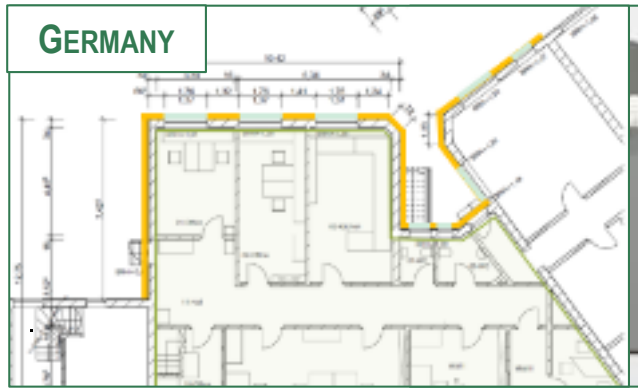
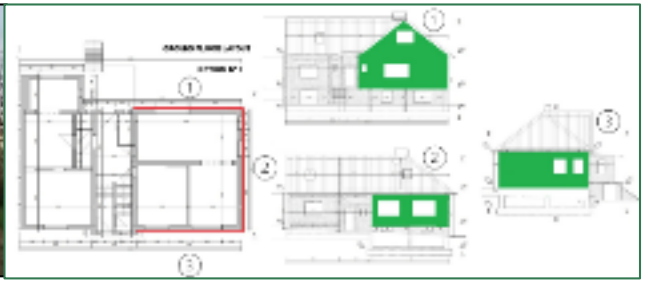
WP4 | T4.2 Demonstration in real demo-cases

GERMANY



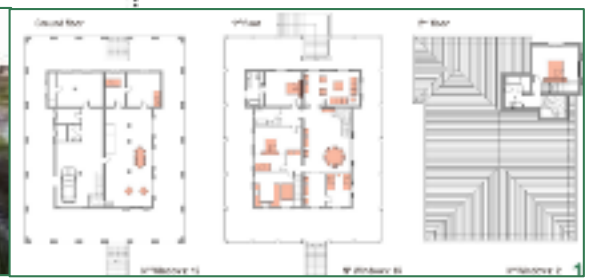
LITHUANIA

CZECH REPUBLIC



FRANCE

SPAIN



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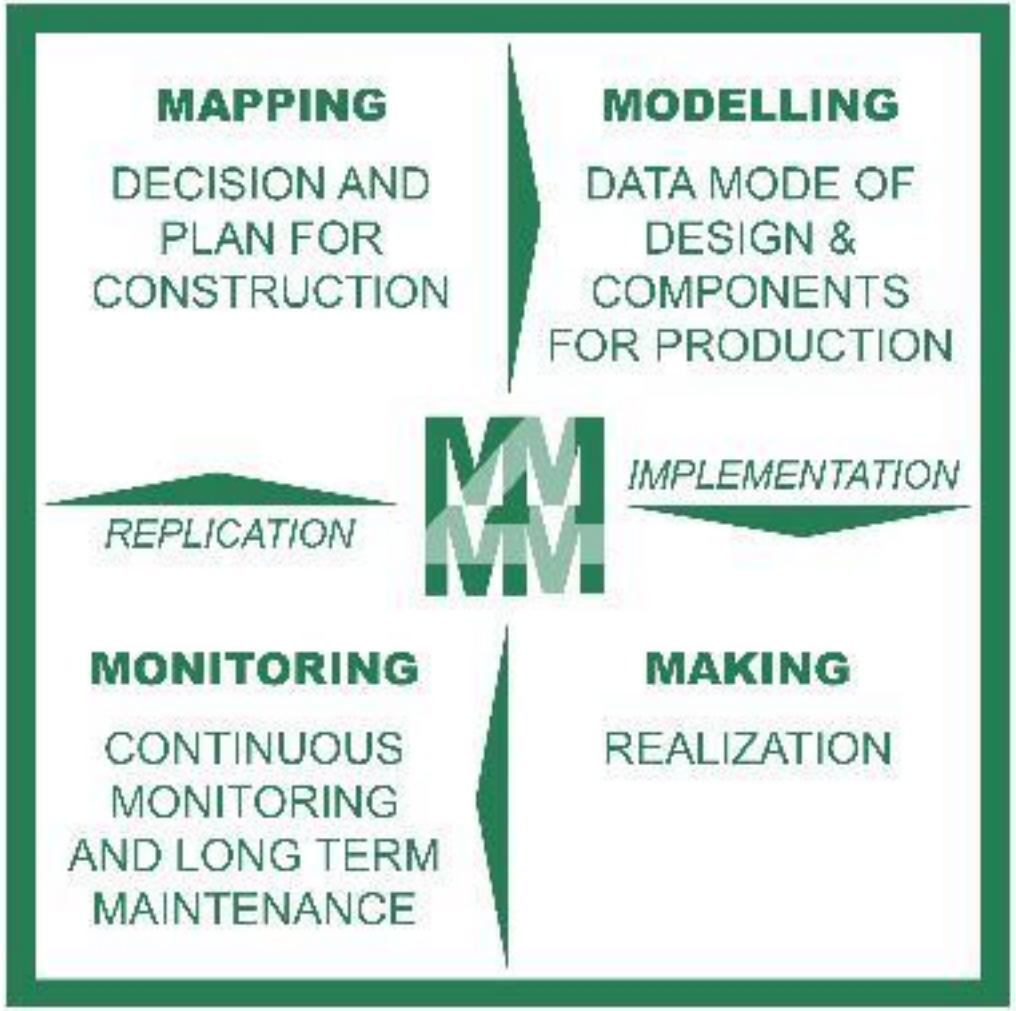
BIO4EEB

WP4 | 4M approach



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WP4 | T4.2 Demonstration in real demo-cases

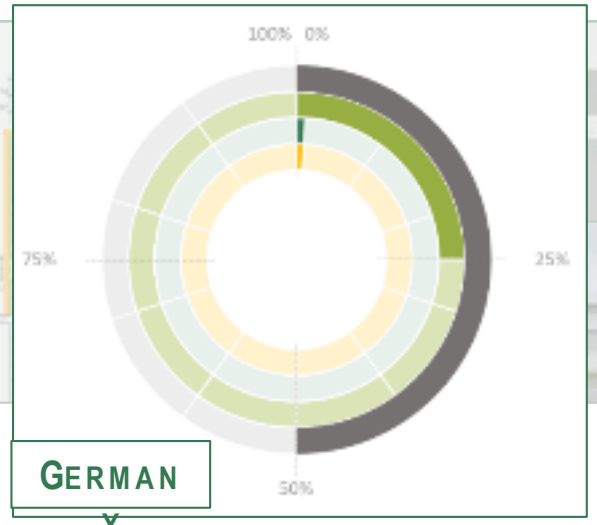
DEMO PROGRESSION

DATA COLLECTION, KPI SELECTION, MONITORING PLAN

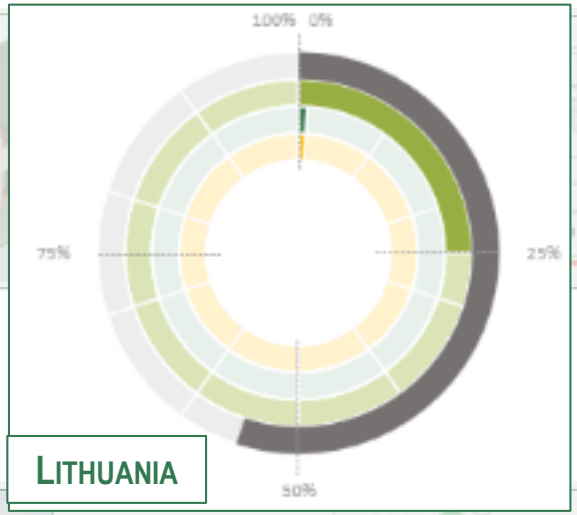
PRE-MONITORING, DESIGN VALIDATION

CONSTRUCTION PROCESS

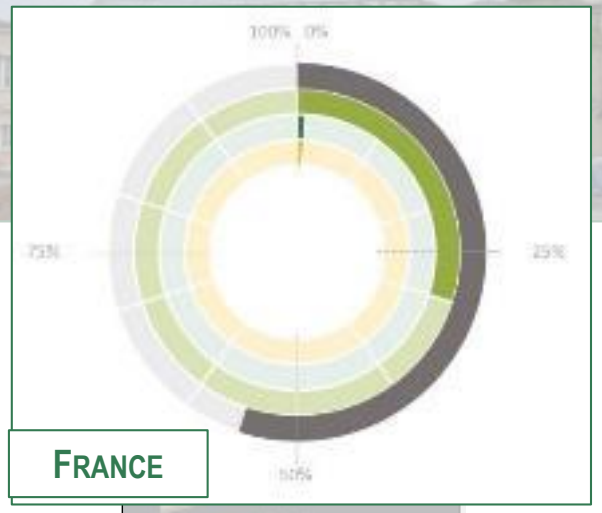
MONITORING AND CONCLUSIONS



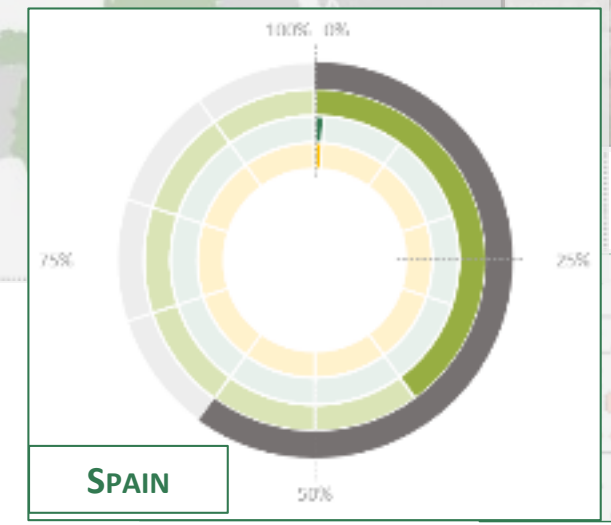
GERMANY



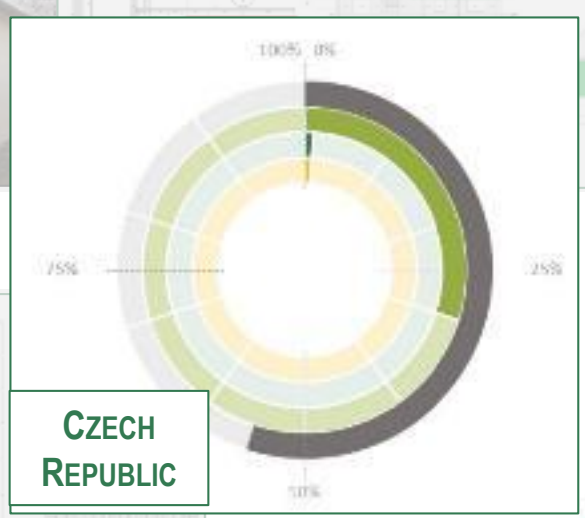
LITHUANIA



FRANCE



SPAIN



CZECH REPUBLIC

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WP4 | T4.2 Demonstration in real demo-cases

