Interreg CENTRAL EUROPE

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ReBuilt

Common Strategy for Circular and Digital Construction in Central Europe

Adopted by the ReBuilt partnership in Central Europe: Slovenian National Building and Civil Engineering Institute; Javno podjetje Nigrad, komunalno podjetje, d.o.o.; Chamber of Commerce and Industry of Štajerska; Opencontent SCARL; INFORDATA SISTEMI SRL; Technische Universität Wien; POR Consult, Projects of Sustainable Development, d.o.o.; BURST Nonprofit LLC; Vas County Government Office; Institute of Construction and Architecture, Slovak Academy of Sciences; Industry Innovation Cluster; The Institute for Ecology of Industrial Areas; Czech Green Building Council; Munich University of Applied Sciences MUAS.

PREAMBULE

The construction sector is Europe's largest consumer of materials and one of its biggest sources of waste — accounting for over 35% of total EU waste and roughly half of all extracted raw materials. Yet it also holds enormous, untapped potential: to reduce emissions, recover resources, and drive the kind of systemic innovation Europe's climate goals demand. This Strategy is a response to that potential.

Central Europe's construction ecosystem faces a set of compounding challenges — fragmented value chains, low digital maturity, limited use of secondary materials, and a shrinking skilled workforce. These are not isolated problems. They reinforce each other and cannot be solved one at a time. What is needed is a coordinated transformation across the full lifecycle of buildings and infrastructure: from design and procurement through construction, operation, renovation, and end-of-life.

This framework provides that coordination. Developed jointly by the Interreg Central Europe ReBuilt project partners and supported by stakeholders, it establishes a shared strategic direction for public authorities, industry, academia, and civil society across Central Europe. It combines circular economy principles with digital enablers — Digital Product Passports, platforms for resource sharing, BIM, digital twins, interoperable data systems — to improve how materials are tracked, decisions are made, and value is retained across the built environment.

The framework is organised around six strategic pillars:

- Circular Development and Design;
- Digitalisation and Data Interoperability;
- Circular Value Chains, Markets and Business Models;
- Governance and Public Procurement;
- Skills, Capacity Building, and Knowledge;
- Circular and Digital Construction Hubs.

Together, these pillars support the objectives of the European Green Deal, the Circular Economy Action Plan, and the Digital Decade.

This is not a binding declaration. It is a working orientation — flexible enough to adapt to different institutional contexts and territorial realities, concrete enough to drive real action. We commit to using it as a live instrument: to strengthen cooperation, accelerate innovation, and build a construction sector that is resource-efficient, low-carbon, and digitally connected.

Contents

1. Introduction

The construction sector is one of the most important economic ecosystems in the European Union — but it is also among the most resource-intensive and environmentally impactful. It makes a significant contribution to the European economy; it ranks among the three largest industrial ecosystems in the EU, alongside energy and transport. It is dominated by small and medium-sized enterprises, especially micro-enterprises, which represent 99% of active enterprises. It encompasses a complex and interdependent value chain, from raw materials and construction products to design, engineering, construction, renovation, maintenance, and end-of-life management of buildings and infrastructure. A significant part of the ecosystem operates in the public sphere, through public procurement of works and construction services.

Buildings and construction activities account for around 50% of all materials extracted in the EU, making the sector the largest consumer of raw materials in Europe. This is closely tied to a predominantly linear model: materials are extracted, used once, and discarded. The consequences show up across the full environmental ledger.

In terms of energy and climate, buildings and construction together account for approximately 40% of total final energy consumption in the EU and contribute around 35–36% of energy-related CO_2 emissions[1]. For buildings, the main driver is heating and cooling. For infrastructure — roads, railways, dams — the problem is different: emissions are locked into the materials themselves, above all cement and steel, before a structure ever enters service[2]. This makes reducing material use and reusing what already exists the most powerful lever available. It is also worth noting that carbon has dominated policy attention for two decades, while other proven environmental harms — soil and water acidification, water contamination from nutrients, toxic substances released by construction materials — remain largely outside the regulatory framework, despite being well-documented by science.

KEY CHALLENGES

Technical & regulatory barriers

- **Standards restrict reuse.** Existing technical norms often prohibit secondary materials in load-bearing or demanding applications.
- **No material traceability.** Without digital passports or data platforms, the origin and composition of materials is largely unknown.
- **Selective demolition is rare.** Mixed waste streams degrade material quality and make high-value recycling impossible.
- **Lifecycle data is missing.** Environmental impacts beyond carbon — toxicity, acidification, eutrophication — are rarely measured or reported.

Market, skills & governance barriers

- **Primary materials are cheaper.** Secondary raw materials cannot compete on price without regulatory or fiscal incentives.
- **Skills gap is widening.** Construction accounts for 44% of all EU labour shortfalls; green and digital skills are in shortest supply.
- **Digitalisation is uneven.** Construction remains the least digitalised sector in Europe; fewer than 10% of firms plan long-term digital investment.
- **Procurement drives linearity.** Public tenders rarely reward circular design, lifecycle cost, or reuse of materials.

Central Europe specific gaps

- **Circularity rates lag behind.** Most countries in the region are at 4–10%, against an EU average of 12.2% and a 2030 target of 24%.
- **No regional CE strategies.** Several countries lack comprehensive circular economy roadmaps; policy monitoring is inconsistent.
- **Housing pressure is acute.** House prices in Hungary rose 209% between 2015–2024; demand outpaces supply across the region.
- **Fragmented value chains.** Cross-border cooperation on secondary materials, standards, and data is almost entirely absent.

Water use and waste generation compound the picture further. Construction and buildings account for around one-third of total freshwater consumption in the EU. Construction and demolition waste represents

[1] https://eurocities.eu/latest/does-the-eu-care-about-sustainable-buildings/

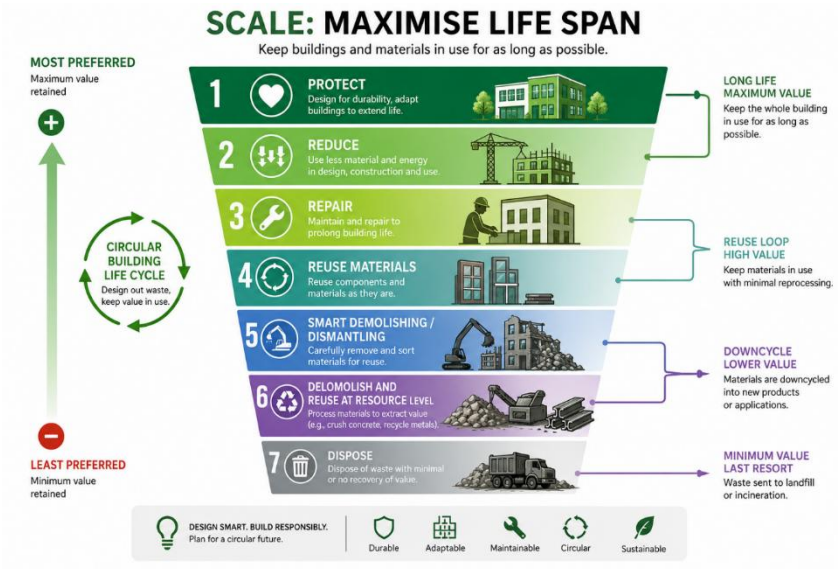
[2] https://www.ramboll.com/news/new-study-for-european-climate-foundation-tackles-embedded-emissions-in-nordic-transport-infrastructure

more than 30% of all waste generated[3] — much of it material that could, with better systems, be reused or recycled at high quality.

Central Europe sits at a critical point in this transition. The region covered by this strategy — Italy, Bavaria, Austria, Slovenia, Croatia, Hungary, Czechia, Slovakia, and Poland — is highly diverse in its starting position. Austria and northern Italy perform close to Western European levels. Others lag considerably: Croatia's circular material use rate stood at 6.2% in 2023, against an EU average of 12.2%; Hungary and Slovakia trail similarly; and Poland has seen its rate decline in recent years. The EU has set a target of 24% by 2030 — meaning most Central European countries need to roughly double or triple their current rates within this decade. Since construction is the EU's largest consumer of raw materials, it is a primary driver of these gaps — and closing them requires coordinated regional action that no single national strategy can deliver alone. These environmental challenges are compounded by the sector's structural fragmentation.

