

D.3.3.3 - Long-term Study for the Operation of Regional Circular and Digital Construction Hubs as SaaS



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Summary

This report, developed within the framework of the ReBuilt project, presents a long-term feasibility study and a five-year operational plan for operating a Regional Circular and Digital Construction Hubs Network across the Interreg Central Europe region. The initiative aims to accelerate the construction sector's transition towards circular economy practices and digital transformation, contributing to a more sustainable and resilient built environment. The network is based on a digital ecosystem of interconnected hubs designed to foster innovation, collaboration, and knowledge exchange.

At its centre is the Central Circular and Digital Construction Hub, headquartered in Slovenia at the Slovenian Building and Civil Engineering Institute (ZAG), supported by eight regional and national hubs. This structure enables both regional specialisation and strong transnational coordination, ensuring efficient knowledge transfer and strategic alignment across the network.

The hubs also establish links with other EU-level initiatives to strengthen innovation capacity in circular and digital construction, particularly in the use of secondary raw materials and innovative sustainable technologies. Supported by a dedicated Software-as-a-Service (SaaS) platform (<https://circularconstruction.zag.si/>) based on circular and digital construction principles, the hubs offer shared services, tools, and expertise through a hybrid model combining physical and virtual operations. The initiative leverages the extensive experience of the project consortium, including previous research, pilot activities, and established professional networks.

This feasibility study assesses technical, market, organisational, and financial aspects over five years after the end of the ReBuilt project (2026-2031).

A mixed public-private funding model is proposed to ensure long-term sustainability. The findings confirm that the hub network is feasible, scalable, and capable of delivering significant environmental, economic, and digital impacts across Central Europe. By supporting the transition from linear construction practices, the network contributes to an economic system that promotes well-being within the planet's ecological limits.

This deliverable relates to deliverables D3.3.1 and D3.3.2 under activity A3.3, Implementation of Regional Circular and Digital Construction Hubs Umbrella in Central Europe.



1. Introduction

The construction sector remains one of the most resource-intensive industries and a major contributor to environmental pressures across Europe. According to the European Commission (2020)¹, the sector accounts for approximately 40% of total material consumption, 36% of greenhouse gas emissions, and over 35% of total waste generation in the European Union. In the context of Central Europe, the transition towards a circular and digitally enabled construction paradigm is therefore essential for achieving a resource-efficient, climate-neutral, and resilient regional economy in line with the European Green Deal objectives.

Despite growing policy support, the adoption of circular economy principles and digital technologies in the construction sector remains uneven and fragmented across the region. While certain countries have advanced through comprehensive regulatory frameworks, innovation ecosystems, and dedicated educational programmes, others continue to encounter structural, regulatory, and capacity-related barriers. These disparities hinder the large-scale implementation of sustainable construction practices and limit cross-regional knowledge transfer.

Addressing these challenges requires systemic, collaborative, and innovation-driven approaches accelerating the uptake and scaling of circular solutions. In this context, digital technologies are increasingly recognised as critical enablers. Solutions such as e-learning, material traceability systems, and interoperable data platforms (e.g. ReBuilt CinderOSS² and Gaia-X³) contribute to enhanced transparency, improved resource efficiency, and strengthened accountability across the construction value chain. Furthermore, such tools support compliance with emerging EU regulatory frameworks, including the Green Deal, new EU Ecodesign Regulation⁴ and EU Construction Product Regulation⁵ with implementation of Digital Product Passports and the Circular Economy Act initiative.

The establishment of Central and Regional Circular and Digital Construction Hubs represents a strategic mechanism to address these gaps. Within this framework, the ReBuilt project contributes to strengthening the regional ecosystem for circular and digital construction in Central Europe by fostering multi-stakeholder collaboration, facilitating knowledge exchange, and supporting the deployment of innovative solutions.

This integrated approach enables a balanced combination of innovation, education, and entrepreneurship. It builds on the expertise of project partners and draws inspiration from established models such as the innovation hubs developed by EIT RawMaterials, thereby enhancing capacity building and technology transfer across regions.

At the same time, the construction sector faces increasing regulatory and market pressures to reduce waste generation, lower carbon emissions, and align with digital and sustainability requirements. Nevertheless, the uptake of circular construction practices and digital tools remains particularly limited among small and medium-sized enterprises (SMEs), which constitute more than 99% of the construction sector in the EU (Eurostat, 2022)⁶.

In this regard, regional hubs supported by a shared SaaS (Software-as-a-Service) platform can play a crucial role in reducing entry barriers, enabling access to digital solutions, and supporting the transition of Central European SMEs in the broader construction industry towards more sustainable business models.

¹ In focus: Energy efficiency in buildings: https://commission.europa.eu/news-and-media/news/focus-energy-efficiency-buildings-2020-02-17_en

² <https://www.infordata.pro/sustainability/circular-economy/rebuilt-digital-portal-officially-launched-paving-the-way-for-a-circular-construction-future/>

³ <https://gaia-x.eu/about/>

⁴ Regulation (EU) 2024/1781 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02024R1781-20240628>

⁵ Regulation (EU) 2024/3110 <https://eur-lex.europa.eu/eli/reg/2024/3110/oj/eng>

⁶ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Businesses_in_the_construction_of_buildings_sector



More broadly, a global shift towards circular economy principles is gaining momentum, with Europe at the forefront of policy and implementation efforts. Given its scale and environmental impact, the construction sector is a key priority area within this transition, which offers significant potential to contribute to long-term sustainability, resource efficiency, and economic resilience.

1.1. Europe's circular economy in facts

With a circularity rate of 11.8% in 2023, Europe consumes a higher proportion of recycled materials than other world regions, although improvements have been limited in recent years. Accelerating the transition to a circular economy has become a policy priority. A strong enabling framework of policies, knowledge, and financing has been developed at the EU level to foster and support the circular economy. Companies and consumers are showing early signs of adopting new business models and consumption patterns. However, linear systems continue to prevail, and the effectiveness of ongoing efforts remains unclear, partly due to limited monitoring data.