Schedule of demo-case in Lithuania (sample)

Work Package			Year 2 (2024)									Year 3 (2025)												Year 4 (2026)											
			01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
		Resp	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48
WP3	**Development of new bio-based insulation materials and material combin**	**AIMPLAS**																																				
Task 3.1	Development of the Posidonia bio-based core	SOPHIA												D3.1																								
Task 3.2	Development of Polyelectrolyte complex (PECs) coatings	AIMPLAS																																				
Task 3.3	Development of the PLA foams	AIMPLAS																																				
Task 3.4	Development of the BIO Polyurethane foams for sprayable insulation foam and windows	INDRE																																				
Task 3.5	Characterisation of the new insulation materials and components	AIMPLAS																		D3.3																		
Task 3.6	Design, prototype and test of prefabricated building envelope integrating new materials for enha	FOCC																		D3.2																		
Task 3.7	Development of the BIO4EEB platform	R2M																		D3.4																		
WP4	**Demonstration and cost-effectiveness of the solutions**	**FOCC**																																				
Task 4.1	Design and preparation of real demo-cases: monitoring & evaluation plan, context analysis an	3L												D4.3												D4.4						D4.5						
Task 4.2	Demonstration in real demo-cases	FOCCHI						D4.6												D4.7												D4.8						
4.2.1	demo case in Lithuania	PROTECH																																				

Pre-Intervention Monitoring (Heating season)

Installation BIO4EEB solution

Post-Intervention Monitoring (Heating season)

Analysis

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WP6 | T6.2 Local open events

LT

Event title: Seminar for the Chairmen and Administrators of Communities of Residents of Multifamily Buildings
Date: 20th November 2023
Location: Meeting hall of the Vilnius City Municipality Council
40 attendees

FR

Link here!

Physical event:
Inauguration CYNEO
Date: 28th November 2023
Vitual Event title:
Expérimentation biosourcée aux Halles des Ardoines
Date: 6th December 2023

CZ

Link here!

Event title: Demonstrační project Březany II
Date: 28th November 2023
24 attendees

DE

Link here!

Event title: Deutsches Demonstrationsvorhaben
Date: 14th December 2023
23 attendees

ES

Link here!

Event title: BIO4EEB EN ESPAÑA
Date: 29th January 2024
Over 50 attendees

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THANK YOU

FOLLOW US!

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WWW.BIO4EEB.EU

EASI ZERo

Envelope mAterial System with low Impact for Energy Renovation and construction

A general introduction

Ph. Thony

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

Why EASI ZERo?

EASI ZERo is an EU Horizon Europe funded project that addresses the pressing need to cut the environmental impact of European buildings by rising their thermal performance in an efficient way while minimizing the carbon-footprint.

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

Project facts

Project start: December 2022

Project end: May 2026

16 partners from 7 European countries

Total budget: € 8,086,602.25

EU contribution: €6,972,698.13

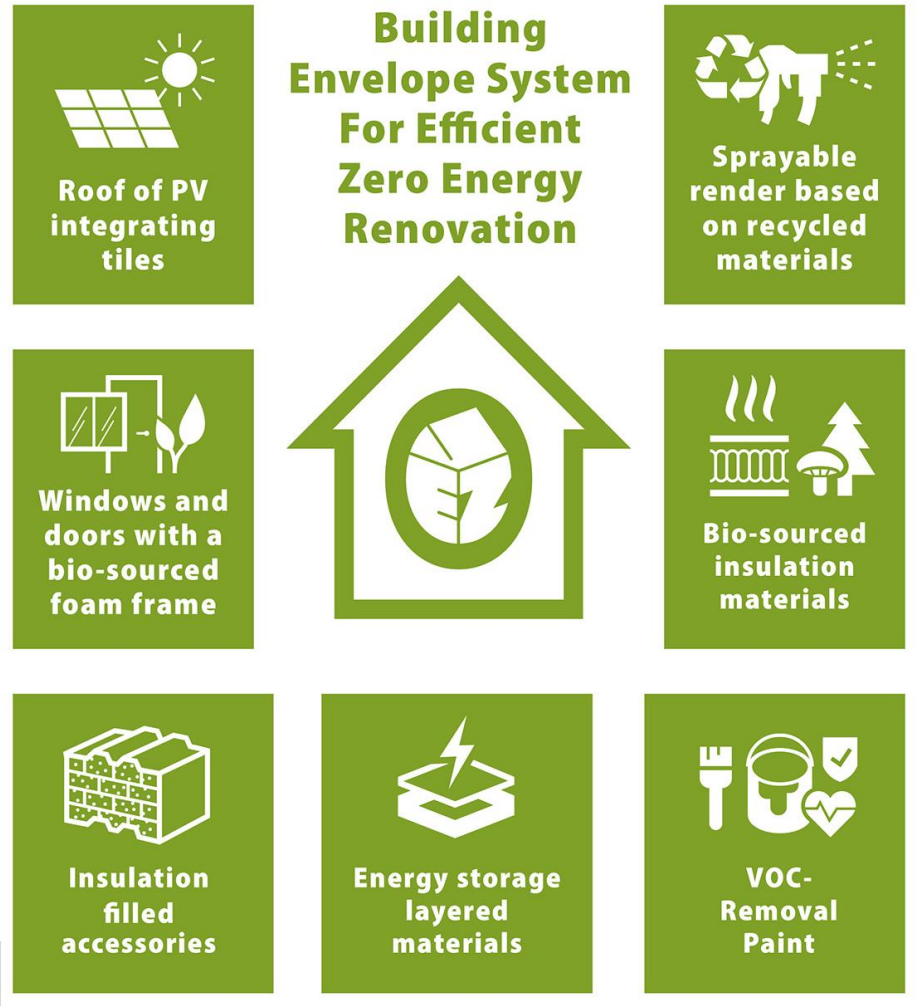
https://easizero.eu

Funded by European Union's Horizon Europe research and innovation programme under grant agreement No. 101091531.

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

7 highlights of the EASI ZERo system

- Bio and recycled materials, optimization and up-scaling
- High level of thermal performance
- Compatible to all building typologies
- Easy to install and dismantle
- Assessed performance at building scale over lifecyle
- Documented environmental, social, economical impacts
- Near zero energy balance and CO_2 emission



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EASI ZERo partners and activities

Partners

Activities WPs

MATERIALS → COMPONENTS → INTEGRATION → VALIDATION (virtual demo)

MARKET & REQUIREMENTS

STANDARDIZATION & CERTIFICATION

SUSTAINABILITY: ECO-DESIGN, CIRCULAR APPROACH, LCA/LCC/S-LCA

DISSEMINATION, EXPLOITATION & COMMUNICATION

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

Defining product requirement

- Products

Product ID	Product name
P1	Mycelium-based inside-the-wall thermal insulating panels
P2	Mycelium-based decorative insulating panels for inner walls
P3	Bio-based sprayable PUR foam and paint with sprayable method
P4	Wood-fibre insulation panels
P5	Thermal insulating render
P6	BioPUR moulded frames for windows
P7	VOC removal painting

- Markets: renovation
  - Building stock: reference buildings

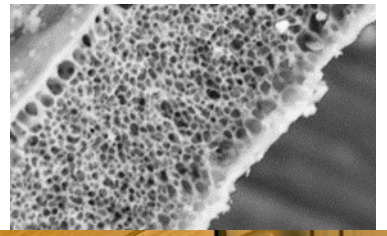
- Requirements
  - Final thermal performance
  - Standard compliance
  - Lifecycle: energy and CO_2(GWP)
  - Recycled content
  - Easy and quick installation
- Differentiation
  - Per products
  - Per market
  - Per country

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

Optimising low-C materials

A full system

- Insulation panels
- Windows
  - Frames
  - Blind boxes
- Fillers (PU foam)
- Renders and plasters
- Finishing and protective paint



Mineral

Wood-based

Natural binders

Bio-chemicals

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Turning materials in components

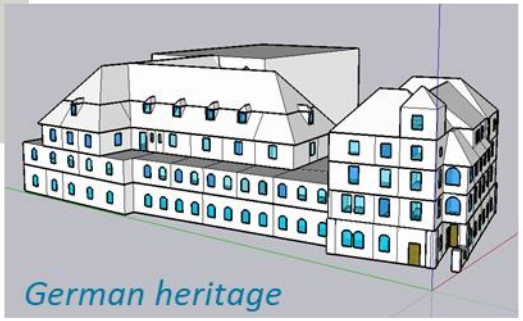
- Design and prototypes of components with high thermal
- Test against standards' and market requirement
- Tests at real scale in lab facilities, in various climate (France, Norway, Denmark)