Digital tools such as Building Information Modelling (BIM) and lifecycle assessment (LCA) methods are increasingly available, but uptake is inconsistent, and data rarely flows across the value chain. This limits transparency, slows lifecycle-based decision-making, and holds back circular construction practices across the board.

None of this will change without deliberate action. Achieving Europe's climate and resource targets — and the national commitments of Central European countries — requires a genuine transformation of how buildings and infrastructure are designed, built, maintained, and eventually taken apart. Circular principles and digital tools are not optional extras; they are the mechanism. This Strategy sets out how to apply them, systematically and at scale, across Central Europe and beyond — within the framework of the European Green Deal, the Clean Industrial Deal, the revised Energy Performance of Buildings Directive, and the revised Construction Products Regulation.



[3] https://single-market-economy.ec.europa.eu/industry/sustainability/buildings-and-construction_en

2. The moment for action!

Three converging pressures make this the right moment for a Central European strategy on circular and digital construction — and make inaction increasingly costly.

The first is a worsening housing and renovation crisis. Europe's housing shortage is estimated at approximately 9.6 million homes, and current construction permit levels indicate the gap will continue to grow. In Central Europe, the pressure is acute and uneven: house prices in Hungary rose by over 200% between 2015 and 2024, among the highest increases in the EU, while rental prices surged across the region. At the same time, deep renovations that cut primary energy demand by at least 60% are being carried out on only 0.2% of residential buildings per year across the EU - and Central Europe's ageing building stock, much of it built during the panel-construction era of the mid-twentieth century, represents one of the largest untapped renovation opportunities on the continent. The scale of new construction and renovation needed over the next decade is enormous — and how it is done will determine whether Europe hits its resource and climate targets or blows past them[4],[5].

The second is a labour and skills crisis that is structural, not cyclical. Construction has been on the shortage list for many years, with widespread shortages across engineering and construction occupations in almost every reporting country. According to the European Labour Authority, construction accounts for 44% of all labour shortfalls across the EU. In Central Europe, this is compounded by demographic decline and emigration of skilled workers to higher-wage economies in Europe — a structural drain that national labour markets cannot easily reverse. In Slovenia, construction has the highest share of foreign workers of any sector, at 50% — making it the most foreign-labour-dependent industry in the country[6]. The green and digital transitions are making this worse, not better: the skills needed to design for circularity, operate BIM platforms, and manage digital material flows do not yet exist at the scale required[7].

The third is a rapidly shifting policy and regulatory environment. The revised Construction Products Regulation[8] (in force from January 2025) introduces new requirements for environmental transparency and digital product data. The recast Energy Performance of Buildings Directive[9] requires lifecycle carbon reporting for new large buildings from 2028. The Clean Industrial Deal[10] sets a 24% circular material use target for 2030. A new Circular Economy Act[11] is expected in 2026. And the EU's European Strategy for Housing Construction[12] explicitly links affordable housing delivery to the digitalisation and greening of the construction sector. These instruments create both obligations and opportunities — but only for those who are prepared to act on them. For Central European countries with limited circular economy policy infrastructure and inconsistent monitoring frameworks, the regulatory clock is ticking faster than institutional capacity is currently developing.

Together, these three pressures define the window this Strategy is designed to address: a moment when demand for construction is high, regulatory expectations are rising fast, and the region's starting position — in skills, circularity, and digital capacity — leaves Central Europe at risk of falling further behind unless it acts collectively and now.

[4] https://www.bruegel.org/analysis/solution-europes-housing-affordability-crisis-must-include-building-decarbonisation

[5] https://housing.ec.europa.eu/european-affordable-housing-plan_en

[6] https://www.umar.gov.si/en/news/news/release/charts-of-the-week-from-16-to-20-september-2024-number-of-persons-in-employment-average-gross-wage-per-employee-and-slovenian-industrial-producer-prices

[7] https://www.ela.europa.eu/en/publications/labour-shortages-and-surpluses-europe-2024

[8] https://eur-lex.europa.eu/eli/reg/2024/3110/oj/eng

[9] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02024L1275-20260524

[10] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52025DC0085

[11] https://www.europarl.europa.eu/RegData/etudes/BRIE/2026/782628/EPRS_BRI(2026)782628_EN.pdf

[12] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52025DC0991

3. Vision and Strategic Objectives

3.1. Vision

By 2040, Central Europe's construction sector operates as a genuine circular economy — one where buildings and infrastructure are designed from the outset for long life, adaptability, and eventual disassembly; where materials are tracked, recovered, and reintroduced into new construction rather than landfilled; and where digital tools give every actor in the value chain — from architects and contractors to public procurers and demolition firms — the information they need to make better decisions.

This is not a niche aspiration. It is the precondition for meeting the region's climate commitments, closing its resource productivity gap with the EU's 2030 circularity targets, and delivering the affordable, resilient housing and infrastructure that Central European citizens need over the next generation.

To get there, this Strategy works towards a construction ecosystem in Central Europe that:

- maximises material reuse, recovery, and circularity the use of secondary raw materials across the full building lifecycle;
- expands biobased materials — timber, hemp, straw, mycelium — as renewable, carbon-storing alternatives that complement the broader shift towards lower-embodied-carbon construction;
- decarbonises by design — embedding lifecycle thinking, embodied carbon reduction, and circular principles at the earliest stage of every project, including design for deconstruction principles;
- closes the digital gap — making BIM, lifecycle assessment, digital product passports, and interoperable data systems standard practice rather than exceptions;
- builds regional markets — creating the cross-border conditions for secondary materials, circular products, and digital construction services to flow across Central Europe;
- builds skills and capacity — equipping the workforce, from site workers to policymakers, with the knowledge the circular and digital transition demands;
- makes public procurement a driver — using the public sector's purchasing power to set circular standards and pull the market forward;
- strengthens hubs - roots the transition in a regional network of construction hubs that connect industry, research, government and education.

3.2. Strategic Objectives

Objective 1: Maximise material reuse, recovery, and circularity

Establish circular material flows as the operational norm across Central Europe's construction sector — treating buildings and infrastructure not as consumers of materials but as banks of resources available for future use. This means prioritising design for disassembly, selective demolition, high-quality sorting, and the systematic reintroduction of recovered materials into new construction. It also means developing the market infrastructure — standards, certification, digital traceability, and procurement incentives — that makes secondary raw materials a competitive and reliable choice rather than a niche alternative. The goal is a measurable shift away from the linear extract-use-discard model that currently dominates the region.

Objective 2: Expand the role of biobased materials in construction

Support the wider adoption of biobased construction materials — timber, hemp, straw, mycelium, and other renewable alternatives — as a complement to the broader shift towards lower-embodied-carbon construction. Biobased materials offer a renewable, carbon-storing alternative that can reduce the sector's dependence on energy-intensive conventional materials where appropriate. Achieving wider uptake requires targeted action on technical standards and certification, design guidance, supply chain development, and demonstration projects that build confidence among practitioners, clients, and regulators. This objective recognises that material choice is not a binary question — biobased solutions work best as part of a diversified, lifecycle-informed approach to construction materials.

Objective 3: Decarbonise by design and improve lifecycle transparency

Embed lifecycle thinking, embodied carbon reduction, and design for deconstruction principles at the earliest stage of every project — shifting decarbonisation from an afterthought to a design discipline. Make the origin, composition, and environmental performance of construction materials visible across the value chain — from procurement and design through construction, operation, and end-of-life. This means going beyond operational carbon to address the full spectrum of environmental impacts: embodied emissions, toxicity, acidification, and resource depletion. Interoperable digital systems and lifecycle monitoring allow stakeholders to identify reuse opportunities, understand environmental impacts beyond carbon, and manage materials as long-term assets rather than single-use inputs. Traceability is the precondition for genuine circularity; lifecycle thinking is the precondition for genuine decarbonisation.