Each European uses about 14 tonnes of material and generates 5 tonnes of waste annually—among the highest levels globally and beyond sustainable limits, posing barriers to narrowing material cycles in Europe. On the positive side, the EU has managed to grow its economy while using a stable amount of resources and generating a stable amount of waste, achieving a modest level of decoupling (EEA, 2024)⁷. Figure 1 shows the relationship between raw material consumption per capita (2021) and the Human Development Index (HDI) (2022)⁸.

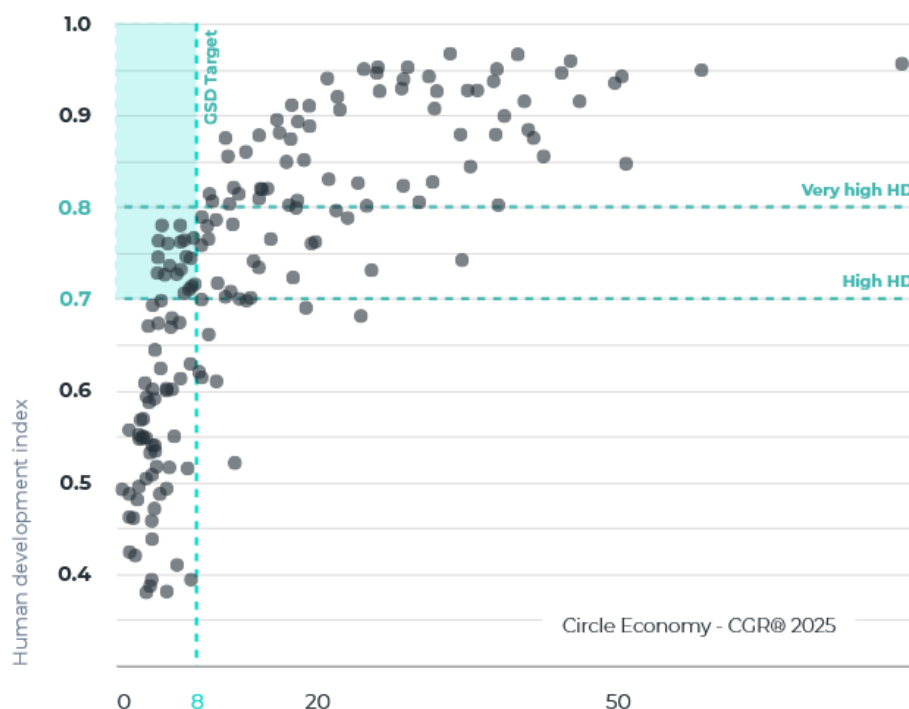


Figure 1: Raw material consumption per capita (tonnes/capita), (Source: Circle Economy, 2025)

In particular, as seen in EEA (2024), circularity calls for the following actions:

- Reducing resource use and moving towards a less material-intensive European economy;
- Maximising the utility of products by promoting the intensity of their use and much longer life spans;

⁷ <https://www.eea.europa.eu/en/analysis/publications/europes-circular-economy-in-facts>

⁸ <https://circulareconomy.europa.eu/platform/sites/default/files/2025-09/CGR%202025%20complete%20document.pdf>.



- Making use of generated waste through high-quality recycling systems and returning high-quality secondary materials to product manufacturing.

Moving to a circular economy involves adopting a set of circular principles⁹ across Europe's production and consumption systems (Figure 2).

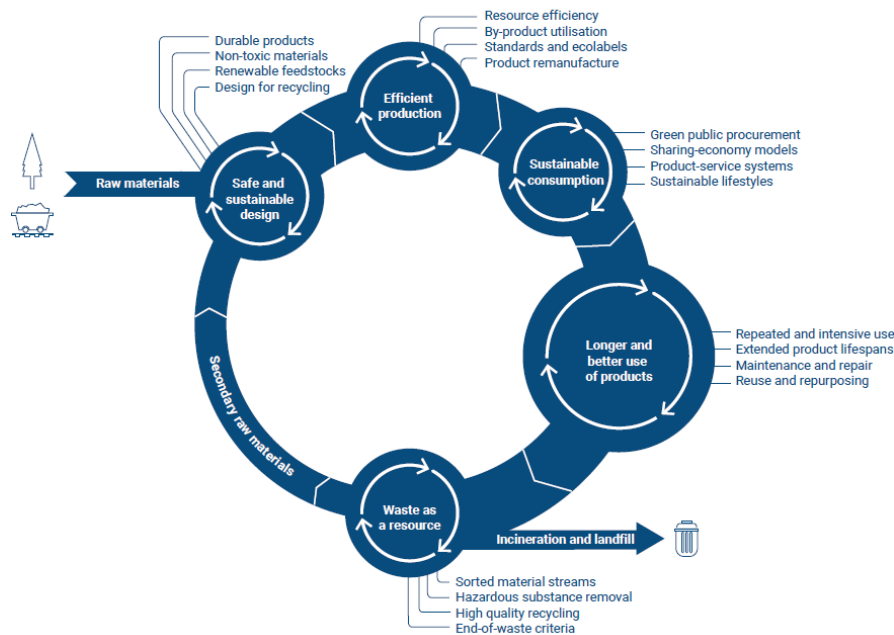


Figure 2: The touchpoints for achieving a circular economy in Europe, with key factors associated with each touchpoint (Source: EEA)

Global secondary material consumption, as seen in Figure 3, shows that the comparatively high global waste collection rate (82%) alongside the relatively low recycling rate (27-35%) highlights the limited effectiveness of recycling systems at a global scale, revealing a substantial discrepancy between collection and actual material recovery. These metrics are critical for performance monitoring, as waste must undergo sequential stages—collection, sorting, processing, and recycling—to be converted into secondary raw materials capable of re-entering the economic cycle. However, the strengthening of controlled disposal systems can help reduce uncontrolled waste dumping while laying the groundwork for expanding recycling capacity in the future.