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

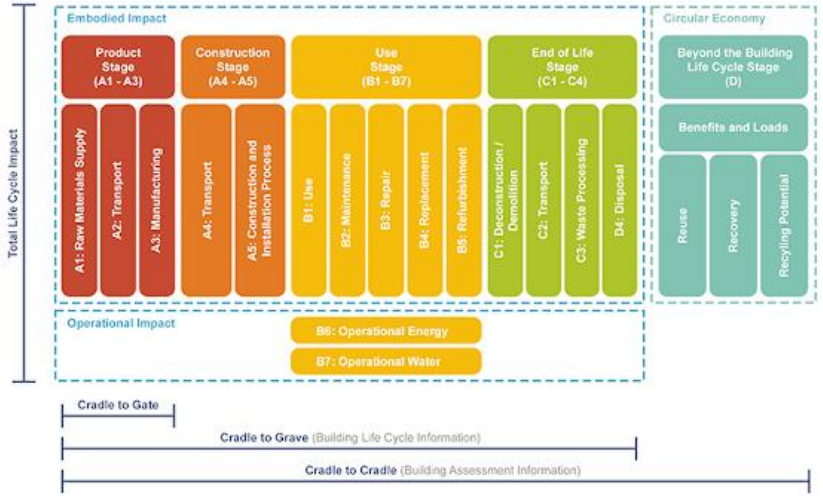
Evaluating components in real use cases

Various typologies and climates

- Energy performance:
  - Modelling and monitoring
  - EZ0 methodology for renovation
  - Virtual renovation with EZ0 components and materials



- CO2 emissions over lifecycle
  - LCA analysis for materials/components
  - Data collection from the supply chain



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Thank you !

Representing the whole construction and renovation value chain to maximize synergies and accelerate the roll-out of innovative, high-efficient insulation products

This project has received funding from the European Unions's Horizon Europe research and innovation program under grant agreement No 101091531

SUSTAINABLE PLACES 2024

REINCARNATE

REINCARNATE

André van Delft, DEMO Consultants

Funded by the European Union

01

Project Intro

Mission

Reincarnate aims to revolutionise the construction industry by developing the technical and social means to establish a reincarnation practice within the building sector

- Maximize the cumulative virtues of a building, a building product, or a building material during its life
- Establish a transparent track record of these virtues
- Use this track record — and the high degree of reliability and trust that comes with it — to ensure that a building, building product, or building material can be reused at a high quality in an afterlife

Partners

Systems Engineering and Material Science | Construction Materials

Technische Universität Berlin | BAM Bundesanstalt für Materialforschung und -prüfung | CEMEX

Social Science, Innovation Management and Standardization

Austrian Standards | Erasmus University Rotterdam | AUSTRALO

Real Estate | Architecture | Construction | Engineering

TU Delft | 3L | VIAS | plan b | Mostostal Warszawa | PLGBC

Computer Visions and Robotics | Internet of Things and BIM

The Hong Kong Polytechnic University | MAINFLUX LABS | DEMO CONSULTANTS

Waste Management

RAGN-SELLS – En del av kretsloppet

SUSTAINABLE PLACES 2024

REINCARNATE

02

Objectives and Scope

Challanges

Construction and demolition waste (CDW) is the largest waste stream in the EU	Limited average lifespan	Low percentage use of secondary materials by the construction sector
Current CDW accounts for approximately 25-30% of all waste, which consists of numerous materials that often cannot be separated meaningfully. The embodied energy and embodied eq. CO2 emissions in the CDW are significant (8.5 MT eq. CO2 for construction in Sweden in 2015).	The average lifespan of buildings is only 39.1 years. According to 3L, one of our team members,it is even shorter in the EU (in Germany, an estimated 25-30 years). The main reason for demolishing buildings is that they are functionally obsolete.	It is not possible to reuse entire buildings, building products, or building materials of high product quality within a different setting or for a different purpose. The building sector hardly uses any secondary materials.

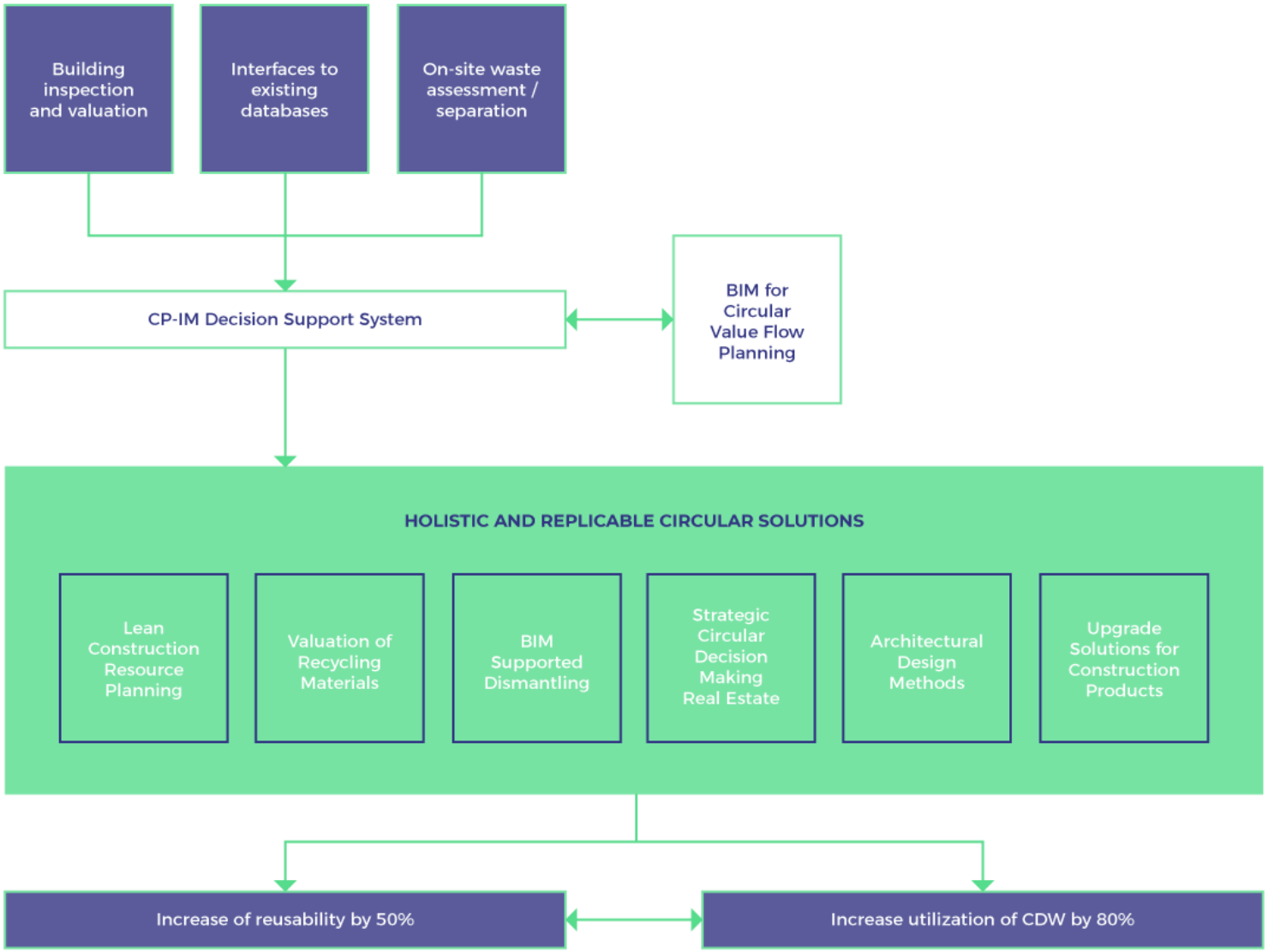
Approach

At Reincarnate, we will advance circular economy practices in the building sector, feeding a closed cycle of extended use, reuse, and recycling.

How? Through innovations that will significantly reduce its emissions footprint and enable life cycle extension, reuse and recycling of construction products and materials.

CP-IM platform	**The CP-IM** will provide a digital representation of building materials and products with information on their life cycle. It will also allow assessing their potential for life extension and reuse, as well as predicting circular value streams.
10 innovations	From solutions for building inspection to construction and dismantling planning, and identification and classification of CDW — these innovations will draw upon **emerging digital technologies**, such as digital twin representation, artificial intelligence, and robotic automation.
11 demonstrators	All innovations will be demonstrated on **eleven selected real-world projects** and value chains (demonstrators).

Reincarnate Framework



The CP-IM will allow to store and capture all required data to understand the potential to extend the lifetime of a building, its building components, and materials, and to find optimal reuse possibilities for each of its elements. It will also enable to trace construction products and materials across different buildings, waste management steps, and construction sites.

10 Innovations

Ten specific process innovations for CDW management and reduction

Digital tools for material tracing and CDW management

1. Building inspection and valuation
2. Interfaces to existing databases and planning tools
3. BIM for circular value flow planning

Automated solutions for de-construction and waste separation process

4. BIM modular dismantling planning methods
5. On-site waste assessment and separation

Cross-sectorial holistic solutions from the construction product and material

6. Lean construction resource planning
7. Strategic circular decision-making for real estate assets
8. Architectural design methods
9. Upgrade solutions for construction products

Access value in terms of monetary value and CO2 reduction

10. Valuation of recycled materials

All developed innovations will be built upon the Reincarnate CP-IM and linked to its data, and demonstrated on at least two demonstration projects.

These solutions will

50%

Facilitate the collection and tracking of information on construction and demolition waste, making it possible to reuse what would otherwise be considered waste by 50%.