Objective 4: Close the digital gap across the construction value chain

Promote the adoption of Building Information Modelling, digital product passports, digital twins, and interoperable data platforms as the practical foundation of circular construction in Central Europe. The objective is not digitalisation for its own sake but using these tools to close material loops — enabling better resource decisions at design stage, tracking materials through their lifecycle, and unlocking reuse and recycling opportunities that are invisible without data. Construction remains the least digitalised sector in Europe; closing this gap is a precondition for achieving every other objective in this strategy.

Objective 5: Build regional markets for circular construction

Create the cross-border conditions for secondary materials, circular construction products, biobased materials, and digital construction services to flow across Central Europe — turning fragmented national efforts into a coherent regional market. Knowledge exchange alone is not sufficient: the region needs harmonised standards, mutual recognition of certifications, and shared data infrastructure that allows circular products and recovered materials to move across borders without unnecessary friction. No single country in Central Europe has the market size, institutional capacity, or regulatory leverage to drive the circular construction transition alone. Active market-building — through joint procurement frameworks, cross-border pilot projects, and coordinated regulatory development — is the mechanism that turns national experiments into regional momentum.

Objective 6: Build skills and capacity across the ecosystem

Develop the knowledge and competencies needed for circular and digital construction at every level — from site workers and contractors to architects, engineers, municipal officers, and policymakers. Training and education programmes must address circular design principles, digital tool adoption, sustainable material management, and lifecycle thinking. This includes dedicated capacity building in biobased construction —

timber, hemp, straw, and other renewable materials — where technical knowledge, certification pathways, and hands-on experience remain underdeveloped across most of Central Europe. Closing the skills gap is not a soft objective: without it, none of the other objectives can be implemented at scale.

Objective 7: Make public procurement a driver of circular transition

Strengthen the capacity of public authorities and construction companies to use procurement as a lever for circular transition. This means moving beyond price-based tendering towards lifecycle cost evaluation, circular design requirements, low-carbon and biobased material specifications, and end-of-life planning as a standard procurement condition. The public sector commissions a substantial share of all construction in Central Europe — making procurement one of the most powerful and underused tools for market transformation available. Green and circular public procurement also sends a clear market signal to suppliers and developers: that circular performance is valued, rewarded, and increasingly required.

Objective 8: Strengthen the regional ecosystem through circular and digital construction hubs

Build and sustain a network of circular and digital construction hubs that connect public authorities, industry, research institutions, and educational organisations across Central Europe. These hubs serve as physical and digital anchors for knowledge exchange, innovation testing, capacity building, and the dissemination of replicable solutions — rooting the transition in institutions and relationships that outlast any individual project or funding cycle. The Circular and Digital Construction Platform developed within the ReBuilt project provides the digital infrastructure for this network[13].

[13] https://circularconstruction.zag.si/

4. Strategic Pillars

Pillar	Title	Core focus
1	Circular Development and Design	Design principles — LCA, design for disassembly, adaptability, biobased, circular design standards
2	Digitalisation and Data Interoperability	Digital infrastructure — BIM, digital twins, interoperability, data standards
3	Circular Value Chains, Markets and Business Models	Merged — CinderoSS, secondary material markets, product-as-a-service, take-back schemes, SMEs
4	Governance and Public Procurement	Policy frameworks, end-of-waste criteria, GPP, regulatory instruments
5	Skills, Capacity and Knowledge	Training, MOOCs, professional upskilling, public authority capacity, awareness
6	Circular and Digital Construction Hubs	Regional hub network, central coordination, innovation testing, replication

Pillar 1 — Circular Development and Design

The construction sector will not become circular through better waste management alone. It becomes circular when circularity is designed in from the start — when the question of what happens to a building's materials at the end of its life is asked at the same moment as the question of what it will look like and how it will be built. This pillar addresses the front end of the construction lifecycle: the decisions made at design stage that determine everything that follows.

The core principle is designing for the circular loop — ensuring that materials, components, and systems are specified, assembled, and detailed in ways that allow them to be recovered, reused, repaired, or remanufactured rather than demolished and discarded. In practice this means four interconnected design approaches: designing for adaptability, so that buildings can respond to changing needs without complete replacement; designing for disassembly, so that components can be separated cleanly for reuse or recycling; designing for durability, so that materials retain their performance and value over long service lives; and designing for biobased alternatives, expanding the use of timber, hemp, straw, and other renewable materials where lifecycle evidence supports their use.

Whole-life carbon assessment and Life Cycle Assessment are the analytical tools that make these decisions evidence-based rather than intuitive. This pillar integrates LCA methodology into design practice, product development, and infrastructure planning — moving beyond operational carbon to capture embodied emissions, resource depletion, toxicity, and other environmental impacts across the full lifecycle. Lifecycle thinking at design stage is the most cost-effective point at which to reduce a building's total environmental footprint.

Pilot and demonstration projects play a central role in this pillar. Testing innovative circular design approaches, new products made from secondary or biobased raw materials, and circular construction

methods in real projects generates the evidence base, builds practitioner confidence, and demonstrates market viability that larger-scale adoption requires.

PROJECT OUTPUT

Circular design standard and methodology

The ReBuilt project has developed a circular design methodology and contributed to the technical standardisation process enabling EU-wide implementation. This includes a structured dialogue between designers, material developers, and regulators to embed circular design into professional practice.

Finally, circular design needs a common technical language. This pillar supports the development of circular design standards that enable consistent implementation across the EU, and structured dialogue between designers, material developers, and regulators to embed circular design into everyday professional practice rather than treating it as a specialist niche.

Pillar 2 — Digitalisation and Data Interoperability

Circular construction depends on information. To reuse a material, you need to know what it is, where it came from, what it contains, and how it was assembled. To manage a building's lifecycle, you need data that persists across decades, across organisations, and across the handovers between design, construction, operation, and demolition. Without digital infrastructure that makes this information available, traceable, and interoperable, circular construction remains an aspiration rather than a practice.

Building Information Modelling (BIM) is the foundation of this infrastructure. BIM integrates planning, technical, financial, scheduling, and environmental information into a shared digital model that all actors in a project can access and contribute to — architects, engineers, contractors, public authorities, and facility managers. When implemented well, BIM does not just improve project delivery; it creates the data continuity that makes lifecycle management and eventual material recovery possible.

Digital product and material passports extend this data continuity to the level of individual components and products. A passport records the composition, origin, technical characteristics, environmental performance, and reuse potential of a construction product — and makes that information available throughout the building's life, including at the point of demolition or disassembly. The revised Construction Products Regulation makes digital passports an increasingly mandatory feature of the EU construction market; this pillar supports the region's readiness to implement them.

PROJECT OUTPUT

Digital product passport platform

A digital tool for value chain management and material traceability, providing structured information on the composition, origin, environmental performance, and reuse potential of construction products and components throughout their lifecycle.

circularconstruction.zag.si/digital-tools

Interoperability is the condition that makes individual digital tools useful at scale. Standardised data formats, open BIM methodologies, digital permitting systems, and shared data exchange protocols allow information to flow across projects, organisations, and national borders without being lost in translation between incompatible systems. For Central Europe — where circular construction value chains will necessarily cross borders — interoperability is not a technical nicety but a strategic necessity.

Digitalisation and data interoperability are not one pillar among six — they are the connective tissue that makes every other pillar function.

Pillar 3 — Circular Value Chains, Markets and Business Models

Materials do not circulate by themselves. They circulate because there are markets for them, businesses with models built around recovering and reselling them, and digital infrastructure connecting the people who have materials with the people who need them. This pillar addresses the economic and organisational conditions that make circular material flows commercially viable — not just technically possible.

The starting point is secondary raw material markets. Construction and demolition waste contains significant quantities of valuable materials — concrete rubble, structural steel, timber, bricks, insulation, and building components — that are currently landfilled or downcycled because the systems for recovering and redistributing them do not yet function at scale. Developing efficient secondary raw material markets means investing in selective demolition capacity, quality certification for recovered materials, regional material banks and reuse hubs, and the market infrastructure — standards, logistics, and trusted intermediaries — that gives buyers confidence in what they are purchasing.