⁹ EEA: Accelerating the circular economy in Europe State and outlook 2024:
<https://www.eea.europa.eu/en/analysis/publications/accelerating-the-circular-economy>

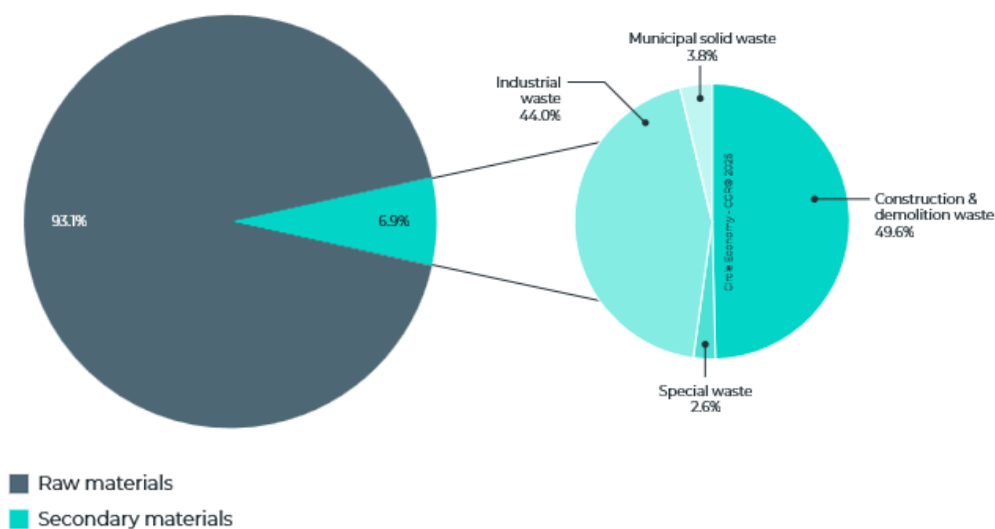


Figure 3: Breakdown of secondary material use (Source: Circle Economy, 2025)

Figure 4 shows circular material use rate (CMUR) in EU countries, with four Central European countries which are in the consortium of the ReBuilt project¹⁰ (Italy, Austria, Czechia and Germany) above the EU-27 average and five (Slovakia, Slovenia, Poland, Hungary and Croatia) below the average.

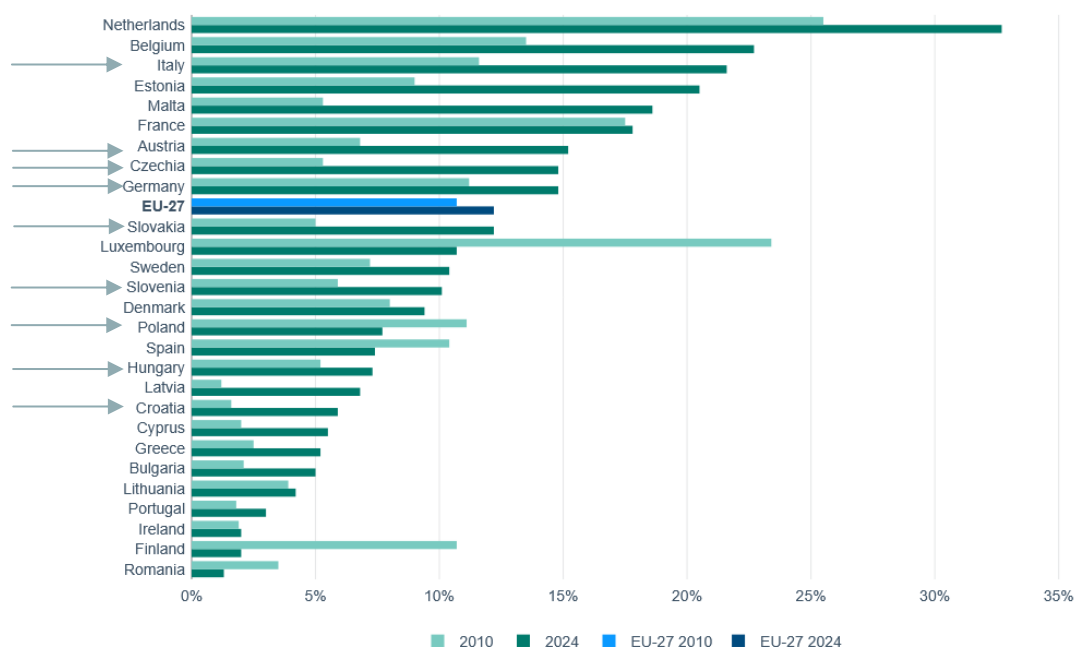


Figure 4: Circular material use rate (CMUR) by EU country (Source: EEA, 2025)

¹⁰ <https://www.eea.europa.eu/en/analysis/indicators/circular-material-use-rate-in-europe?activeAccordion=546a7c35-9188-4d23-94ee-005d97c26f2b>



2. Objectives and Strategic Roles of the Hubs

This activity assesses the feasibility and sustainability of a distributed Circular and Digital Construction Hub network operating under a SaaS model. It evaluates the long-term scalability and accessibility of regional hubs, develops a five-year operational roadmap for deployment, consolidation, and scaling, and examines potential public and private funding mechanisms to ensure long-term viability. It also demonstrates the role of the Circular Construction Platform in supporting circularity and digitalisation in the construction sector as a core element of the hub ecosystem.

The concept of the ReBuilt Circular and Digital Construction Hub network includes a central platform located in Slovenia (ZAG), serving as the coordination point and digital backbone, and a network of nine regional and national hubs in Italy, Croatia, Czechia, Slovakia, Hungary, Austria, Germany and Poland. Together, these form an integrated innovation corridor that supports innovation and business development, education and training, and knowledge transfer in circular and digital construction.

The model also integrates services such as MOOCs (e-learning), one-stop-shop solutions and information, digital tools such as a digital marketplace for secondary materials (CinderoSS), Digital Product Passports and coordinated hub activities to support circular construction processes.

2.1 The Value of Circular and Digital Construction Hubs

A governance framework is defined to ensure effective transnational cooperation, structured communication, and alignment with EU policies and the ReBuilt strategy for circular and digital construction, supported by a coordinated management model that enables transparent decision-making and cross-border interoperability. A circular construction platform <https://circularconstruction.zag.si/> as a central focus point integrates hubs network and promotes circularity and digitalisation in the construction sector.