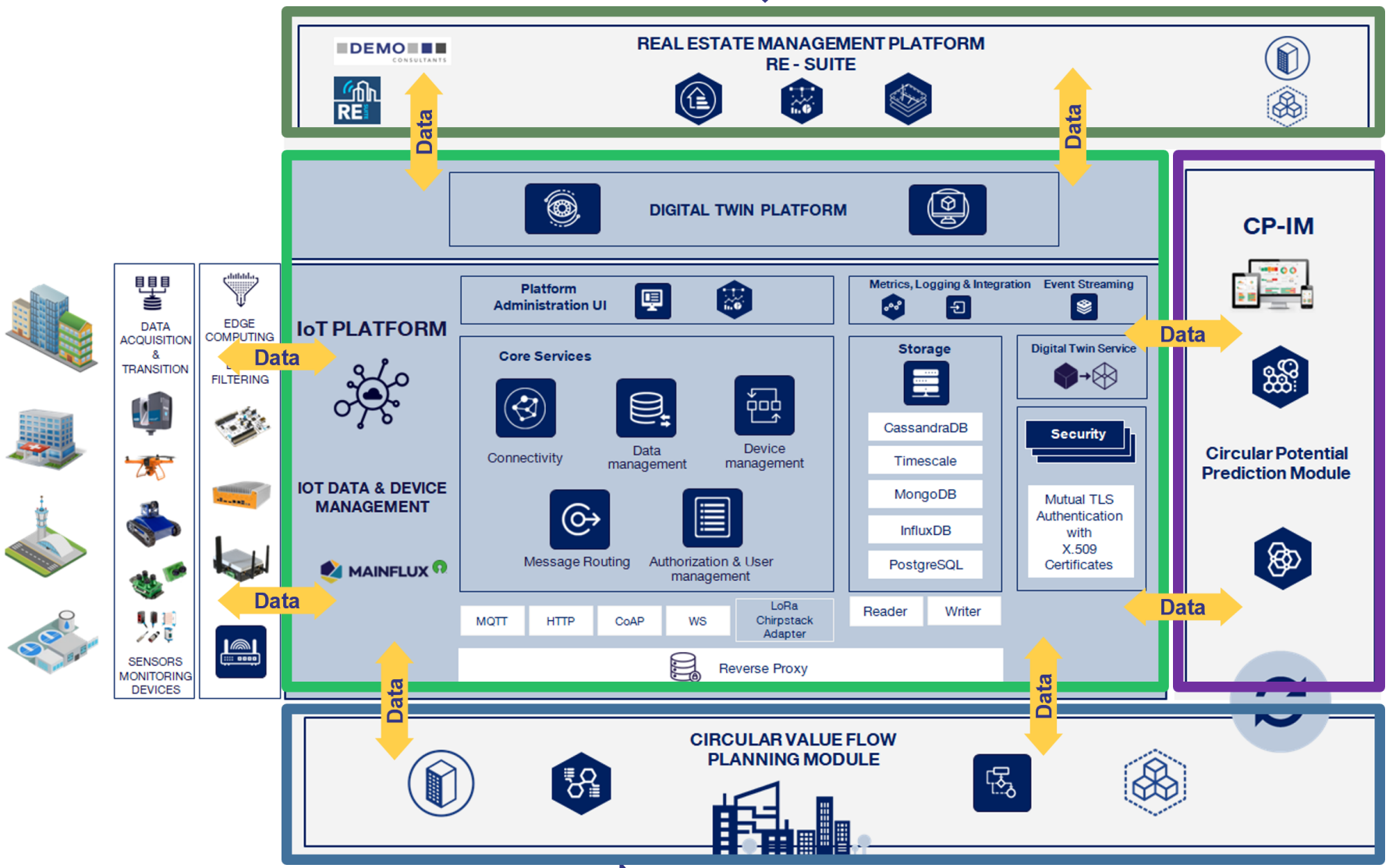
80%

Reduce construction and demolition waste by 80%.

03

Innovations and Solutions

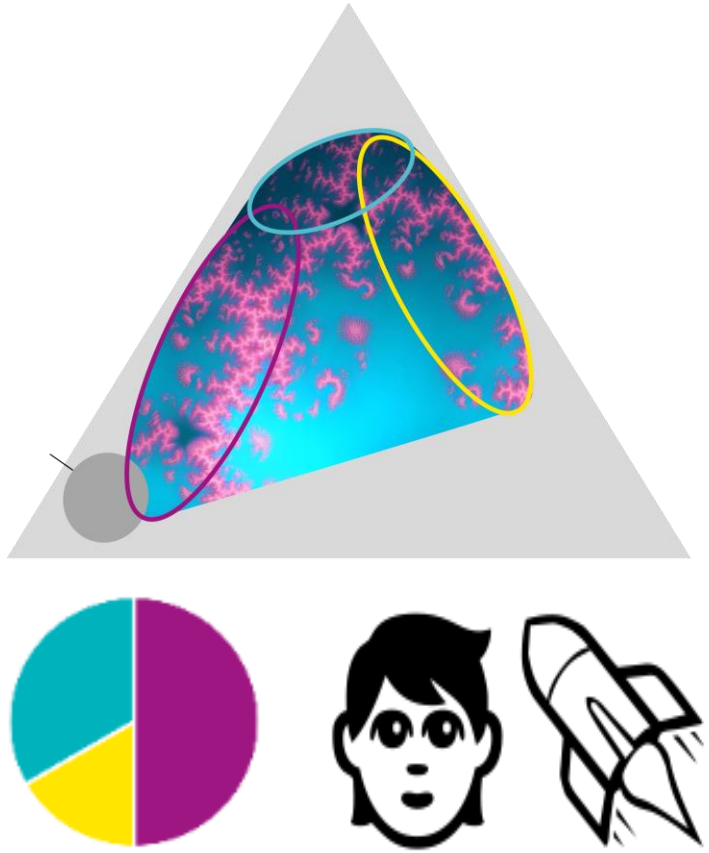
CPIM Platform



Valuation models for recycled materials

- Circularity increases materials **complexity**
- **Valuation** of waste materials challenging

-> Waste = Worthless



Our activities to change that:

- **Data** Compilation (1630 waste-based materials)
- **D**ata **D**riven Materials **D**esign methodology
- AI Co-Pilot **“SLAMD”** for DDD + **Lab** Validation

SLAMD APP

Digital Lab Twin

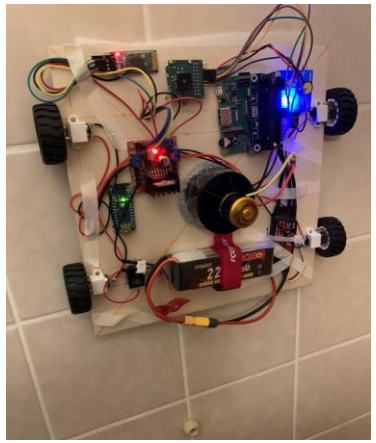
- Source materials
- Complex chemicals
- Manufacturing processes
- Ecological & economic footprint

AI Design Dashboards

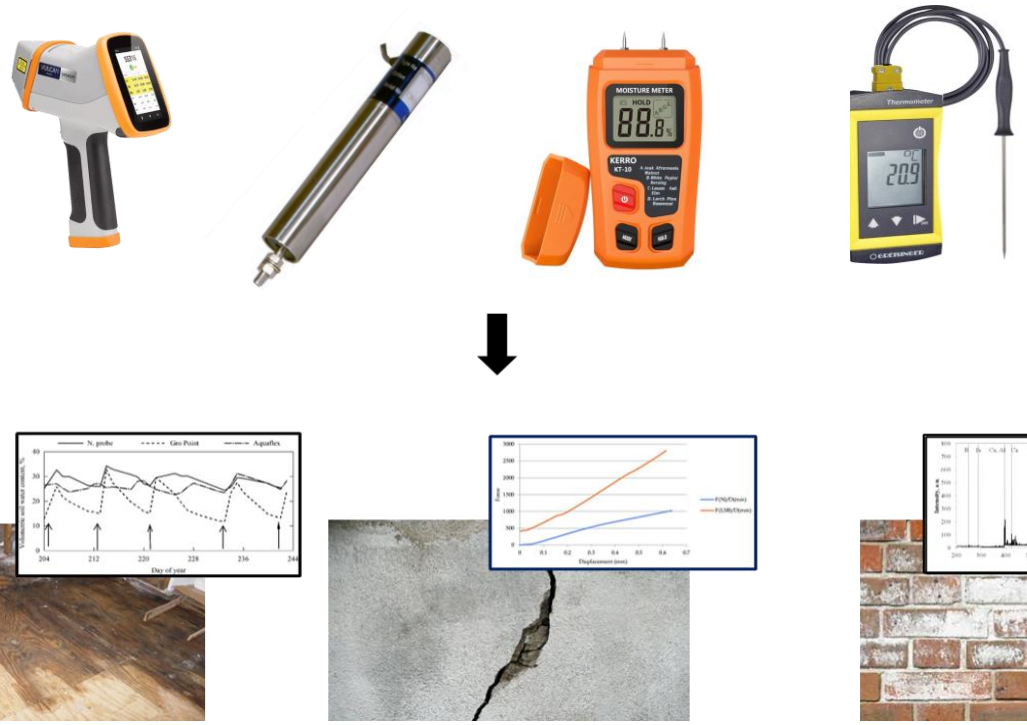
- Finding what is important - from a bird’s eye view