Digital tools are the enablers of these markets. Online marketplaces connect demolition sites, suppliers, contractors, and buyers of secondary materials, making supply and demand visible across regional and national markets. Digital traceability tools — product passports, QR codes, and material tracking platforms — provide the information buyers need to trust secondary raw materials: their origin, composition, technical performance, and environmental profile. Together, these tools reduce the information asymmetry that currently makes secondary raw materials a riskier choice than virgin ones.

PROJECT OUTPUT

CinderoSS digital marketplace

An online platform connecting suppliers, demolition companies, contractors, and buyers of secondary construction materials. Developed and upgraded within the ReBuilt project, CinderoSS supports the exchange and reuse of recovered building components across Central Europe.

circularconstruction.zag.si/digital-tools

Circular business models shift the underlying economics. Product-as-a-service arrangements, material leasing, take-back schemes, and manufacturer responsibility for end-of-life recovery all create incentives to design for durability and disassembly that do not exist in traditional one-off procurement. When a manufacturer retains ownership of a facade system or a flooring product, it has a direct financial interest in ensuring that product can be efficiently recovered and reused. This pillar supports the development and scaling of these models across the Central European construction sector.

SMEs and start-ups are disproportionately important in this pillar. Innovative circular products, recovery services, and digital marketplace solutions are more likely to emerge from smaller, more agile firms than from established industry incumbents — but SMEs face the greatest barriers in accessing finance, regulatory approval, and market entry. Targeted support through funding schemes, innovation programmes, testing facilities, and collaborative networks is essential for unlocking their potential.

Pillar 4 — Governance and Public Procurement

Markets do not transform themselves. The shift from linear to circular construction requires public authorities to act not only as regulators but as market shapers — using policy instruments, procurement power, and institutional leadership to create the conditions in which circular solutions become the rational economic choice rather than the virtuous but costly one.

The most direct lever is public procurement. Governments and municipalities commission a substantial share of all construction activity in Central Europe. When public tenders require lifecycle cost evaluation rather than lowest upfront price, specify circular design standards, mandate the use of secondary or biobased materials where appropriate, and include end-of-life recovery plans as a standard condition, they send a

market signal that changes supplier behaviour far beyond the individual contract. Circular and digital procurement criteria — covering durability, repairability, material traceability, and environmental performance — are among the most powerful tools this strategy can promote.

Regulatory frameworks set the boundaries within which markets operate. End-of-waste criteria are particularly important for circular construction: without clear, harmonised rules about when a recovered material ceases to be classified as waste and can re-enter the market as a secondary raw material, businesses face legal uncertainty that discourages investment in recovery and reuse. Harmonised end-of-waste frameworks across Central European countries would significantly reduce this barrier. Equally important are eco-design regulations, recycling targets, landfill restrictions, extended producer responsibility schemes, and sustainability reporting requirements — all of which align economic incentives with circular outcomes.

Governance at the regional and transnational level matters as much as national regulation. Circular construction value chains cross borders — secondary materials, circular products, and digital construction services need to flow across Central Europe without being blocked by incompatible standards, inconsistent certification regimes, or fragmented regulatory environments. This pillar supports cross-border policy coordination, mutual recognition of standards, and the development of shared governance frameworks that make regional circular markets possible.

Public authorities in Central Europe also need institutional capacity to fulfil this role. Many municipalities and regional governments lack the expertise to design circular procurement criteria, evaluate lifecycle costs, or assess the environmental claims of suppliers. Capacity building for public authorities — covered in depth in Pillar 5 — is the necessary complement to the policy instruments described here.

Pillar 5 — Skills, Capacity and Knowledge

No strategy transforms a sector. People do. And the circular and digital transformation of construction requires a workforce — at every level, from site workers to senior policymakers — that understands what circularity means in practice, knows how to apply digital tools, and has the confidence to specify, procure, design, and build differently. Central Europe currently faces a structural skills deficit in exactly these areas, compounded by the broader labour shortage that already sees half of Slovenia's construction workforce drawn from outside the country. Closing this gap is not a background condition for the strategy's success — it is one of its primary objectives.

PROJECT OUTPUT

ReBuilt MOOC — Circular and Digital Construction

A Massive Open Online Course developed within the ReBuilt project, providing accessible, scalable training on circular construction principles, digital tools, lifecycle assessment, biobased materials, and sustainable procurement. Available to professionals, public authorities, students, and SMEs across Central Europe regardless of location or organisational size.

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Training and education programmes under this pillar address three distinct audiences. For construction professionals — architects, engineers, contractors, material suppliers, and facility managers — the priority is practical upskilling in circular design principles, BIM and digital tool adoption, biobased material specification, sustainable material management, design for disassembly, selective demolition, and lifecycle analysis. These are not niche specialisms; they need to become standard professional competencies across the sector.

For public authorities and policymakers, the priority is institutional capacity: the ability to design and evaluate circular procurement criteria, apply lifecycle cost assessment, understand material traceability systems, manage digital governance tools, and coordinate cross-sector circular economy initiatives. Public institutions cannot lead the market transformation described in Pillar 4 without the knowledge to do so credibly.

For the broader ecosystem — SMEs, innovators, educators, and civil society — the priority is access. Specialised knowledge about circular construction has historically been concentrated in large firms, research institutions, and Western European markets. Making it widely available across Central Europe, including in smaller cities and less connected regions, requires scalable digital learning infrastructure.

Pillar 6 — Circular and Digital Construction Hubs

Strategies do not implement themselves. The transition to circular and digital construction in Central Europe requires physical and institutional anchors — places where knowledge is tested, solutions are demonstrated, stakeholders are connected, and the gap between policy ambition and on-the-ground practice is closed. This is what the circular and digital construction hubs provide.

The hub network operates at two levels. A central hub provides strategic coordination — setting common standards and methodologies, facilitating international collaboration, managing shared digital infrastructure, and ensuring coherence across the regional network. Regional hubs translate central strategy into territorially specific action, adapting approaches to local regulatory frameworks, material availability, construction practices, and market conditions. Together they form a network that is both strategically coherent and locally grounded.

What makes hubs genuinely useful — rather than another coordination mechanism — is their practical function. They provide controlled environments for testing new construction materials, digital design tools, circular business models, and material recovery systems before wider deployment. They reduce the innovation risk that deters practitioners from trying unfamiliar approaches. They connect architects, engineers, contractors, demolition experts, recyclers, technology providers, and policymakers around shared problems rather than leaving each to work in isolation. And they deliver training, workshops, and demonstration projects that build the skills described in Pillar 5 in concrete, project-based settings.

PROJECT OUTPUT

ReBuilt regional hub network

A network of circular and digital construction hubs established across Central Europe through the ReBuilt project, connecting public authorities, industry, research institutions, and educational organisations around shared infrastructure for knowledge exchange, innovation testing, and capacity building.