The network of hubs provides:

- Access to advanced digital tools
- Support for circular business models
- Regulatory compliance assistance
- Knowledge exchange and capacity building (MOOC)

In this way, the circular and digital construction hubs of project ReBuilt serve as catalysts for regional transformation, positioning Central Europe as a proactive leader in the European circular, green, and digital transitions – both within the construction sector and beyond. The hub network could also be extended to other stakeholders in the Interreg Central region.



3. Description of the Developed SaaS Platform

3.1 Platform Overview

The circular construction platform <https://circularconstruction.zag.si/> (Figure 5) as a SaaS platform acts as the digital backbone of the hub network.

It provides centralised access to tools, data, and services that support circular construction and digital workflows. The platform is modular and designed for scalability across regions.



Figure 5: The circular construction platform for circular and digital construction hubs (Source: ZAG)

Innovative corridor of circular and digital construction hubs / a map of the ReBuilt partners, which are from countries in Central Europe and acts as hub operators interact with different stakeholders such as other hub operators, construction companies and SMEs, material producers and recyclers, public authorities (ministries, development agencies, local communities), research and education institutions, interested public and NGOs (Figure 6).



Figure 6: Innovative corridor of circular and digital hubs in Central Europe (Source: ZAG)

3.2 Core Functionalities of Platform

The platform provides a comprehensive digital ecosystem for circular and digital construction, integrating key services to support stakeholders across the value chain. It includes structured information resources and relevant legislation to ensure access to up-to-date regulatory and policy frameworks.

It offers education modules and e-learning content to support capacity building, skills development, and continuous professional training in circular construction, digitalisation, innovation, environmental impact and circular practices. A digital marketplace for secondary raw materials products enables exchange, facilitating reuse, resource efficiency, and new circular business opportunities.

In addition, the platform supports the use of Digital Product Passports to improve material transparency and traceability throughout the life cycle of construction products. It also provides access to best practice examples, enabling knowledge sharing and supporting the replication of successful circular and digital solutions across regions.

3.3 Open-Source Software (OSS) Approach

The platform is built on an open-source (OS) network to:

- Enable transparency and trust between partners after the project is completed.
- Enable sustainable operation of the platform and hubs.
- Reduce long-term costs.



4. Regional Circular and Digital Construction Hub Network

4.1 Value of Circular and Digital Construction Hubs

Each regional hub combines physical support services with digital services delivered via the SaaS platform. A central coordination entity ensures consistency, governance, and platform evolution (Table 1).

The hubs provide:

- Access to advanced digital tools.
- Support for circular business models.
- Regulatory compliance assistance.
- Knowledge exchange and capacity building.

Table 1: Circular and Digital Construction Hubs in Central Europe

State	ReBuilt Partner / Organisation	Focus area	Website
HR (Croatia)	Company POR	Legislation for Circular Construction	https://www.por.com.hr/en/interreg-ce-rebuilt
IT (Italy)	Infodata Opencontent	Digitalisation	https://rebuilt.infodata.eu/hub
CZ (Czechia)	Green Building Council	Circular Design	https://www.czgbc.org/en/rebuilt-circular-and-digital-renewal-of-central-europe-construction-and-building-sector
HU (Hungary)	Vas County BURST	Policy and Regulatory	https://www.vasmege.hu/en/nemzetkozi-projektek/rebuilt/ https://burstgroup.eu/project/rebuilt/
AT (Austria)	TUW	Circular Construction Education and Training	https://rebuilt.project.tuwien.ac.at/hub/
PL (Poland)	IETU	Demand-Side Measures	https://ietu.pl/en/rebuilt-circular-hubs-platform/
GE (Germany)	HM	Innovation in Circular Construction Materials	https://hm.edu/forschungsprojekte_de/forschungsprojekt_detail_7433.de.html
SL (Slovakia)	IIC URSTARCH	Industrial Symbiosis in Construction	https://www.industryinnovationcluster.sk/our-projects/rebuilt/ https://matcons.sav.sk/contact.html



State	ReBuilt Partner / Organisation	Focus area	Website
SI (Slovenia)	ZAG (central hub) SGZ NIGRAD	Circular value chains and business models	https://circularconstruction.zag.si/ https://www.stajerskagz.si/en/projects/rebuilt/ https://www.nigrad.si/o-nas/evropski-projekti/interreg-central-europe-re-built

The platform for circular and digital construction hubs: <http://circularconstruction.zag.si> serves to support high-quality, long-term and sustainable collaboration. At the same time, networking between central and regional hubs and to capitalize on other EU countries, we have linked to the official platform/website of the Interreg Central Europe ReBuilt project: <https://www.interreg-central.eu/projects/rebuilt/>.

The platform includes a hub network, MOOCs (Massive Open Online Courses), and a range of digital tools (connection with platform Gaia-X), such as a Digital Product Passport Platform and the CinderOSS Marketplace Platform for construction products made of secondary raw materials. All components and activities were developed in the ReBuilt project with the exception of CinderOSS Marketplace Platform, which was upscaled and populated in ReBuilt based on the previous structure developed in the CINDERELA (H2020) project.

4.2 Central Construction and Digital Hub

The Central Circular Construction Innovation Hub, based in Slovenia, at the Slovenian Building and Civil Engineering Institute (ZAG), serves as the core coordination and strategic leadership body for the transnational network of circular construction and digital hubs. Its primary role is to ensure consistency, quality, and synergy across regional activities while supporting each hub's development in line with its thematic specialisation.

4.2.1 Role and Responsibilities

The roles and responsibilities of Central Circular Construction Innovation Hub in Slovenia include:

- Leading the overall strategic direction and vision of the hubs network
- Coordination with Regional Hubs
- Developing and maintaining shared methodologies, frameworks, and digital tools
- Acting as the central point of contact for external stakeholders, including EU institutions, industry networks
- Facilitating the integration of cross-cutting topics, such as circular business models, system
- Facilitating innovation, and cross-border materials development
- Supporting visibility, pilot activities, and dissemination of outcomes at the European level.

