OUTPUT FACTSHEET

Project index number	CE0100390	**Acronym**	ReBuilt			
Output type ("x" to be included)	**Strategy/ action plan**		**Pilot action**	x	**Solution**	
Output number (O.xx)	O.2.2	**Output title**	Circular construction digital pilots			
If the output target is > 1 in the AF, please specify the output(s) described in the factsheet	n/a					
Output delivery date	maj.26					
Project website	https://www.interreg-central.eu/projects/rebuilt/					

Summary description of the output
Please present the output by addressing the following topics.

Territorial challenges and needs in the regions specifically addressed by the output (max. 700 characters)

Central European regions differ widely in the maturity of circular and digital construction. Common gaps include reluctance towards secondary raw material (SRM)-based products, missing data on their quality and traceability (waste-to-product flows), underdeveloped SRM markets and low uptake of digital tools such as BIM, digital product passports and digital marketplaces. Without transparent and interoperable digital solutions, circular value chains cannot operate at scale and construction and demolition waste continues to be downcycled or landfilled. The output addresses these needs by piloting digital tools that make material flows traceable and circular business models operational.

Main aim(s) of the output and how it contributes to tackle the identified challenge(s) (max. 500 characters)

The output is tested and validated digital tools toolbox enabling circular construction across central Europe: an portal with digital product passports interoperable with BIM (https://rebuilt.infordata.eu/), digitalised construction value chain, and an update of the CinderOSS platform (https://cindeross.cinderela.eu/) with circular digital business models. The pilots demonstrate how digital transparency and traceability of materials remove key barriers to the uptake of SRM and lead to a jointly developed solution in the form of a GAIA-X good practice.

Technical description of the output (e.g. scope, main features, innovative elements etc.)
(max. 1500 characters)

Within the output, partners piloted digital tools for circular construction in a real-world environment at the NIGRAD demonstration centre in Maribor (SI), covering the complete material value chain from demolition and waste collection through processing and quality assessment to reuse. The pilot comprised: (i) a digital material traceability platform using RFID/NFC/QR identification, generating Digital Product Passports (DPP) aligned with the UN/CEFACT DPP 0.6.0 standard and testing their interoperability with BIM through IFC-compliant export, validated in Autodesk Revit 2024 and Graphisoft Archicad 27; (ii) digitalisation of a selected construction value chain (recycled aggregates from construction and demolition waste and cross-sectoral bio-concrete/mortal from plant residues), establishing a digital value chain and business ecosystem with an end-to-end chain of custody; and (iii) updating of the CinderOSS one-stop-shop platform (H2020 CINDERELA) with circular digital business models and an operating on-line marketplace, achieving 22 confirmed producer-buyer matches against the target of 20. The innovative element is the jointly developed solution in the form of a GAIA-X good practice: federated identity (did:web), verifiable Gaia-X Participant Credentials and cryptographically signed DPPs (JsonWebSignature2020) enable any external party to independently verify material provenance. Cross-border data sharing was validated with partners in Italy and Slovakia. Testing results are summarised in D.2.3.4 - Summary Report on Testing of Digital Tools.

Involvement of target groups during output development and/or implementation
(max. 700 characters)

Target groups were directly involved in testing: demolition and deconstruction operators, waste processing coordinators, quality assurance technicians and construction project managers tested the tools in daily workflows at the NIGRAD site, while user acceptance testing engaged six stakeholder organisations from four countries with varying levels of digital literacy. Role-specific hands-on trainings were provided, and feedback from the testing cycles was integrated into user interface and workflow improvements of the tools and the CinderOSS platform.

Cooperation dimension of the output, i.e. joint development within the partnership and, if applicable, joint implementation (see output indicator definitions in chapter I.3.3 and Annex 2 of the programme manual)
(max. 700 characters)

The output was jointly developed and implemented by the partnership: INFORDATA (IT) led the development of the traceability platform with support of ZAG, Opencontent (IT) operated the CinderOSS marketplace, NIGRAD (SI) hosted the demonstration, TUW (AT) provided quality certification for bio-based mortars, HM (DE) contributed bio-concrete manufacturing, IIC (SK) acted as independent Gaia-X verifier, and CZGBC (CZ) and ZAG (SI) supported testing and coordination. The cross-border data sharing scenario demonstrated joint implementation across borders and validated trusted transnational exchange of material passport data.

Results - expected change and lasting effects in the territories generated specifically by the output, its uptake by relevant organisations and benefits for target groups
(max. 1000 characters)

The pilots confirmed that the digital tools are technically robust, interoperable and operationally ready. The CinderOSS marketplace facilitated 22 confirmed matches between material producers and buyers across Slovenia, Austria, Germany and Italy, exceeding the target of 20 and demonstrating a functioning cross-border market for secondary materials. Cryptographically signed DPPs with a verifiable chain of custody increase trust in SRM-based products, while BIM integration enables substitution of virgin materials with secondary materials in design workflows. The validated platform provides the technical baseline for deployment across the network of Regional Circular and Digital Construction Hubs (O.3.3) and supports the implementation of the Common Strategy for Circular and Digital Construction in central Europe (D3.2.2), generating lasting effects in the participating territories.

Ownership and durability of the output after the project end, considering financial and institutional support including, if applicable, maintenance
(max. 700 characters)

The traceability platform is deployable as Software as a Service (SaaS), and its scale-up beyond NIGRAD is planned at partner organisations in the Czech Republic, Slovakia, Slovenia and Italy, including commercial operation by INFORDATA. The CinderOSS marketplace remains operational after the project end under Opencontent and ZAG, and the network of Regional Circular and Digital Construction Hubs operated under umbrella managed by ZAG provides the institutional framework for continued use, maintenance and further development, including alignment with the forthcoming EU Digital Product Passport implementing acts for construction materials.

Transferability of the output to other territories, sectors or target groups and planned measures for supporting such transfer
(max. 700 characters)

The tools are built on open standards (UN/CEFACT DPP, IFC/ISO 16739, W3C DID and Verifiable Credentials, EWC classification), making them transferable to other territories and sectors where traceability of secondary materials is relevant. Transfer is supported by the GAIA-X good practice and the proposal for a circular economy sector in the GAIA-X community, API integration guidelines for hub operators, user training programmes, and dissemination via the hub network and Interreg knowledge platforms. The long-term vision is EU-wide deployment as a reference implementation for Gaia-X-aligned circular construction data infrastructure.

Related final deliverable(s) (Number(s) and title(s) to be included)	D.2.3.4 Summary report on testing of digital tools
Output web link (if applicable)	https://circularconstruction.zag.si/digital-tools/
GPS coordinates (if applicable)	n/a