Central hub	Regional hubs
ZAG — Slovenian National Building and Civil Engineering Institute	Austria, Croatia, Hungary, Czechia, Slovakia, Poland, Italy, Bavaria

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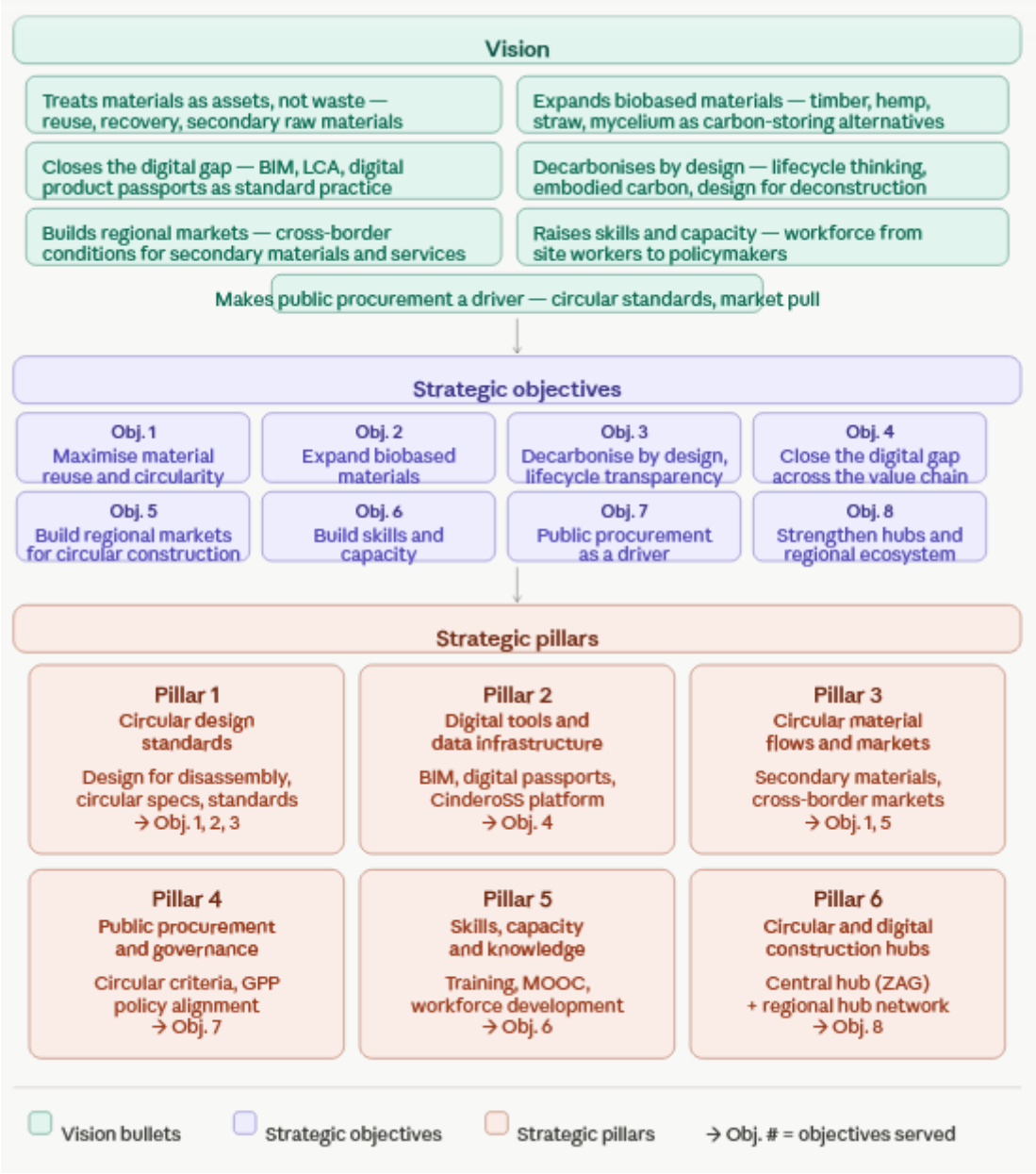
The hubs also serve as the primary interface between the strategy and the SMEs, municipalities, and regional authorities that will actually implement it. Access to information on legislation, funding opportunities, digital tools, circular business models, and matchmaking services for circular construction projects — all of which are currently fragmented and difficult to navigate — is consolidated through the hub network into something usable.

Critically, the hubs are designed to outlast the ReBuilt project. Embedding them in existing institutional structures — universities, research institutes, industry associations, and regional development agencies — ensures that the knowledge, networks, and infrastructure they build continue to generate value beyond any single funding cycle.



5. Governance, Implementation and Long-term Impact

Ambition without implementation architecture is just a document. This chapter sets out how the Strategy for Circular and Digital Construction in Central Europe moves from commitment to coordinated action — and how its results are sustained and replicated beyond any single project or funding cycle.

5.1. Governance approach

The strategy is implemented through a multi-level governance system that reflects the reality of construction in Central Europe: decisions are made at many levels simultaneously, and no single authority controls the full chain from policy to project delivery.

At the Central European level, the strategy provides a shared reference framework — a common language, a set of agreed objectives, and a platform for coordinated action across countries. The circular and digital construction hub network, anchored by ZAG as central hub and supported by regional hubs across the partner countries, provides the organisational infrastructure for this coordination. It is not a new bureaucracy but a lightweight coordination layer that connects existing institutions and amplifies what they are already doing.

At national and regional level, partner organisations and associated stakeholders are responsible for embedding the strategy into their own policy systems — aligning regulatory frameworks, integrating circular and digital construction objectives into sectoral strategies, and connecting the strategy to national funding and implementation instruments. The strategy is designed to be adapted to national contexts, not imposed uniformly across them.

At the local level, cities and municipalities are the primary implementation drivers. They translate strategic objectives into concrete action through spatial planning, public procurement, construction permitting, and the delivery of pilot and demonstration projects. Local authorities are also the primary interface with SMEs, construction practitioners, and communities — the actors who will ultimately determine whether the transition happens on the ground.

Across all levels, a structured stakeholder ecosystem brings together industry, research and innovation actors, public authorities, and civil society in continuous dialogue. This is not a consultation mechanism but a co-implementation structure — one in which the boundary between policy and practice is deliberately kept permeable. Public-private cooperation mechanisms support investment mobilisation, risk sharing, and the scaling of solutions that public funding alone cannot deliver.

5.2. Monitoring and evaluation

Monitoring serves one purpose: ensuring that the strategy drives systemic change rather than generating isolated success stories. Four dimensions structure the monitoring approach.

Long-term tracking of results. Data, methodologies, tools, and good practices generated through pilot projects and hub activities are systematically documented and maintained beyond individual project timelines. Results are not archived — they are actively reused. The Circular and Digital Construction Platform provides the digital infrastructure for this institutional memory.

Replication across regions. Monitoring identifies which solutions are scalable and under what conditions — capturing not only technical performance but the organisational, financial, and governance factors that determine whether an approach can travel from one context to another. A solution that works in Slovenia should be tested for transferability to Croatia, Slovakia, or Bavaria before it is presented as a regional model.

Policy integration. Monitoring generates the evidence base that policymakers need to act — to refine building codes, update procurement criteria, adjust sustainability targets, and design new incentives.

Results feed back into policy cycles at local, national, and Central European level, ensuring that circular and digital construction becomes embedded in governance rather than dependent on project funding.

Scaling beyond demonstration. Many circular and digital solutions begin as pilots. Monitoring tracks the barriers and enabling factors that determine whether they reach mainstream markets — identifying where regulatory constraints, financial gaps, skills shortages, or market resistance are slowing adoption, and where cost reductions, performance improvements, or stakeholder acceptance are opening new pathways.

A detailed monitoring and indicator framework, including key indicators per objective, baseline data, and 2030 targets, is set out in Annex A.

5.3. Sustainability and transferability

The strategy is designed to outlast the ReBuilt project. This requires sustainability across three dimensions and transferability as a built-in design principle.

Environmental sustainability means the strategy delivers lasting reductions in material consumption, embodied carbon, construction waste, and resource depletion — measured over building lifecycles, not project timelines. Economic sustainability means circular solutions remain cost-competitive and commercially attractive without permanent subsidy — a condition that requires market development, standardisation, and scale, all of which this strategy directly addresses. Social sustainability means the transition improves working conditions, expands access to skills and training, and delivers quality, affordable buildings and infrastructure for Central European citizens — not just environmental performance metrics.

Transferability is achieved through four mechanisms. Clear documentation of methodologies and pilot results makes approaches reproducible. Standardisation of key processes — supported by the circular design standards developed under Pillar 1 and the interoperability frameworks under Pillar 2 — reduces the adaptation cost for new adopters. Digital tools make knowledge portable across borders. And the hub network provides the human infrastructure through which transferability actually happens — because knowledge transfers between people and institutions, not just between documents.