Note: ZAG follows minimum standards and conducts activities of hubs modelled after EIT RawMaterials¹¹.

¹¹ https://www.eit.europa.eu/sites/default/files/ris_hubs_minimum_standards_and_guiding_principles_final_agreement.pdf



4.2.2 Coordination with Regional Hubs

The Central Hub coordinates the regional hubs network, enabling structured collaboration between the eight regional/national hubs. This includes:

- Hosting regular network meetings, joint events, workshops, and exchange events;
- Coordinating joint initiatives (e.g., innovation challenges, pilot projects, capacity-building programs);
- Supporting the regional hubs in their specialization areas, offering knowledge and best practices;
- Promoting and supporting the replication of successful approaches across borders;
- Managing a shared digital platform for circular and digital construction, information data exchange, and resource sharing among hubs.

Coordination of regional hubs is based on a collaborative governance approach, with regular input and feedback loops among all hub representatives while governance and monitoring framework underpin the credibility, effectiveness, and replicability of the Central and Regional Circular Construction Hubs in Central Europe and across Europe.

4.3 Regional/National Hubs

The eight Regional/National Circular and Digital Construction Hubs form the backbone of the transnational network coordinated by the Central Hub in Slovenia. Each regional hub is embedded within its national or regional innovation ecosystem and focuses on driving context-specific transformation in the construction sector towards circularity and digitalisation.

All regional hubs incorporate a set of cross-cutting enablers that support effective implementation and collaboration:

- Stakeholder Engagement - active involvement of local governments, industry, academia, and civil society (NGOs) in hub activities through co-creation, partnerships, and advisory roles.
- Digital Tools - adoption of digital technologies (e.g., material passports, databases, platform for secondary raw materials - CinderOSS) to enhance transparency, traceability, and decision-making in circular construction.
- Knowledge Sharing and Networking (MOOC) - participation in transnational learning exchanges, joint events, and thematic working groups coordinated by the Central Hub to ensure consistent knowledge flow and policy alignment.
- Policy Dialogue and Alignment - contribution to the development and implementation of regional policies and action plans that support circular and digital construction, aligned with national and EU strategies.

While maintaining this shared structure, each hub specialises in a specific thematic area based on the hub leaders' knowledge and experience. This ensures harmonisation and diversity across the hub network, enabling innovation at multiple levels.

Each regional/national hub partner:

- Leads the operational setup and execution of its respective hub
- Engages regional stakeholders and coordinates local/regional innovation, business, and academic activities
- Promotes solutions aligned with its thematic specialisation



- Participates actively in transnational exchanges, events, and working groups
- Contributes to monitoring, evaluation, and sustainability planning efforts



5. Long-term Feasibility Analysis (5-Year Horizon)

The success of the Circular and Digital Construction Hubs network depends on strong transnational cooperation and a well-structured collaboration model that fosters continuous knowledge exchange, joint innovation, and mutual learning across the Central European region. The collaborative model will ensure that each hub contributes to and benefits from the collective expertise, experience, and tools developed within the network in the Central European region.

5.1 Transnational Cooperation and Knowledge Exchange

All nine hubs (Central and eight regional/national) operate as part of an integrated ecosystem, with cooperation embedded in the operational structure. Transnational collaboration will be coordinated by the Central Hub in Slovenia, with structured mechanisms to:

- Facilitate the exchange of best practices and regional pilot cases
- Support cross-border development, innovation projects and pilot initiatives
- Enable the joint development of methodologies, standards, and digital tools
- Create an open innovation environment that transcends national boundaries and fosters cross-sector collaboration
- Conduct MOOC activities
- Provide support between hubs to address common challenges

Knowledge exchange will be supported through regular bilateral and multilateral meetings, thematic working groups, online forums, and similar activities.

5.2 Joint Activities and Events

To further support collaboration, the hubs will implement a calendar of joint activities and high-impact events, designed to bring together innovators, policymakers, businesses, and academics across regions. These activities include:

- Hackathons and Innovation Cafés: thematic innovation competitions focused on specific circular and digital construction challenges (e.g., digital tools, design, construction and demolition waste, reuse, secondary raw materials, etc.).
- Structured events involving public authorities and experts to co-design policy frameworks, address regulatory barriers, and pilot legislative innovations.
- Joint demonstration projects: collaborative pilots that test circular technologies or business models across borders and showcase replicable outcomes.
- Annual Hub Forum: a transnational event hosted in rotation by regional hubs, serving as a platform for networking, showcasing results, and aligning strategic directions.

These events aim to strengthen the internal network and enhance external visibility and impact.

5.3 Communication and Networking Platform

To ensure continuous engagement and effective collaboration, the network will establish the following:



- A shared online collaboration platform, offering access to project resources and other relevant documents
- Social media channels and newsletters to promote hub initiatives and share success stories
- Regular virtual exchanges and webinars

These activities will play a key role in collaboration, maintaining transparency, and building a pan-European community of practice focused on circular and digital construction.

For a long-term platform of circular and digital construction hubs on the platform <http://circularconstruction.zag.si> as a SaaS, it is very important to have:

- Technical support for high scalability and modularity
- Compliance with cybersecurity and data protection requirements



6. Five-Year Operational Plan for Regional Circular and Digital Construction Hubs as SaaS

6.1 Phased Implementation

The implementation of the Circular and Digital Construction Hubs network follows a structured five-year phased approach to ensure controlled scaling, risk mitigation, and progressive value creation.

Year 1 (2026, conclusion of the ReBuilt project in June 2026): Pilot hubs, platform stabilisation, initial public funding

Year 2 (2027-28): Expansion to additional regions, onboarding of private partners

Year 3 (2028-29): Network consolidation, service diversification

Year 4 (2029-30): Optimisation of the platform activities of circular and digital construction hubs as a SaaS

Year 5 (2030-31): Replication, cross-regional and international scaling

Year 1: Pilot Hubs, Platform Stabilisation, Initial Public Funding

The first year focuses on establishing pilot hubs and ensuring the stability and functionality of the digital platform. Core services are tested in real conditions, including governance processes, basic digital tools, and initial user engagement. Public funding of the project ReBuilt and particular public-private funding play a central role in this phase, ensuring operational continuity and enabling foundational development, validation, and feedback collection from early adopters.