Robotics and NDT

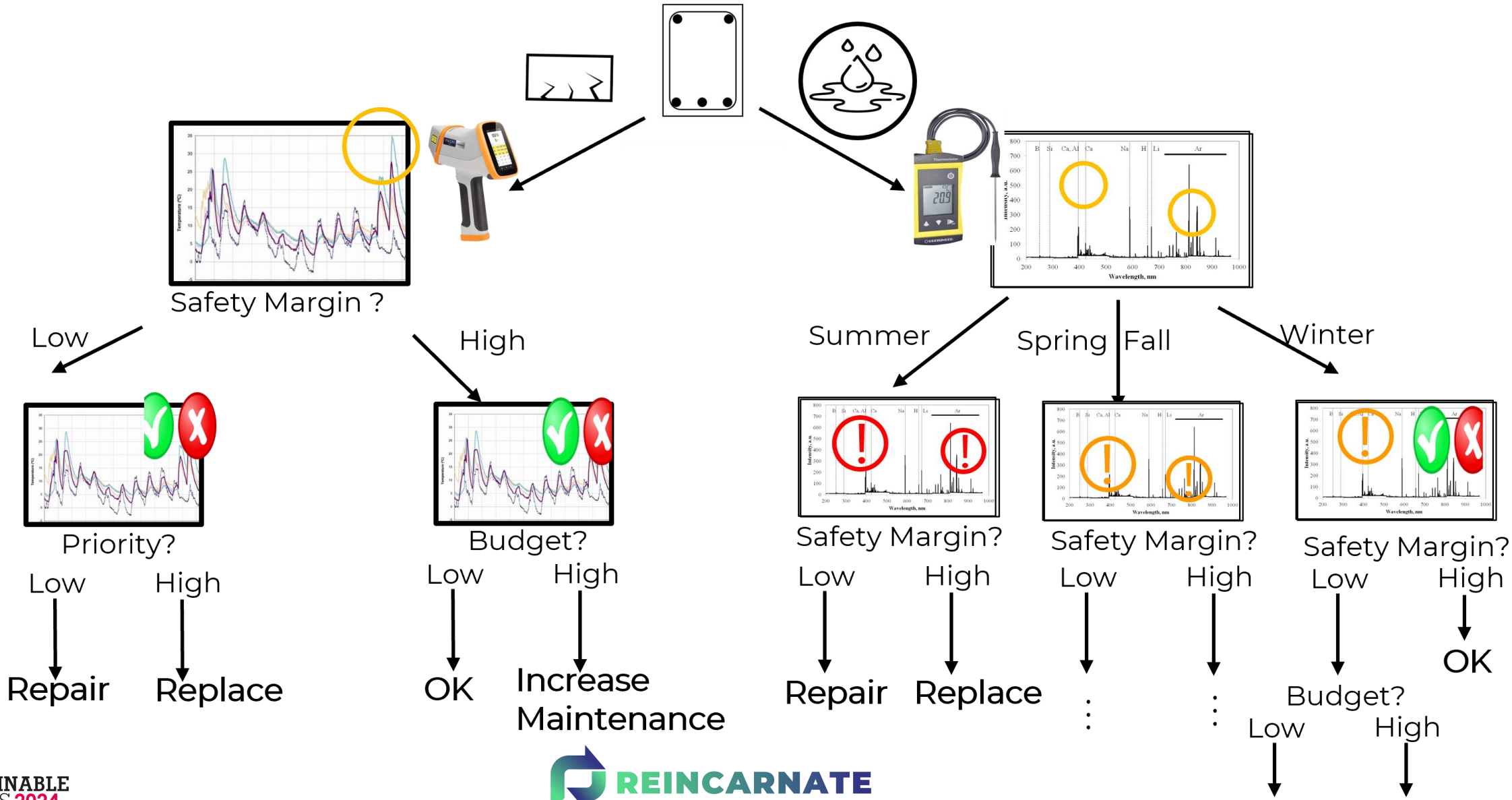
Robotics



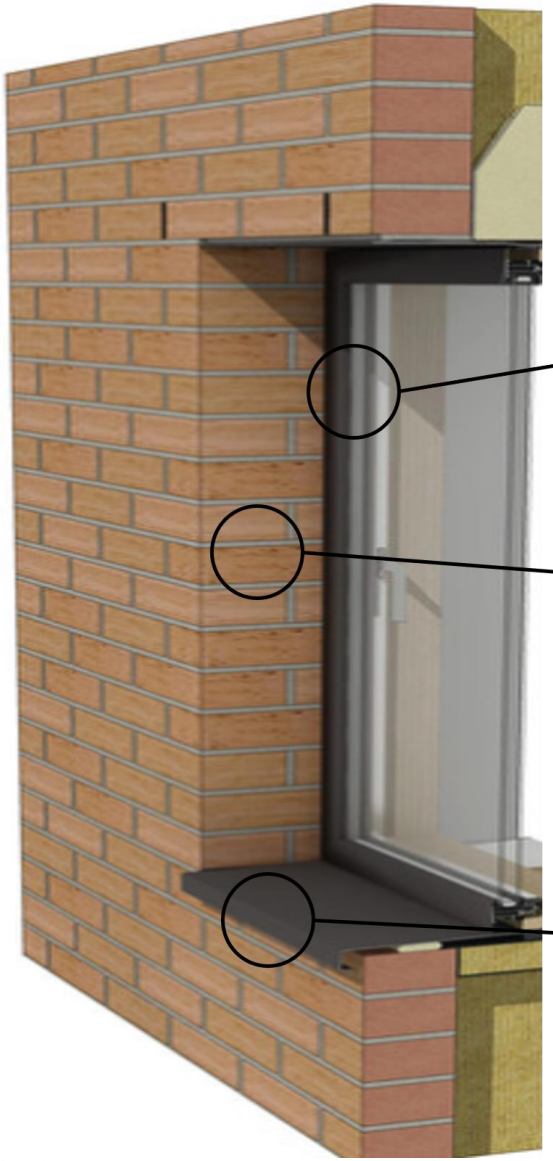
Non-Destructive Testing + IoT

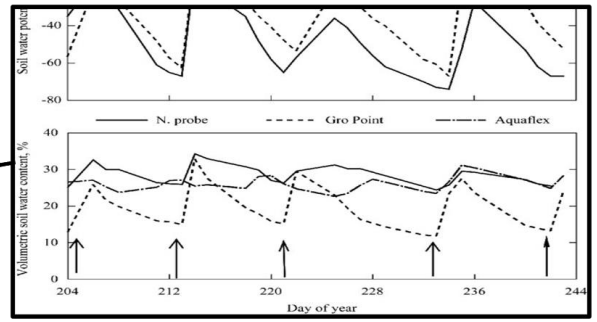


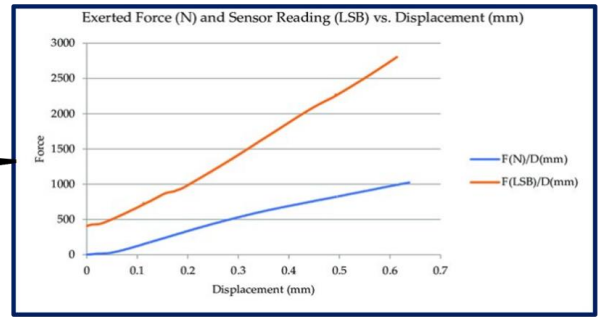
Risk Assessment Decision Tool

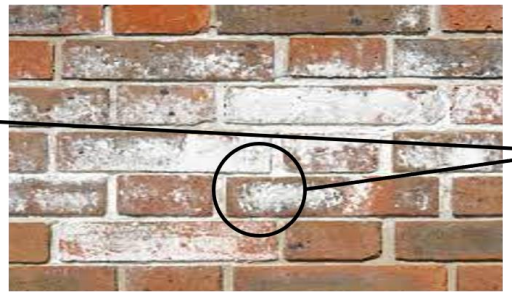


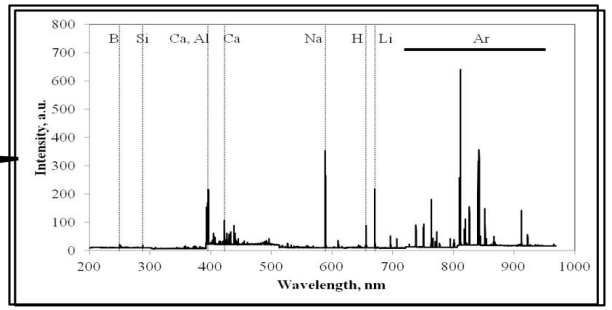
Product Upgrade Solutions

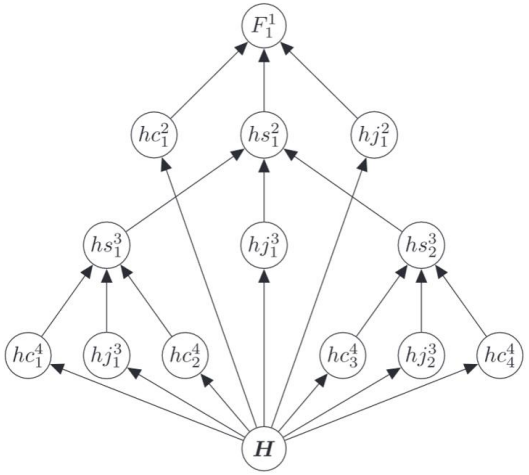












Impact

Increase by 50% the reusability of construction products post demolition

REINCARNATE will release Minimum Viable Products (MVP) of the CP-IM and the REINCARNATE innovations
by the end of the project reaching TRL6

Valuation methods for recycled materials and upgrade methods for construction products

Automated Methods for assessing and separating CDW on site

REINCARNATE will suggest standards for fostering transparent and reliable practice across Europe

The project will achieve a Societal Readiness Level (SRL) score of SRL 6

Solutions for waste avoidance

Methods for dismantling construction products for reuse in high product quality

Social science supported insights in how to improve adoption behavior for recycled materials

Solutions for information modelling and management

Solutions for waste management

Scientific impact

Societal impact

Techno-economic impact

REINCARNATE

Thank you

http://reincarnate-project.eu/

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101056773.