The strategy's long-term ambition is that by 2030, circular and digital construction is no longer a project-funded innovation in Central Europe but a mainstream professional practice, embedded in regulation, taught in education systems, demanded by public procurement, and supported by functioning regional markets. The governance, monitoring, and sustainability mechanisms described in this chapter are the means by which that ambition becomes achievable.

6. Conclusion

Central Europe's construction sector stands at a genuine inflection point. The regulatory environment is shifting faster than at any point in a generation. The housing and renovation challenge is acute and growing. The skills base is under structural pressure. And the region's circularity performance — measured against both its own potential and the EU's 2030 targets — leaves significant ground to cover.

This Strategy does not pretend these challenges are easy. But it does argue, based on the evidence and the work assembled here, that they are addressable — and that addressing them together, through a coordinated regional approach, is both more effective and more efficient than each country attempting the transition in isolation.

The six pillars of this Strategy form a coherent system, not a list of parallel initiatives. Circular design at the project level only delivers its potential when digital tools make material flows visible, when regional markets exist to absorb recovered materials, when procurement systems reward lifecycle value, when the workforce has the skills to implement new approaches, and when hubs and networks provide the institutional connective tissue that keeps the system functioning beyond individual projects and funding cycles. Pull any one pillar out and the others weaken. Strengthen all six together and the transition becomes self-reinforcing.

Three things will determine whether this Strategy generates lasting impact or becomes one more well-intentioned document on a shelf.

The first is institutional commitment. The vision and objectives set out here need to be owned — not just endorsed — by the public authorities, research institutions, industry associations, and municipalities that make up the Central European construction ecosystem. Ownership means embedding the Strategy's objectives into procurement criteria, spatial plans, training curricula, and funding priorities, not just citing it in project applications.

The second is patience with the evidence base. Several of the indicators in Annex A currently lack baselines. Establishing those baselines — on biobased material adoption, cross-border secondary material flows, LCA uptake in public infrastructure — is itself a first and necessary act of implementation. A strategy that cannot measure its own progress cannot improve.

The third is willingness to replicate. The ReBuilt project has generated real outputs — a hub network, a MOOC, a digital marketplace, a product passport platform, and a body of pilot project evidence. These are not proof-of-concept experiments waiting for a larger successor project. They are working infrastructure, available now, designed to be used and built upon. The question for every partner organisation, associated stakeholder, and reader of this document is the same: what do you do next with what already exists?

The circular and digital transformation of construction in Central Europe will not happen because a strategy was written. It will happen because the people and institutions who read this strategy decide to act on it — in their procurement offices, their design studios, their council chambers, their training programmes, and their construction sites. That is where strategies either live or die. This one is designed to live.

Annex A — Monitoring and Indicator Framework

ReBuilt Strategy for Circular and Digital Construction in Central Europe

Partner countries: Slovenia · Austria · Germany · Croatia · Italy · Slovakia · Czechia · Poland · Hungary | Baselines: latest available 2023-2025|Target year: 2035|Updated June 2026

This framework provides country-differentiated baselines for the 8 strategic objectives. For cross-national indicators (1.2, 4.1, 6.1, 7.1, 7.2) baselines show the partner-country range and weighted average rather than the EU average, which masks significant variation within the partner group. Targets are set as a partnership average or minimum threshold applicable to each partner country individually by 2035. Sources: Eurostat (including 2024 data published Nov 2025), EEA Europe's Environment 2025 country profiles, USP Marketing Q4 2025, IISD 2025, ECO Platform July 2025, and sector research.

#	Indicator	Partner-country baseline (latest available)	2035 target	Source	Measurement method
Obj. 1: Maximise material reuse, recovery, and circularity					
1.1	**High-quality CDW recycling rate (partner countries)** *Wide variation: Italy and Slovenia historically >97% overall CDW recovery; Croatia <50% in earlier data; Slovakia historically below 70% WFD target; Poland and Hungary mid-range. Eurostat overall EU CDW recovery rate 89% but predominantly low-grade backfill/sub-base, not high-quality recycling. EU WFD 70% non-hazardous recovery target binding from end-2025.*	Low: Croatia, Hungary ~30–50% overall recovery Mid: Poland, Slovakia ~60–75% High: Austria, Germany, Italy, Slovenia >80% High-quality recycling estimated at ~20–35% across partner group	**≥ 60% high-quality recycling (partner-country average)**	Eurostat env_wasgen; EDA 2025; World Bank Croatia CE Action Plan 2023; ScienceDirect 2023	Share of CDW recycled into equivalent or higher-value applications, excluding backfill and sub-base; measured via annual national CDW reports to Eurostat
1.2	**Overall circular material use rate (CMUR) — partner countries** *EEA Europe's Environment 2025 country profiles (2023 data): • Italy ~21% (2024, Eurostat) — top 3 EU • Austria 14.3% — doubled since 2010 • Germany ~13% (est.) — high material consumption, below EU avg. • Czechia ~13–14% (est.) — strong upward trend +7.9 pp since 2015 • Slovakia ~11–12% (est.) — +7.2 pp since 2015 • Slovenia 8.8% — below EU avg.; major construction projects weighing on CMUR • Hungary ~8–9% (est.) — regional comparator • Poland 7.5% — decreased –4.2 pp since 2015, most resource-intensive CE country • Croatia 6.2% — increased from 1.6% in 2010 but still well below EU avg. EU avg.: 12.2% (2024). EU 2030 target: 23.2%*	Partner-country range: 6.2% (Croatia) – 21% (Italy) Partner-country weighted avg.: ~11% (2023) EU avg: 12.2% (2024)	**≥ 18% (partner-country average)**	EEA Europe's Environment 2025 country profiles; Eurostat ce_cmur Nov 2025; EEA Dec 2025	Overall CMUR per partner country, annual Eurostat reporting (cei_srm030); reported for each partner country individually and as partnership-weighted average

1.3	**Projects applying design-for-disassembly (DfD) principles (partner regions)** *No EU-wide or partner-country baseline exists. Estimated <5% of new public construction projects across partner regions apply formal DfD criteria at project start (ReBuilt baseline survey 2024).*	< 5% (est., all partner countries, 2024)	**≥ 30%**	ReBuilt hub network monitoring	% of new public construction projects in partner regions with DfD criteria in the design brief; tracked via hub project registry and annual partner reporting
Obj. 2: Expand the role of biobased materials in construction					
2.1	**Non-wood biobased construction materials adoption — partner countries (hemp, straw, mycelium)** *Non-wood biobased materials (hempcrete, hemp insulation batts, straw bale, mycelium composites) remain niche across all partner countries. Europe holds 38% of the global hempcrete market (2024) and leads globally. France is the most advanced EU market (>100,000 m^2 hemp insulation used in 2024; RE2020 explicitly promotes hemp). Among partner countries: Germany has 350+ companies in hemp material manufacturing (2024, +42% vs 2022); Austria, Italy, Slovenia: emerging adoption mainly in insulation; Slovakia, Czechia, Poland, Croatia, Hungary: very limited, primarily R&D and individual pilot buildings. Over 600 hemp-based construction projects in Europe in 2023. Mycelium global market USD 910M (2024), still pre-commercial at scale in CE.*	Early-stage / niche (all partner countries, 2023-24) Most advanced partner countries: Germany, Austria Partner countries: <0.5% share of new building projects (est.) Europe: ~600 hemp-based construction projects in 2023	**≥ 5% share of new building projects using non-wood biobased materials (partner avg.)**	Market Data Forecast 2025; Fortune Business Insights 2024; Market Growth Reports Jan 2026; Coherent Market Insights 2026	% of new building projects in partner regions specifying hemp, straw, mycelium or other non-wood biobased structural or insulation materials; tracked via hub monitoring and national permit data; reported per country.
2.1	**Partner countries with national standards or CE-mark pathway for non-wood biobased construction materials** *Standardisation is the primary systemic barrier to adoption across all partner countries. France is most advanced (RE2020 promotes hemp; FDES declarations for hempcrete available) but is not a partner. Among the partner group: Germany and Austria have voluntary standards for hemp insulation, but no mandatory framework; Italy, Slovenia, Slovakia, Czechia, Croatia, Poland, Hungary have no national standard for hempcrete or straw bale construction. EPBD recast (2024) and CPR 2024/3110 create regulatory impetus for CE-mark pathways for biobased products across the EU.*	0-1 partner countries with any formal national standard for hemp/straw construction (Germany, Austria partial/voluntary only) 6-7 partner countries: no national framework (2024)	**All 8 partner countries with national standard or CE-mark pathway for ≥2 non-wood biobased material types**	Coherent Market Insights 2026; EPBD recast 2024; CPR 2024/3110; national standards bodies	Count of partner countries with formally adopted national standard, technical guideline, or CE-mark pathway covering ≥2 non-wood biobased construction material types (e.g. hempcrete, hemp insulation, straw bale); verified via national standards bodies annually
2.3	**Non-wood biobased construction pilots/demonstrations supported by ReBuilt** *0 documented in hub network at project start (2023). Individual pilot buildings using hemp*	1 (documented in hub network, 2026)	**≥ 20**	ReBuilt project monitoring	Cumulative count of pilot/demonstration projects using non-wood biobased materials (hemp, straw, mycelium), formally documented in hub network across all partner countries, 2026-2035; by country

