

Circular economy start-up developing a software to digitise building materials and allowing optimal circularity of building materials is looking for consortium for HORIZON-CL5-2024-D4-02-01, HORIZON-CL5-2024-D4-02-03 or HORIZON-CL5-2024-D4-02-04

Summary

Profile type	Company's country	POD reference
Technology offer	Germany	TODE20240410002
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement Investment agreement Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Aleš OGOREVC	10 Apr 2024 10 Apr 2025	10 Apr 2024

General Information

Short summary

A German SME offers a Software-as-a-Service platform ensuring optimal circularity of building materials and resource efficiency by digitizing construction materials (material passports). They look for a Horizon Europe consortium where they can bring in their expertise in digitization, analytics and planning for sustainable building development, maintenance, life-cycle/circularity assessment of buildings, resource efficiency in construction and deconstruction as well as for bilateral cooperations

Full description

The German SME has established a Software-as-a-Service platform digitizing construction materials in existing buildings in the form of material passports. The software provides an easy and profitable reuse of materials through intelligent match-making of the demand and supply side while establishing local circular value chains, enabling optimal circularity of building materials and assessing greenhouse gas savings using Life Cycle Assessment (LCA).

The construction sector accounts for 60% of global waste and 40% of CO2 emissions. The SME provides the software to implement the idea of urban mining in the building industry with the potential to reduce up to 20% of

global CO2 emissions and 30% of resource consumption. By automatically analysing the data of the built environment and making it accessible through material passports the process of reclaiming, recycling and reusing materials from existing urban infrastructure is enabled. Important data for the design for adaptability, re-use and deconstruction of buildings is gathered resulting in a reduction of deconstruction costs up to 30 %. This provides the basis for the planning of circular construction projects with the goal to conserve primary resources, close material loops, and significantly reduce waste and greenhouse gas emissions by optimising resource efficiency and circular energy renovation.

The analysis tools developed by the SME automatically determine the lifespan, carbon footprint, resource value, and various critical metrics of each material within a building. The tools offer full BIM integration, automated life-cycle analysis and standardised material information systems enabling a fast digitisation of all materials in a building.

So far, more than 350 projects all over Germany, Austria and Switzerland have been optimised for circularity using the knowledge of the company. With their database for circular construction as well as their expertise for software development and material circularity they can contribute to projects for digital, sustainable solutions across the entire construction value chain. Of particular interest are projects related to digitisation of building materials (Material Passports), analytics for sustainable building development, planning with circular materials, maintenance and construction, life-cycle and circularity assessments of buildings, resource efficiency in construction and deconstruction.

The SME is keen to explore optimising the industry through different methods and partnerships. A commercial or license agreement would provide opportunities to utilize the software across various scenarios and user bases, while supporting local material chains and gathering crucial data on materials in different climates and conditions. Meanwhile, an R&D cooperation would allow the SME to validate theoretical research findings in practical settings, resulting in valuable insights for all parties involved. Furthermore, a technical cooperation agreement could be established, e.g. with Building Product Manufacturers, facilitating an exchange of expertise on developing products that are easily disassembled and reused, as well as on non-destructive dismantling techniques. Investment agreements, distribution services agreements, or outsourcing agreements, would enable the SME to enhance and expand its capabilities by focusing on improving its digital ecosystem collaboratively with other industry pioneers and experts.

They would also like to participate as a partner in research projects under HORIZON-CL5-2024-D4-02-01: Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership), HORIZON-CL5-2024-D4-02-03: BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership) or HORIZON-CL5-2024-D4-02-04: Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership).

Advantages and innovations

- Fast digitisation of all materials in a building: Creating digital building passports manually (conventional method) is time consuming and demanding. The SME has developed a fast building digitization process using specially developed software with machine learning and 3D scans, the key data of all materials in the building are recorded.
- Standardised material information system: Together with actors across the construction industry, the company has developed a standardised material information framework, thus creating a basic digital infrastructure of a circular construction industry.
- Material circularity expertise: In-depth knowledge of the materiality, sustainability and circularity of building products through their Circular Consultants team profiting from backgrounds as architects, environmental engineers, IT specialists, project managers, software developers and sales & marketing specialists.
- Full BIM (Building Information Modeling) integration and BIM Plugin: The SME's software allows for full BIM (ifc (industry foundation class)) integration. A BIM plugin was developed for model synchronisation and planning-related evaluations (interface to the company platform).
- Automated Life-cycle Analysis: The ecological savings can be automatically analysed through a life cycle assessment via the software.
- Enabling Circular Construction: More than 100 buildings (~ 5.000.000 m²) have been fully digitised as part of a Circularity Assessment and the building materials have been returned to the material cycle. This not only saved more than 100,000 t of CO₂, but also more than EUR 2 million in landfill costs.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

Secret know-how

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 13: Climate Action**

Partner Sought

Expected role of the partner

Type of partner sought:

Cities and municipalities
Participants of the construction industry
Architecture and Engineering Offices
Universities, Institutes, Think Tanks

Specific area of activity of the partner:
Sustainable building development
Building Material Circularity

Tasks to be performed by the partner sought/Expected role of the partner:
Capabilities to implement pilot projects together (project developers, manufacturers, public actors)
Contribute with scientific research and methodology (research institutions)
Project management & coordination

Type of partnership

Research and development cooperation agreement

Investment agreement

Commercial agreement with technical assistance

Type and size of the partner

- **University**
- **SME 50 - 249**
- **Big company**
- **R&D Institution**
- **SME <=10**
- **SME 11-49**
- **Other**

Dissemination

Technology keywords

- **01001002 - Digital Systems, Digital Representation**
- **10002015 - Life Cycle Assessment**
- **02006001 - Materials, components and systems for construction**
- **02006006 - Construction engineering (design, simulation)**
- **02006007 - Management of construction process & life**

Market keywords

- **02007014 - Other industry specific software**
- **02007011 - Manufacturing/industrial software**
- **09007003 - Distribution of building products and systems**
- **09007002 - Manufacture of construction materials, components and systems**



Targeted countries

- **World**

Sector groups involved

- **Construction**