SUSTAINABLE PLACES 2024

Q&A

SUSTAINABLE PLACES 2024

Dynamic Decarbonisation Pathways Framework Integrating Technological, Social, and Policy Innovations for Sustainable Renovations in the Built Environment

Circular and Bio-based Building Solutions

Wednesday 25 September 2024 | 14:00-15:30 | Briefing Room CZ | Workshop | Hybrid

Giulia Viero, Institute for European Energy and Climate Policy (IEECP)

Co-funded by the European Union

Grant Agreement No: 101147781

The role of buildings in the EU decarbonisation pathways

- At an EU scale around 75% of buildings remain **energy inefficient** and in **need of renovation** to improve their energy performance
- Renovation rates are f**ar below the minimum** 2,5-3% required to meet mid-term targets by 2030 (1%)
- Current construction and renovation practices consume 50% of **extracted raw materials** and produce 35% of all **waste generated** in the EU. Circularity gap.

- Under the **Waste Framework Directive**, construction and demolition waste are a **priority**
- The EU is actively promoting initiatives and policies including the **Renovation Wave**
- Initiatives, such as the **Digital Product Passport**, are introduced to **foster circularity** alongside **Construction 4.0** enablers. Modular construction. Design for dismantle.

Co-funded by the European Union

DeCO2 Project Scope

The project aims to improve the **energy efficiency, circularity and sustainability of the built environment.** DeCO2 will **apply integrated approaches** that **demonstrate, in practice, achievable pathways for decarbonisation of the building stock.**

Aim

This **means developing and integrating**

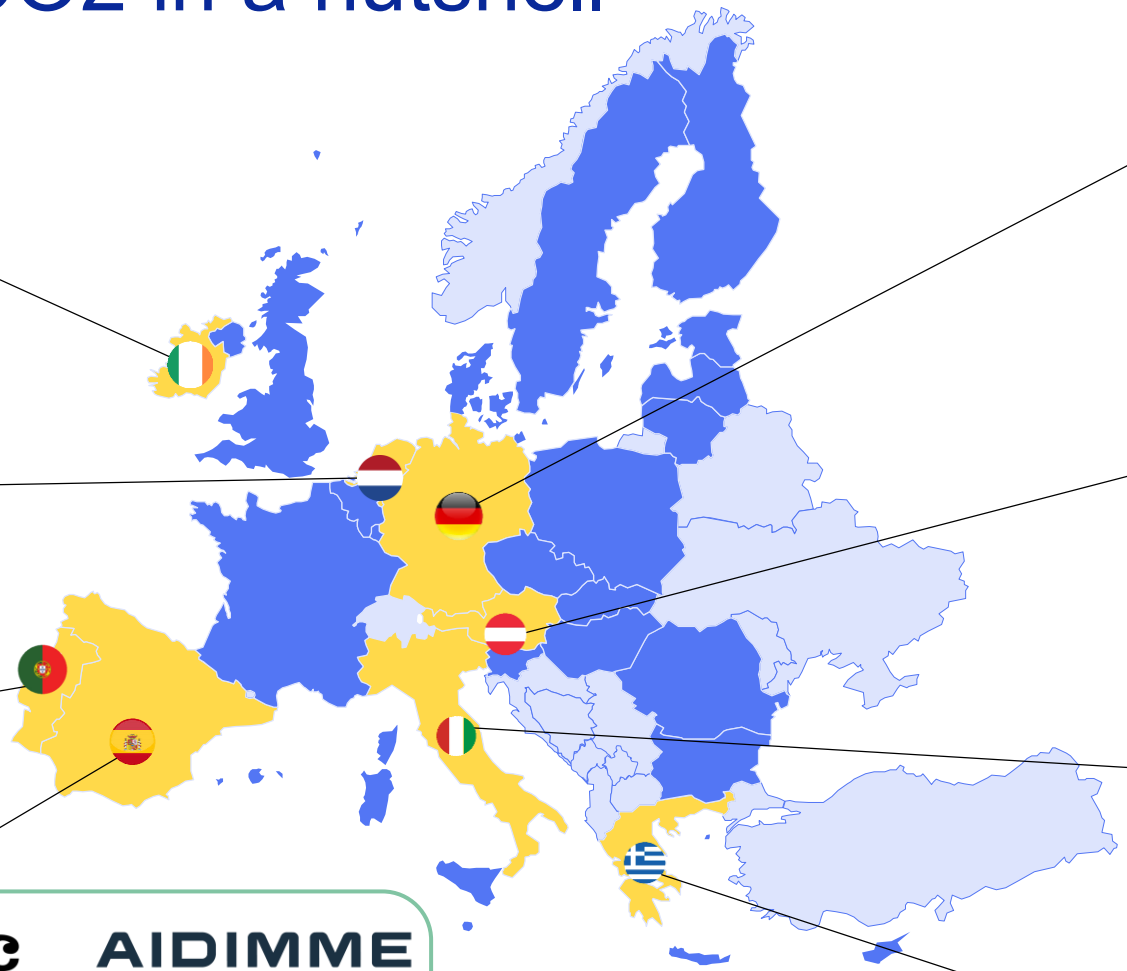
-new **design techniques** allowing for deconstruction and reuse;
-new **products and components** that can be **dismantled and reused**;
-new products and components for **construction** works that incorporate reused and recycled elements and materials.

Innovations

The demonstration sites deploy and test technologies and enabling conditions through a **value chain approach** in:
planning, design, budgeting, procurement, construction practice, insurance, and related administrative and regulatory processes.

Demo

DeCO2 in a nutshell



TUS
Bord Oideachais & Oiliúna
LUIMNIGH & AN CHLÁIR
LIMERICK & CLARE
Education & Training Board

IEECP
INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY

WSOLVE

NOVA IMS
Information Management School

cemosa
Ingeniería y Control

Iaac

AIDIMME
Technology Institute

IVE
Instituto Valenciano de la Edificación

CoCircular

Ajuntament de Castelló

3L

Fraunhofer IBP

IG TERRASSENHAUS

Wegener Center

UNI GRAZ

wasp

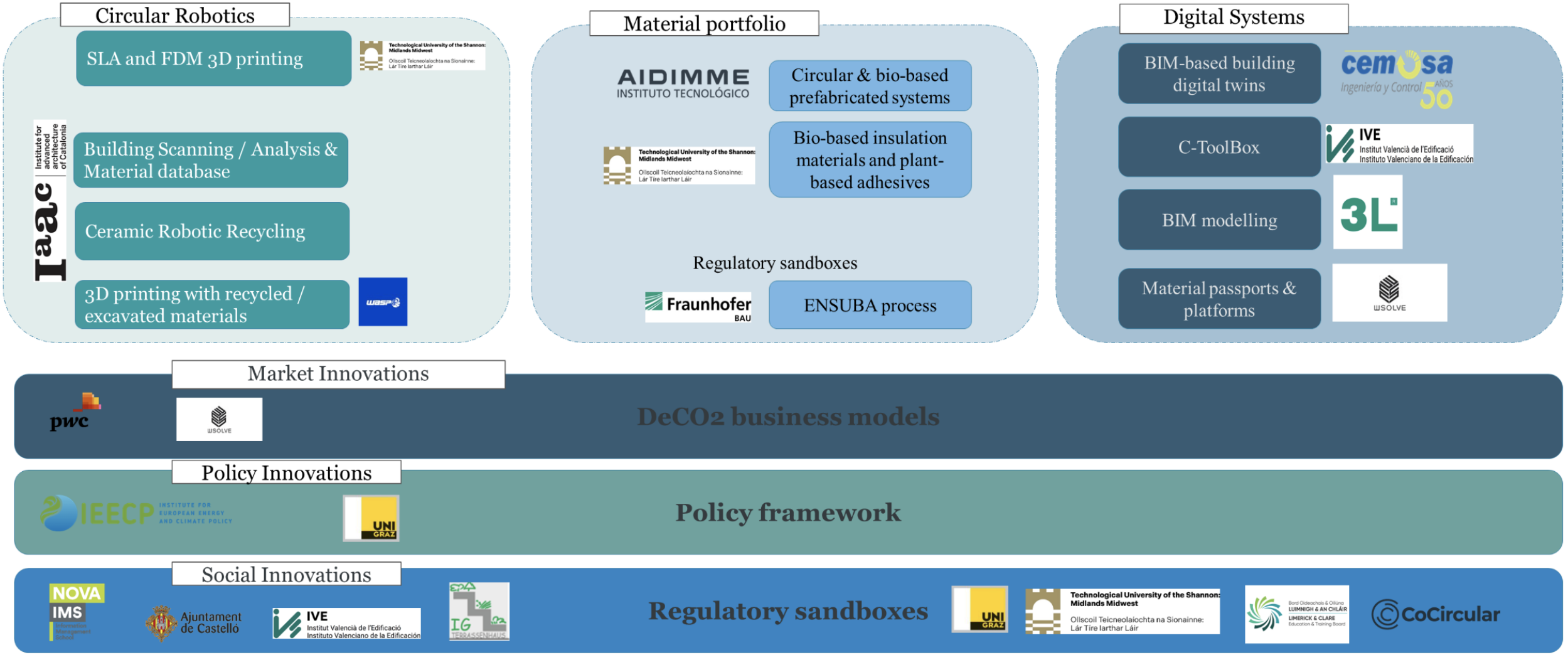
pwc

DeCO2

Co-funded by the European Union

Duration: 48 months
(started June 2024, end May 2028)

DeCO2 Dynamic decarbonization framework



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Demo 1: Limerick City, Ireland (TUS)