	or straw exist in Germany, Austria, and Slovenia but are not systematically tracked or connected to the hub network.				
Obj. 3: Decarbonise by design and improve lifecycle transparency					
3.1	**Whole-life carbon — A1–A5 embodied, new residential buildings** *One Click LCA European benchmark: Eastern/Central Europe residential A1–A4 range 300–650 kg CO_2eqv./m². ScienceDirect 2025: BAU across Europe ~516 kg CO_2eqv./m²; TECH-Build ~280 kg CO_2eqv./m² lower. French RE2020 threshold 640 kg CO_2eqv./m² (2022). Hungary national study: 570–930 kg CO_2eqv./m² (annualized 9.5–15.5 kg/m²/yr × 60yr). CE partner countries generally at higher end of European range due to older construction practices.*	~550–650 kg CO_2eqv./m² (CE partner countries est., 2022–24) Western CE (Austria, Germany): ~450–550 kg CO_2eqv./m² Eastern CE (Czechia, Slovakia, Poland, Croatia): ~550–650 kg CO_2e/m²	**≤ 300 kg CO_2e/m²**	One Click LCA 2024; ScienceDirect Dec 2025; Springer LCA Hungary 2024; RE2020	Average A1–A5 embodied carbon of new residential buildings in partner regions; based on EPDs and LCA reports submitted with building permits (mandatory under recast EPBD from 2028/2030)
3.2	**New public buildings with whole-life carbon assessment (LCA)** *Mandatory under recast EPBD for buildings >1,000 m² from 2028, all new from 2030. Ireland: mandatory Sept 2025 for public projects >€10M — a model for partner countries. Across CE partner group, currently <10–15% of new public buildings have LCA; Austria and Germany somewhat higher due to voluntary schemes and green procurement requirements.*	< 10% (Czechia, Slovakia, Croatia, Poland, Hungary) ~10–20% (Austria, Germany, Slovenia, Italy) Partner-group avg.: ~12% (est., 2025)	**≥ 95%**	EPBD recast 2024; EPD Guide 2025; national building permit data	% of new public building permits in partner countries accompanied by a whole-life LCA report; verified via national permit databases and EPBD transposition reporting
3.3	**EPDs issued for construction products in partner countries** *ECO Platform July 2025: International EPD System lists 12,749 EPDs globally; IBU (Germany) 2,565; France INIES 4,560 FDES end-2024. CE partner country breakdown (est. 2025): • Germany: ~2,565 (IBU) — largest partner • Italy: ~1,000+ (EPD Italy / International) • Austria: ~300–400 (Bau-EPD) • Czechia, Slovakia, Slovenia: ~100–200 each • Poland, Croatia, Hungary: <100 each Partner group total est. ~4,500–5,000 active EPDs (2025)*	Partner group est. total: ~4,500–5,000 active EPDs (2025) Range: Germany ~2,565 (largest) to Hungary, Croatia <100 (lowest)	**≥ 12,000 (partner group total)**	ECO Platform Jul 2025; IBU 2024; INIES 2025; EPD Guide Jan 2026	Count of valid EN 15804-compliant EPDs issued by manufacturers in each partner country, tracked via ECO Platform and national EPD operators; reported per country and as partnership total
Obj. 4: Close the digital gap across the construction value chain					
4.1	**BIM adoption rate — architects and construction professionals** *European Architectural Barometer Q4 2025: 53% EU avg. Significant variation across partner group: • Germany: ~55–65% (advanced market) • Austria: ~50–60% • Italy: ~32% (2023 data, ECSO) • Slovenia: ~30–40% (est.) • Czechia, Slovakia: ~25–35% (est.) • Poland: ~12–15% (ECSO — one of lowest in EU) • Croatia: early-stage, largely design phase only • Hungary: ~20–25% (est.)*	Partner-country range: ~12% (Poland) to ~60% (Germany) Partner-group weighted avg.: ~35–40% (est., Q4 2025)	**≥ 75% (all partner countries)**	USP Marketing / European Arch. Barometer Q4 2025; ECSO; MDPI BIM Policy Trends 2024	% of architecture and construction firms in each partner country reporting regular BIM use; annual European Architectural Barometer + national supplements; reported per country

4.2	**Digital product passports (DPPs) — construction products** *EU CPR 2024/3110 entered into force Jan 2025; provisions apply Jan 2026; DPP rollout roadmap 2026–2029. Currently 0 mandatory construction DPPs across all partner countries. Germany and Austria best positioned given EPD infrastructure; CE countries likely to lag.*	0 mandatory (all partner countries, Jan 2026)	**≥ 1,500 (partner group total)**	EU CPR 2024/3110; EPD Guide Jan 2026; EC CPR working plan 2026–29	Count of construction product DPPs issued and active in each partner country market; tracked via EU DPP registry and ReBuilt/CinderoSS platform; reported per country and as partnership total
4.3	**Public construction tenders requiring BIM or digital documentation** *35% of EU countries have or plan BIM mandates (MDPI 2024). Partner-country status: • Germany: BIM required for federal transport infrastructure since 2020; spreading to states • Austria: BIM mandatory for federal projects >€1M • Italy: BIM mandatory for public contracts >€1M since 2023 • Others (Slovenia, Slovakia, Czechia, Croatia, Poland, Hungary): voluntary or early-stage, est. 5–20% of large public tenders*	High: Germany, Austria, Italy — mandatory for large public projects Low: Slovenia, Slovakia, Czechia, Croatia, Poland, Hungary — ~5–20% Partner-group avg.: ~25–30% (est., 2024)	**≥ 70% (all partner countries)**	MDPI BIM Policy Trends 2024; ECSO; national procurement data; EU TED	% of public construction tenders >€1M in each partner country requiring BIM or equivalent digital deliverable; annual TED data analysis per country
	Obj. 5: Build regional markets for circular construction				
5.1	**(Cross-border) secondary material transactions (CE region)** *Secondary construction material markets are fragmented and largely national across all partner countries. No harmonised tracking exists. Negligible documented cross-border flows at project start (ReBuilt stakeholder mapping 2024).*	Negligible / not tracked (all partner countries, 2026)	**≥ 50 / year**	ReBuilt hub network; CinderoSS transaction log	Documented cross-border secondary material or circular product transactions facilitated via hub and ReBuilt/CinderoSS platforms, per calendar year; breakdown by country pair where possible
5.2	**SMEs in partner regions offering circular construction products/services** *Market largely undeveloped for dedicated circular construction SMEs across all partner countries. Strongest in Germany and Austria (more mature circular economy markets); very limited in Croatia, Hungary, Slovakia. Estimated <50 firms with primary circular construction focus across the full partner group (ReBuilt partner mapping 2024).*	< 50 total (all partner countries combined, 2024) Largest markets: Germany, Austria, Italy Smaller: Croatia, Hungary, Slovakia	**≥ 300 (partner group total)**	ReBuilt hub business registry; national chambers of commerce per country	Count of SMEs in each partner region with primary activity in circular construction materials, services, or selective deconstruction; reported per country and as partnership total
5.3	**Value of circular construction projects in partner regions** *Circular procurement effectively absent in CE partner regions; no systematic tracking across any partner country (ReBuilt project baseline 2024).*	Not tracked (all partner countries, 2024)	**≥ €150M cumulative (2024–2035)**	ReBuilt hub project registry	Cumulative value of construction projects in partner regions applying formal circular criteria, documented in hub network, 2024–2035; broken down by country