Year 2: Expansion to Additional Regions, Onboarding of Private Partners

In the second year, the network expands to additional regional and national hubs, increasing geographical coverage and stakeholder diversity. At the same time, structured onboarding of private-sector partners begins, introducing new use cases, services, and co-investment opportunities. This phase focuses on strengthening ecosystem participation and enhancing platform functionality based on pilot results.

Year 3: Network Consolidation and Service Diversification

The third year is dedicated to consolidating the network, improving coordination mechanisms, and ensuring interoperability across hubs. Services are expanded and diversified, including advanced digital tools, enhanced marketplace functionalities, and more specialised training and knowledge services. The focus shifts from establishment to operational maturity and cross-hub collaboration.

We are aware that the market for circular construction solutions is experiencing steady growth, driven by increasing demand for sustainable and resource-efficient building practices. Stakeholders across the construction value chain are actively seeking solutions that reduce waste, extend material lifecycles, and support environmental goals.

At the same time, regulatory pressure is intensifying at both national and EU levels, requiring companies to adopt circular economy principles, improve traceability of materials, and reduce carbon footprints. These regulations are accelerating the transition toward digital and circular approaches in the construction sector.



This creates particularly strong relevance for small and medium-sized enterprises (SMEs), which often lack the internal digital capacity and expertise to respond effectively to these changes. As a result, there is a growing need for accessible platforms, tools, and support systems that enable SMEs to participate in and benefit from the circular construction market.

Year 4: Optimisation of the Platform Activities of Circular and Digital Construction Hubs as a SaaS

In Year 4, the system is optimised based on performance data, user feedback, and operational experience. Efficiency improvements are introduced across governance, technology, and service delivery. Private-sector involvement becomes more prominent. The platform Circular and Digital Construction Hubs as a SaaS will be evaluated every year and updated with current content.

Year 5: Replication and Cross-Regional and International Scaling

In Year 5 the phase focuses on replication and scaling beyond the initial region. Successful hub models, tools, and governance structures are transferred to new regions and potentially international contexts in Europe. The circular and digital construction hubs network evolves into a mature, self-sustaining ecosystem, enabling cross-regional knowledge transfer and positioning the platform as a scalable European reference model for circular and digital construction transformation.

Hub operations form the core of the day-to-day functioning of the Circular and Digital Construction Hub network, ensuring effective service delivery, user engagement, and continuous system improvement.

A key operational activity is user onboarding and support, which ensures that stakeholders are properly introduced to the platform, its tools, and services. This includes guidance for new users, technical assistance, and ongoing support to facilitate smooth adoption across different user groups.

Training and awareness activities are another essential component, aimed at building capacity and promoting the uptake of circular and digital construction practices. These activities include workshops, webinars, and targeted e-learning sessions designed for industry professionals, public authorities, and other stakeholders.

The hubs also play a central role in data collection and performance monitoring, systematically gathering usage data, feedback, and impact indicators. This enables evidence-based assessment of platform performance, service effectiveness, and user needs across regions.

Finally, continuous platform improvement ensures that the system evolves. Insights from users and performance data are used to refine digital tools, enhance functionality, and adapt services to emerging sectoral and technological developments, ensuring long-term relevance and efficiency of the hub ecosystem.

A strong organisation is essential for the platform as a SaaS. Clear governance, defined roles, and continuous capacity building ensure efficient operations, user adoption, and long-term sustainability.



7. Financial Structure

The financial structure of the platform of the circular and digital construction hubs ensures both initial scalability and long-term sustainability by combining diversified funding sources with a balanced cost framework.

7.1 Public Funding Sources - Impact

Public funding has been essential in the early-stage development and expansion of the platform <http://circularconstruction.zag.si> as a SaaS. The Interreg Central Europe funding, with planned additional regional and national funds, EU programmes supporting the circular economy and digitalisation, such as the European Regional Development Fund (ERDF), Horizon Europe, and LIFE programme has provided the financial backbone for:

- Deployment of core infrastructure, digital tools, and SaaS functionalities
- Alignment with EU and national policy priorities, regulatory frameworks, and green transition strategies
- Increased platform credibility, visibility, and legitimacy across participating regions
- Support for cross-regional collaboration, knowledge transfer, and capacity building activities
- Pilot implementation and testing in real operational environments with public stakeholders

This public support has significantly reduced financial risk during the critical initial phases of platform development and helped establish a trusted, policy-aligned ecosystem for circular and digital construction across Central Europe. It also enables the platform to meet baseline accessibility requirements, ensuring that smaller regional actors and public institutions can participate regardless of their financial capacity.

7.2 Private Funding Sources - Impact

Private funding mechanisms are fundamental to achieving financial independence and ensuring operational continuity beyond project-based or grant financing. Engagement with construction industry players, technology providers, and SMEs introduces market dynamics that complement public investment and:

- Drive market-driven innovation by incorporating real industry needs and emerging technological trends into platform development
- Strengthen the collaboration between construction hubs and industry actors, fostering co-creation of tools, training content, and services
- Generate subscription-based and service-based revenue streams that reduce dependency on public grants over time
- Attract investment from impact investors and venture-oriented funds interested in sustainable construction and digital transformation
- Encourage private sector ownership and long-term commitment to platform maintenance and evolution

Private funding also signals market confidence in the platform's value proposition, which further reinforces its credibility with public funders and policymakers.



7.3. Public-Private Partnership with Industry, SMEs

The combination of public and private funding within a structured Public-Private Partnership (PPP) framework creates a self-sustaining ecosystem that is both adaptive to user needs and responsive to market demands. Crucially, the Regional Circular and Digital Construction Hubs are not conceived as purely commercial enterprises. Their primary mission is to act as facilitators and promoters of the circular and digital construction transition in Central Europe – a role that is inherently public in nature and aligned with broader societal and environmental objectives.