Establishing a decarbonised approach to retrofitting in Ireland

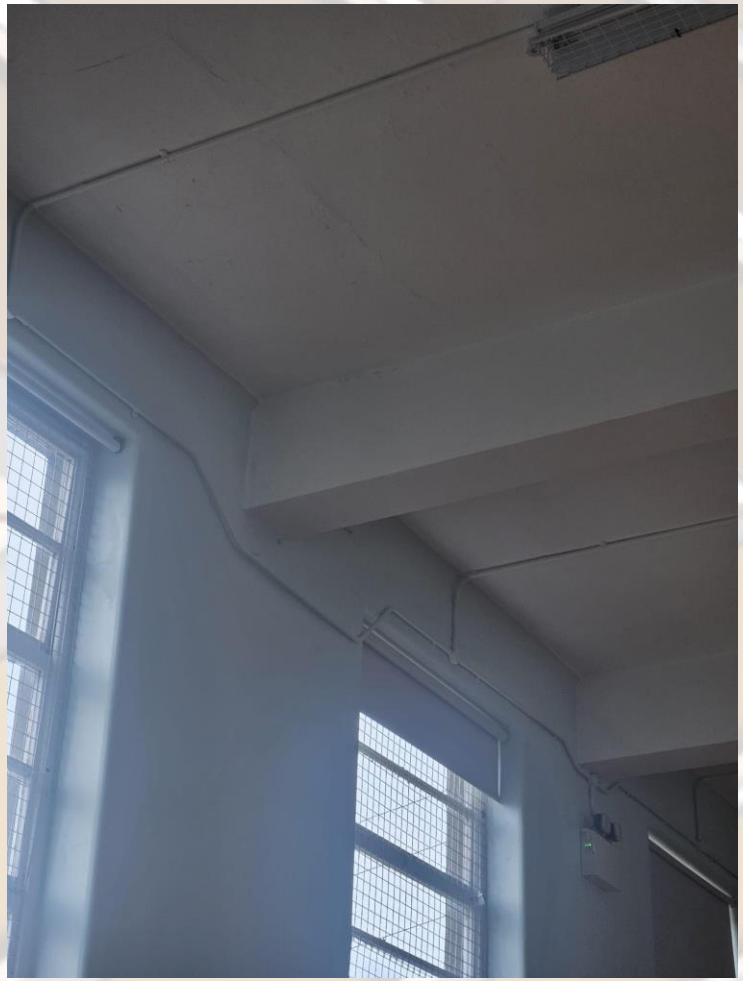
- Bio-based fully recyclable composites
- Mycelium and breathable adhesives to sequester carbon
- Green roof testing integrating various waste products and green vegetation
- Circular and cost-effective way for scalability
- Practical retrofitting and circular guidelines for the construction industry and building owners (TUS & Fraunhofer IBP)

Limerick demo case – practical retrofitting and circular guidelines

- The iconic red brick building (1911) is owned by DeCO2 partner Limerick Clare Education and Training Board (a regional training authority specialising in training and upskilling construction crafts). The demo building is a recreational hall to the back of the building.
- DeCO2 project provides robust methodology and Collaborative Research Framework (CMF) for the demo retrofit
- Irish R&D partner Technological University of the Shannon will support the LCETB on end-user advocacy, procurement demands and project objectives
- Ensuring user engagement concerning sustainable renovation practices.
- Focusing on essential elements such as inclusivity, comfort, health considerations and accessibility
- Facilitating replicability across Irish educational authorities
- TUS will develop guidelines for decarbonisation pathways using LCA with Level(s) metrics to be incorporated into the process at the 3 DeCO2 demo sites
- Energy and carbon performance will be monitored pre-/post retrofitting and deconstruction
- Biobased research materials produced by TUS at its PRISM research institute to be used in the retrofit are currently TRL6-7; post testing could meet the required certification and verification for replication (TRL 8).
- Digital twin to establish a building passport for the future maintenance and operations and for training purposes.

Limerick demo case – site for test bed with ample roof space

Recreational hall site for biobased materials test bed with ample roof space for green roof and solar PV array



Thank you for your attention

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Visit our website: HOME | DeCO2 (deco2-project.eu)

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A Wood-to-Wood Cascade Upcycling Valorization Approach

Akrivi Korba

Institute of Communication and Computer Systems (ICCS)

Luxembourg, 25 September 2024

SUSTAINABLE PLACES 2024

WOOD2WOOD

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Project Facts

- **Call:** HORIZON-CL4-2023-TWIN-TRANSITION-01
- **Topic:** HORIZON-CL4-2023-TWIN-TRANSITION-01-42
- **Granting Authority:** European Health and Digital Executive Agency
- **Project Coordinator:** Dr. Angelos Amditis (ICCS)
- **Start Date:** 1 January 2024
- **End Date:** 31 December 2027

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Consortium

CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS

POLITECNICO
MILANO 1863

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WOOD2WOOD

Why?

- The construction and demolition waste (CDW) generates 30-40% of global solid waste and consumes 40-50% of raw materials.
- 75% of CDW remains untapped, neither reused nor recycled.
- In Europe, CDW is a significant waste stream containing 20-30% of materials like wood, making it a key focus of EU waste policy.

What?

- W2W transforms contaminated wood waste from CDW and furniture waste into high-value products.
- W2W leverages advances in sorting and separation technologies, digital tools, and supporting policies to create efficient recycling and upcycling processes.
- The approach fosters sustainable value chain supporting a circular economy.

How?

Advanced Sorting Technologies

Upcycling Technologies

Digital Tools

Framework for Policy, Market & Skills

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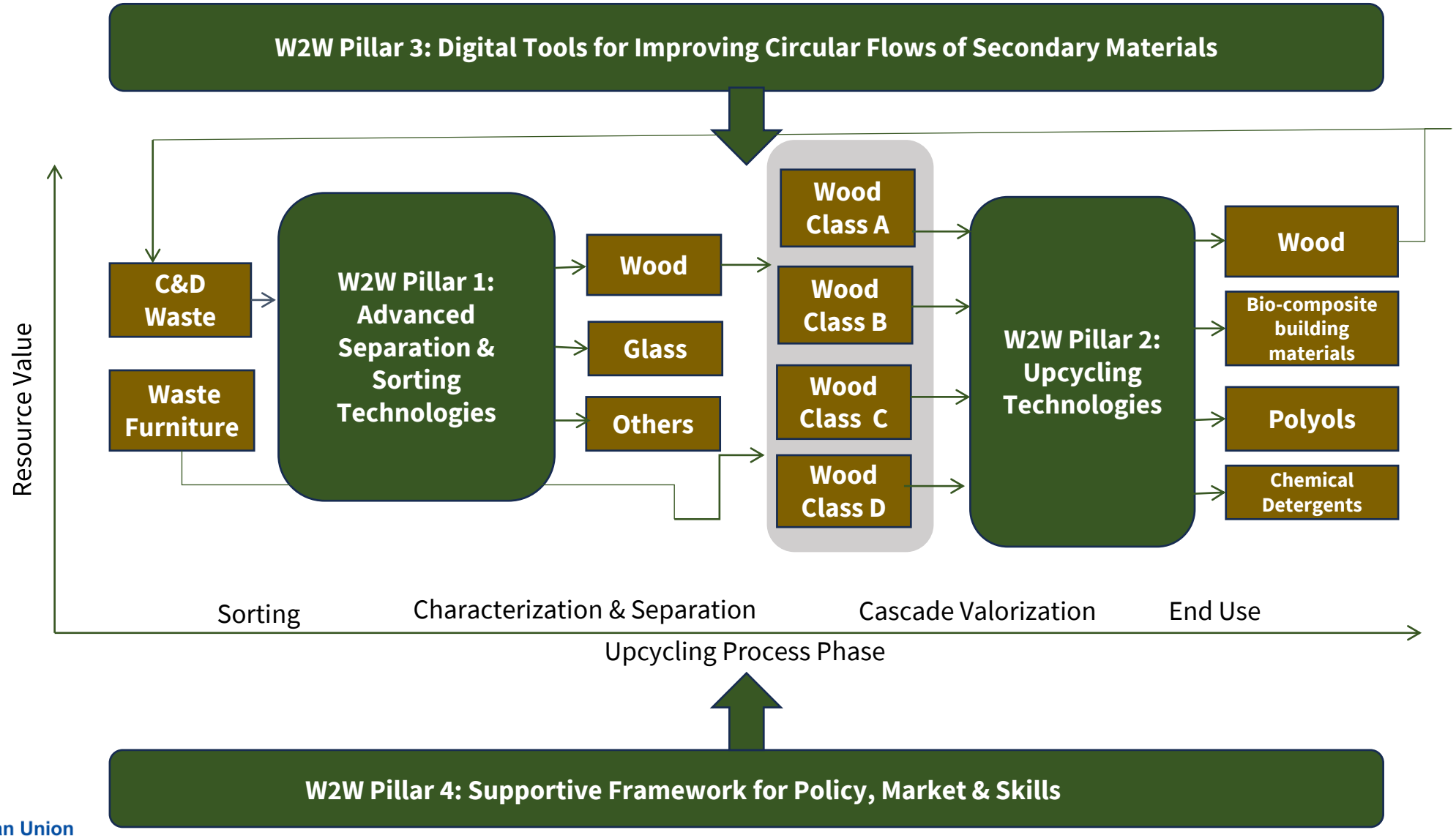
W2W Concept



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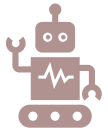
W2W Objectives

To produce and validate the **W2W comprehensive framework**

To improve the **separation capabilities** of **wood sorting mechanisms**

To develop technologies for **upcycling waste materials**

To develop approaches and **digital tools** for life cycle sustainability assessments



To validate W2W technologies/solutions **in 3 Use Cases**, representing different value chains

To **increase competitiveness** and **promote sustainable practices** in industries