Obj. 6: Build skills and capacity across the ecosystem					
6.1	**Construction sector job vacancy rate — partner countries** *Eurostat Q4 2025 construction-specific vacancy rates (NACE F): • Slovenia: 4.9% — highest in partner group, severe shortage • Czechia: 3.8% • Germany: 3.8% • Austria: 4.5% (Q3 2025) • Croatia: 1.6% • Italy: not reported separately (services-dominated) • Poland: 1.5% • Slovakia: 0.3% — lowest • Hungary: ~1.5–2% (est.) EU industry + construction: 1.9% (Q4 2025). 7M construction job openings projected EU-wide by 2035 (Eurofound Dec 2025).*	Partner range: 0.3% (Slovakia) to 4.9% (Slovenia) Most stressed: Slovenia (4.9%), Austria (4.5%), Czechia/Germany (3.8%) Lowest shortage: Slovakia (0.3%), Poland (1.5%)	**≤ 2.0% (each partner country)**	Eurostat jvs_q_nace2 Q4 2025; Trading Economics Mar 2026; Eurofound Dec 2025	Construction sector (NACE F) job vacancy rate per partner country, annual Eurostat data; target applies individually to each partner country
6.2	**Professionals trained in circular/digital construction (ReBuilt)** *0 at project start across all partner countries. ITUC/EFBWW 2023: up to 1.5M additional workers needed EU-wide by 2030. Eurofound Dec 2025: 7M construction job openings expected by 2035.*	0 (all partner countries, project start 2023)	**≥ 10,000 (cumulative, all countries)**	ReBuilt MOOC platform; hub training records per country	Cumulative unique individuals with verified ReBuilt training completion, 2024–2035; broken down by partner country
6.3	**MOOC completions with certification** *0 (MOOC under development at project start, 2024). Target group spans all 8+ partner countries and languages.*	0 (project start, 2023)	**≥ 5,000 (cumulative, all countries)**	ReBuilt MOOC platform analytics	Cumulative learners earning ReBuilt MOOC completion certificate, 2024–2035; tracked by country of registration
Obj. 7: Make public procurement a driver of circular transition					
7.1	**Share of public construction tenders with circular/environmental criteria** *IISD 2025: <15% of EU contracts above threshold 'green'. Wide variation by partner country: • Germany, Austria: more advanced GPP frameworks; ~25–35% of large public tenders include environmental criteria • Italy: national Minimum Environmental Criteria (CAM) for buildings and roads mandatory — among most advanced in EU • Slovenia: moderate; GPP action plan in place • Poland, Czechia: limited mandatory GPP; ~10–15% of tenders • Slovakia, Croatia, Hungary: early-stage; ~5–15% Bruegel 2025: >60% of EU contracts awarded on price alone; ECCO May 2025: >55% on lowest price.*	Partner range: ~5–15% (Slovakia, Croatia, Hungary) to ~25–35% (Germany, Austria) Italy: mandatory CAM criteria for some categories Partner-group avg.: ~15–20% (est., 2025)	**≥ 60% (all partner countries)**	IISD 2025; Bruegel 2025; ECCO May 2025; Italian CAM Decree 2022; national GPP action plans	% of public construction contracts >€1M in each partner country with at least one circular or environmental award criterion; annual TED data analysis per country
7.2	**Partner countries with circular GPP criteria formally adopted** *Estimated 2–3 partner countries have relevant GPP construction criteria (Italy via CAM, Germany via BBSR Nachhaltiges Bauen, Austria partially). Others lack formal circular construction GPP criteria. EU Procurement Directive reform underway 2025–26 with mandatory sustainability criteria proposed.*	2–3 partner countries (Italy, Germany, Austria — partial/sectoral) 5–6 countries without formal circular construction GPP criteria	**All 8 partner countries**	SEI 2023; IISD Sept 2025; national GPP action plans; Italian CAM Decree	Count of partner countries with formally adopted circular construction GPP criteria or action plan explicitly referencing circular criteria; verified via national policy documents annually

7.3	**Public procurement value applying circular criteria (partner regions)** *Not tracked systematically in any partner country for circular-specific criteria. De facto near zero outside Germany, Austria, and Italy where partial criteria exists.*	Not tracked (most partner countries, 2023) Partial tracking possible in Germany, Austria, Italy	**≥ €250M cumulative (2024–2035)**	TED / national procurement registers per country	Cumulative value of public construction contracts in partner regions awarded with documented circular criteria, 2024–2035; broken down by country
Obj. 8 Strengthen the regional ecosystem through construction hubs					
8.1	**Operational circular and digital construction hubs (network)** *1 central hub operational: ZAG, Ljubljana, Slovenia (2026). Regional hubs in each partner country (8 regional hubs across Austria, Germany, Croatia, Italy, Slovakia, Czechia, Poland, Humgary).*	1 hub operational (ZAG, Slovenia, 2026), 7 regional hubs operational 0 associated partners outside of ReBuilt consortium	**≥ 50 associated partners in the Central European Circular and Digital hub umbrella**	ReBuilt project governance; ZAG 2026	Count of associated partners under hub umbrella with formal operational status (governance structure, physical/virtual presence, annual programme) confirmed by ReBuilt steering committee; reported per country
8.2	**Stakeholders engaged through hub network annually** *0 at project start (network not yet operational, 2024). Target covers all 8+ partner countries; engagement expected to be highest in Slovenia, Austria, Germany, Italy given stronger existing circular construction ecosystems.*	0 (all partner countries, 2024)	**≥ 2,000 / year (across all hubs)**	ReBuilt hub CRM / event registration per country	Unique stakeholders (individuals from distinct organisations) in hub events, consultations, or services per calendar year; reported per hub/country and as partnership total
8.3	**Good practices documented on CinderoSS / hub knowledge base** *0 at project start (CinderoSS platform in development, 2024). Good practices to be contributed by all partner hubs; target covers all partner countries.*	0 (all partner countries, 2024)	**≥ 500 (across all partner countries)**	CinderoSS platform; hub knowledge management system	Cumulative publicly accessible good practice cases on CinderoSS or hub knowledge base, 2024–2035; reported per country of origin

Abbreviations: CDW=Construction & Demolition Waste · CMUR=Circular Material Use Rate · EPD=Environmental Product Declaration (EN 15804) · DPP=Digital Product Passport · BIM=Building Information Modelling · LCA=Life Cycle Assessment · CLT=Cross-Laminated Timber · GPP=Green Public Procurement · DfD=Design for Disassembly · CPR=EU Construction Products Regulation 2024/3110 · EPBD=Energy Performance of Buildings Directive (recast 2024) · WFD=Waste Framework Directive · NACE F=Construction sector classification · CAM=Italian Minimum Environmental Criteria (Criteri Ambientali Minimi)
Notes: Baselines marked '(est.)' reflect expert estimation in the absence of harmonised EU data and should be replaced with verified national data in the first annual monitoring cycle (2025). Country-specific data for CMUR drawn from EEA Europe's Environment 2025 individual country profiles (Croatia 6.2%, Poland 7.5%, Slovenia 8.8%, Austria 14.3%, Italy ~21%, 2023). BIM adoption ranges are estimates based on ECSO reporting and the European Architectural Barometer Q4 2025. Construction job vacancy rates are from Eurostat jvs_q_nace2, Q4 2025.