Many hub activities – such as awareness raising, knowledge dissemination, stakeholder engagement, open-access training, and policy support – are non-profit in character and carried out in the public interest. These activities are typically anchored in public entities within the partnership (such as research institutes, public agencies, and higher education institutions) that operate under non-profit mandates and are well-positioned to ensure neutrality, inclusivity, and long-term institutional commitment. This public-entity backbone gives the hubs legitimacy and trust across the regional ecosystem, ensuring that the platform serves all stakeholders rather than narrow commercial interests.

At the same time, the hubs recognise that long-term facilitation cannot rely solely on project funding or public grants. In order to remain active, credible, and impactful beyond the ReBuilt project lifetime, the hubs must achieve a degree of economic self-sufficiency. This is where private and market-oriented activities play a complementary role. Fee-based services, industry partnerships, tailored consultancy, and subscription models for advanced platform functionalities generate the revenues necessary to cover operational costs and ensure continuity – without compromising the public mission.

This dual logic – non-profit purpose combined with economic feasibility – is at the heart of the hub model. It reflects a growing recognition in the circular economy field that transition facilitators must be financially resilient to be effective. A hub that depends entirely on external funding is vulnerable; a hub that is self-sustaining can invest in quality, innovation, and outreach on its own terms.

The PPP framework therefore serves a dual function: it protects the public and non-commercial nature of the hub's core mission while simultaneously enabling the economic activities that make long-term operation viable. This blended approach further:

- Encourages active and meaningful engagement from a wide range of stakeholders, including construction companies, SMEs, research institutions, and regional authorities
- Promotes market-driven innovation while maintaining alignment with public interest objectives such as sustainability, inclusivity, and regional cohesion
- Strengthens long-term industry-hub collaboration through shared governance, co-investment, and joint development of services
- Distributes financial responsibility and risk across multiple actors, reducing vulnerability to funding gaps or policy shifts
- Maintains the hub's role as a trusted, neutral facilitator – not a competitor to industry, but a systemic enabler of the circular and digital transition
- Creates conditions for replication and transfer of the hub model to additional regions and sectors beyond the initial ReBuilt partnership

The PPP model is particularly relevant for the Regional Circular and Digital Construction Hubs, as it mirrors the collaborative, multi-stakeholder nature of the circular economy itself – where value is created through systemic relationships rather than isolated transactions. The hubs are, in essence, public-interest platforms with a sustainable business logic – designed not to maximise profit, but to maximise impact, while generating enough revenue to keep doing so.



7.4 Cost Structure - Impact

The cost structure of the platform is carefully designed to reflect the operational requirements necessary to maintain quality, ensure scalability, and deliver lasting impact. Key cost categories and their strategic relevance include:

- **SaaS maintenance and development** – ensures continuous platform improvement, regular updates, integration of new functionalities, and adaptation to evolving user needs and technological standards
- **Cloud infrastructure** – provides the flexibility, scalability, and secure data management required to support a growing multi-regional user base, while minimising the need for costly physical IT infrastructure
- **Hub personnel** – supports coordination across partner regions, provides technical and sectoral expertise, and facilitates stakeholder engagement, training delivery, and community management
- **Training and dissemination activities** – enhance capacity building among target groups, promote platform adoption, and ensure that users across all regions can effectively benefit from the available tools and knowledge resources
- **Administration and governance** – covers the operational costs of partnership coordination, quality assurance, reporting, and legal compliance, ensuring transparency and accountability across the network
- **Research and innovation** – allocates resources for ongoing monitoring of circular and digital construction trends, enabling the platform to remain at the forefront of sector developments

Efficient cost management across all categories ensures that resources are directed toward high-impact activities, avoiding duplication and maximising return on investment for both public and private funders.

The simplified business plan to sustain the regional hubs network model is given in Annex 1.



8. Impact Assessment

8.1 Environmental Impact

The approach of the ReBuilt Regional Circular and Digital Construction Hubs is expected to significantly reduce construction and demolition waste and increase circularity in the Central European construction sector by encouraging more efficient material use and extending the life of building components. It boosts reuse and recycling rates by integrating circular practices, meaning materials are kept in use longer instead of being discarded. As a result, the overall lifecycle carbon emissions of buildings decrease, since fewer new materials need to be produced and transported, and waste processing is minimised. Impact on better and higher circularity in circular and digital construction in Central Europe.

8.2 Economic Impact

Further, it is expected that companies, especially predominantly SMEs in the sector, will achieve cost savings through better resource efficiency, reduced material purchases, and optimised processes. At the same time, circular economy principles open up new business opportunities, such as material recovery services, selective demolition, modular construction, refurbishment, leasing models, and development of digital tools, including digital platforms for resource exchange. These shifts also contribute to job creation, particularly in emerging fields related to digital solutions, sustainability consulting, recycling, and green construction services.

8.3 Digital Impact

The construction sector is becoming more digitally mature by adopting advanced and innovative technologies such as BIM, digital twins, and data platforms. This leads to improved interoperability, meaning different systems and stakeholders can share and use data more effectively. The ReBuilt Regional Circular and Digital Construction Hubs will increase adoption of digital tools, enhance decision-making, project coordination, and lifecycle management of products from secondary raw materials, ultimately making the sector more efficient, transparent, and innovative.



9. Risk Analysis and Mitigation

A key risk is low adoption of the proposed approach, which can limit its overall impact. This can be mitigated through targeted training programs, financial or operational incentives, and active stakeholder engagement to build trust and demonstrate value.

Another challenge is funding gaps, especially in early stages. To address this, implementation can follow a phased scaling strategy, starting small and expanding gradually, while also ensuring diversified revenue streams to reduce dependency on a single funding source.

Technical complexity may also pose difficulties, particularly in integrating different systems and tools. This risk can be reduced by using a platform of circular and digital construction hub <http://circularconstruction.zag.si> as a SaaS with a modular open-source software (OSS) architecture, allowing flexible development, easier updates, and better adaptability to different use cases.