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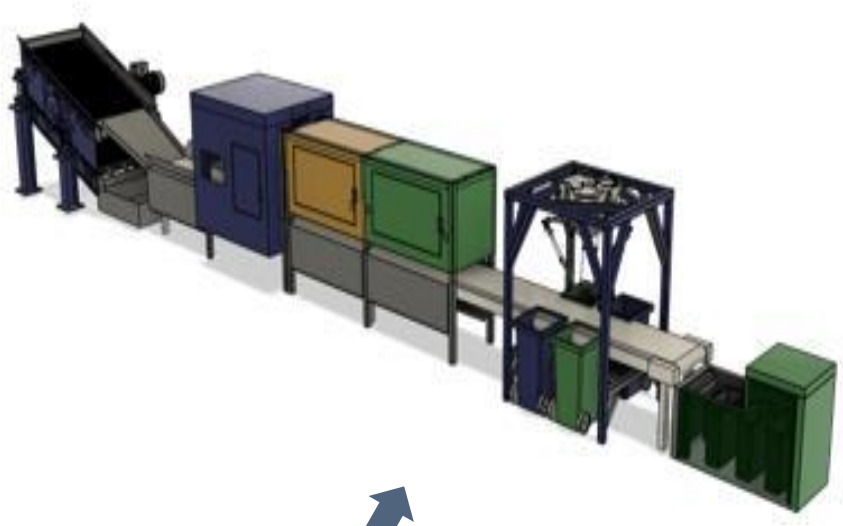
Sorting & Separation

- Soft Wood Off-cuts
- Mixed Waste
- Hardwood Waste
- Wood Shavings
- Off-cuts
- Saw Dust



System for sorting wood waste collected from CDW to separate different sorts of wood.

- Untreated wood
- Coated wood
- Wood with halogenated compounds
- Wood with hazardous compounds

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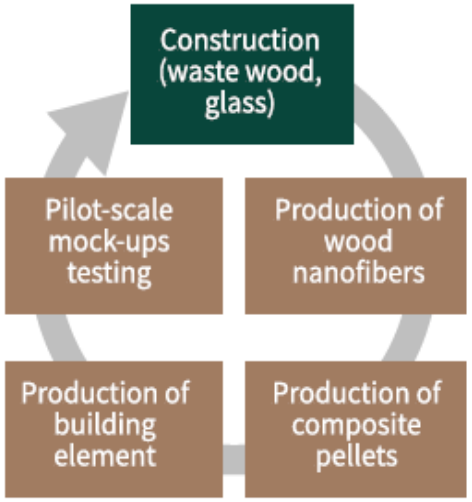
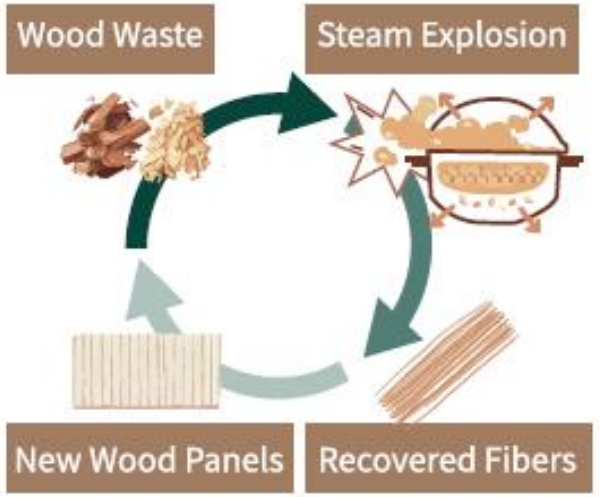
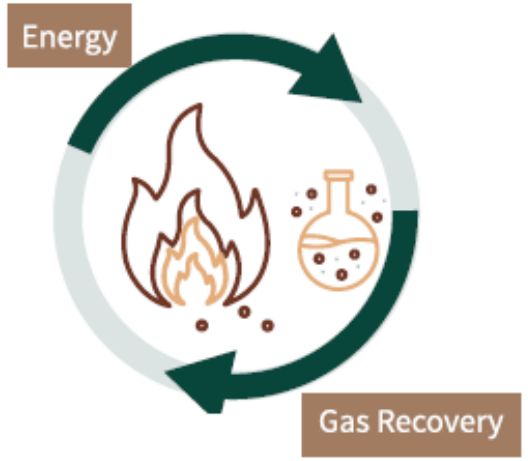
W2W Use Cases







Cascade Refinement Technologies

Chemical & Bioremediation Technologies

Energy & Gas Valorisation Technologies

Bio-composites

Polyols

Surfactants

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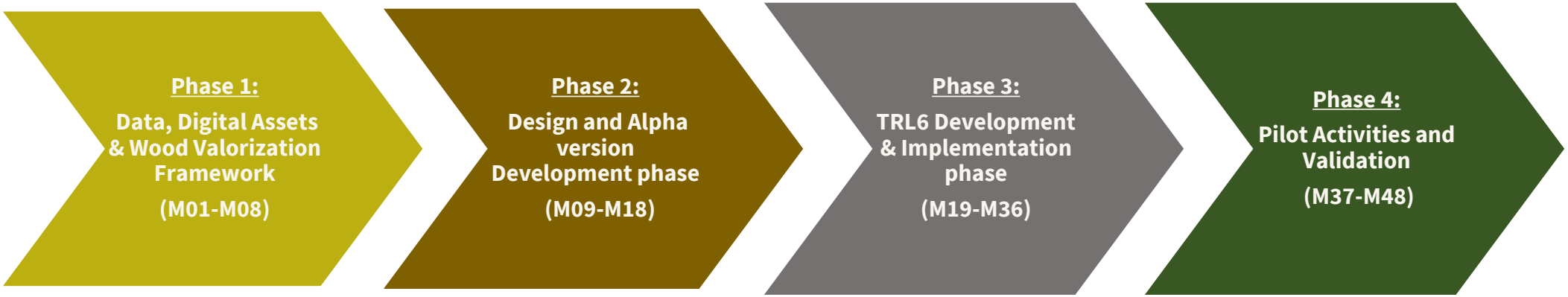
Scientific Methodology & Project Timeframe



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Thank you!

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Email: akrivi.korba@iccs.gr

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MEZeroE

Web-based virtual marketplace

A virtual marketplace to an open innovation testbed for nZEB enabler envelope technology solutions

Measuring Envelope products and systems contributing to next generation of healthy nearly Zero Energy buildings

This project has received funding from the European Union's Horizon 2020 research and innovation programme under **grant agreement No 953157**

MEZeroE Mission

MEZeroE (25 partners) aims to create an EU distributed **open innovation ecosystem** for:

- developing nearly Zero Energy Building (nZEB) Enabler **Envelope Solutions**;
- transferring **knowledge**;
- **matching** testing **needs** with test **facilities**;
- providing **monitoring** in real **buildings** used as **living labs**;
- **standardizing** cutting-edge **solutions** coming from SMEs and larger industries.

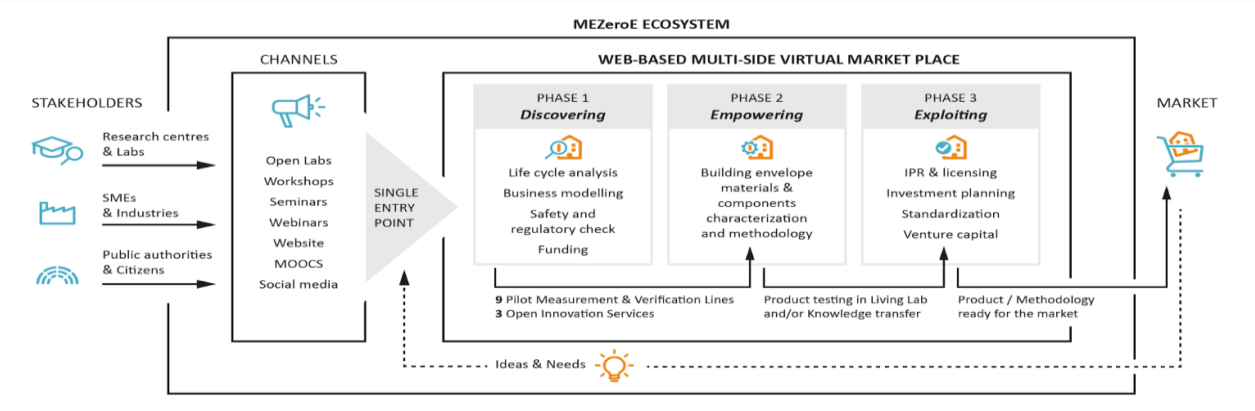
Measuring Envelope products and systems contributing to next generation of healthy nearly Zero Energy buildings

This project has received funding from the European Union's Horizon 2020 research and innovation programme under **grant agreement No 953157**

MEZeroE Vision

Web-based multi-side **virtual marketplace** which will include:

- **9 Pilot Measurement & Verification Lines** (**PM&VL**): test chain focused on a specific envelope performance or technology to support the development and performance characterization of envelope products by means of experimental measurements and modelling
- **3 Open Innovation Services (OIS):**combination of tools and methods to address a specific transversal topic (e.g. CE marking, IEQ measurement in real buildings, open innovation uptake)
- **Access to real-buildings as living labs (LL):** real building that is occupied by real people, but has sufficient embedded sensors to measure the relevant parameters and thus enable real-use envelope performance analysis
- **Additional resources and support** including training, business model development, systematic IP and knowledge management. MEzeroE will **fast-track prototypes to the market** as fully **characterized** and **exploited** (full potential unlocked) products



AMBASSADORS: Become the main multipliers of the marketplace. Recruit producers, testing facilities owners, investors, business coaches, thus all the stakeholders that will use or contribute to the platform. AMBASSADORS will help the OITB making the ecosystem growing quickly after the end of the project.

https://mezeroe-platform.eu/

This project has received funding from the European Union's Horizon 2020 research and innovation programme under **grant agreement No 953157**

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Round Table Discussion