Finally, regulatory changes could affect implementation or compliance requirements. Continuous monitoring of policies and regulations helps organizations stay aligned with legal frameworks and adapt proactively to any changes.

The main risks of successful model implementation and linked mitigation measures are given in Table 2.

Table 2: Identified risks and mitigation measures

Risk	Mitigation Measure
Low adoption	Training, incentives, stakeholder engagement
Funding gaps	Phased scaling, diversified financial support
Technical complexity	Modular OSS architecture
Regulatory changes	Continuous policy monitoring



10. Conclusions and Recommendations

The feasibility study confirms that a network of regional Circular and Digital Construction Hubs operating through a platform SaaS-supported OSS platform is both viable and sustainable in the long term. Its success depends on robust governance structures, a phased and adaptive implementation approach, and a balanced combination of public and private funding mechanisms. The OSS-based SaaS platform is a critical enabler, providing the digital backbone for scaling circularity, improving data accessibility, and accelerating digital transformation in the construction sector.

The Central and Regional Circular and Digital Construction Hubs, developed within the ReBuilt project, represent a strategic initiative to transform the construction sector in Central Europe towards greater sustainability, resilience, and innovation. Coordinated by the Central Hub in Slovenia and supported by eight regional and national hubs, the network combines a shared strategic framework with strong regional specialization. This structure allows each hub to focus on thematic strengths while contributing to a cohesive transnational innovation ecosystem.

A key strength of the initiative is its systemic and integrated approach, which brings together governance, stakeholder engagement, cross-border collaboration, and alignment with key EU policy frameworks such as the European Green Deal, the Circular Economy Action Plan, and the New European Bauhaus and Strategy for Circular and Digital Construction in Central Europe. This alignment ensures that the hub network is not only technologically and operationally relevant but also strategically embedded within Europe's long-term sustainability agenda.

The integration with the ReBuilt website on the Interreg Central Europe platform ensures transparency, accessibility, and seamless interaction for partners and stakeholders, supporting early-stage adoption and feedback-driven improvement.

In the long term, the network is expected to function as a catalyst for systemic change, driving the transition towards a resource-efficient, low-carbon, and digitally enabled construction ecosystem across Central Europe. By fostering interregional cooperation, enabling continuous knowledge exchange, and supporting the practical deployment of circular and digital solutions, the Circular and Digital Construction Hubs will significantly contribute to a more competitive, innovative, and sustainable European construction sector.

To ensure successful implementation and long-term impact, the following key recommendations are proposed:

- Strengthen governance and coordination mechanisms to ensure clear roles, efficient decision-making, and effective cross-border collaboration within the hub network.
- Adopt a phased scaling approach also in other EU countries, starting with pilot validation and gradually expanding services based on user feedback and performance evaluation.
- Ensure financial sustainability through a balanced mix of EU funding, national contributions, and private-sector engagement, supported by a clear business model for hubs as a SaaS operations.
- Prioritise user engagement and capacity building, particularly through targeted education modules, training programs, and stakeholder onboarding activities.
- Accelerate digital integration and interoperability, ensuring seamless data exchange between hubs, platforms, and external systems such as Digital Product Passports and material databases (marketplace for secondary products).
- Continuously align with EU policy frameworks, common strategy for circular and digital construction in central Europe and industry needs, ensuring the platform remains relevant, future-proof, and responsive to regulatory and market developments.



In the long term, the Hub network aims to act as an engine of change—driving the shift towards a resource-efficient, low-carbon, and digitally advanced construction ecosystem across Central Europe and also in other countries in the EU. They will contribute significantly to a more circular, digital, sustainable and competitive Europe.



Annex 1: Central European hub network for Circular and Digital Construction 5 years business plan (2026-2031)

All figures are indicative estimates for planning purposes. The operational period runs from June 2026 (post-ReBuilt project end) through May 2031. The plan follows a non-profit, self-sustaining model aligned with Interreg Central Europe programme principles – no profit distribution is foreseen. Any marginal surplus is reinvested into platform development and hub activities. Public funding decreases progressively as private and PPP revenues mature, reaching financial independence by Y5. Costs per hub are shared proportionally across 9 partner organisations (approx. €30k-42k per hub per year).

Key assumptions:

Hub partners 9 Central Europe	Model Non-profit Self-sustaining SaaS	Year 1 total costs €270k Across all hubs	Year 5 total costs €390k Gradual scale-up	Cost per hub/year €30-43k Avg. across partners
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Five-year cost plan (.000 EUR)

Cost category	Y1 Jun 26–May 27	Y2 Jun 27–May 28	Y3 Jun 28–May 29	Y4 Jun 29–May 30	Y5 Jun 30–May 31
SaaS maintenance & development	40	45	50	55	60
Cloud infrastructure	20	22	25	28	30
Hub personnel (9 partners)	120	130	140	150	160
Training & dissemination	50	55	60	65	70
Administration & governance	25	26	27	28	30
Research & innovation	15	17	20	22	25
Total costs	270	295	322	348	375

Cost breakdown





Five-year funding plan (.000 EUR)

Public funding Private / market revenues PPP contributions

Funding source	Y1 Jun 26–May 27	Y2 Jun 27–May 28	Y3 Jun 28–May 29	Y4 Jun 29–May 30	Y5 Jun 30–May 31
Public launch					
EU / Interreg follow-on grants	100	80	60	40	20
National & regional public funds	60	60	55	50	40
Subtotal public	160	140	115	90	60
Private growing					
SaaS subscriptions (industry, SMEs)	30	50	80	110	140
Fee-based training & consultancy	20	30	40	50	60
Membership fees (sector assoc.)	10	15	20	25	30
Subtotal private	60	95	140	185	230
PPP stable					
Industry in-kind & co-investment	30	35	45	55	65
Institutional partner contributions	20	25	22	18	20
Subtotal PPP	50	60	67	73	85
Total funding	270	295	322	348	375
Surplus / deficit	0	0	0	0	0

Funding mix shift (% of total)

