Interreg CENTRAL EUROPE

Co-funded by the European Union

ReBuilt

NEWSLETTER

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A. Project sumamry

Construction industry is one of the most resource consumptive sectors (**more than 50% of all extracted materials, 50% of water and 1/3 of energy is used in construction which also produce more than 1/3 of all waste and 1/3 GHG!)** therefore boosting the circular economy (CE) in this sector produces significant impact on central European society wellbeing and increase its resource efficiency.

The current situation of innovation ecosystems for circular and digital construction vary significantly from region to region. While some regions have already good practices of use of recycled materials, established administrative procedures (e.g. End-of-Waste criteria) others are still making initial steps towards circular and digital construction (e.g. focusing mainly on backfilling of Construction and Demolition Waste).

Never the less the **common gaps to all regions are**:

- general reluctance towards Secondary Raw Material (SRM)-based products,
- lack of operating SRM-based construction market;
- lack of appropriate data about the quality of SRM-based products and their traceability (waste to product flows);
- lack of administrative/legal routes for reuse of products;
- lack of good practices of circular economy business models;
- lack of trans-national education programe for T-shaped experts;
- poor adoption of dif.

The OVERALL OBJECTIVE of the ReBuilt project:

is to **increases awareness** and **attractiveness of circular and digital construction** through creation of education programme, upgrade and piloting of new solutions (technical and digital), upgrade demandside measures, including green labeling, EoW, Green Public Procurement (GPP) and through creation of first Central European Circular and Digital Construction Strategy which will be deployed through network of Regional Circular and Digital Construction Hubs. The project outputs and results will further uptake construction in central Europe, taking into consideration regional and urban/rural specifics

The ReBuilt project partnership consists of 14 organisations from 9 EU Member States belonging to the eligible Interreg Central Europe programme area.

Lead Partner

LP Slovenian National Building and civil Engineering Institute (Slovenia)

Project partners

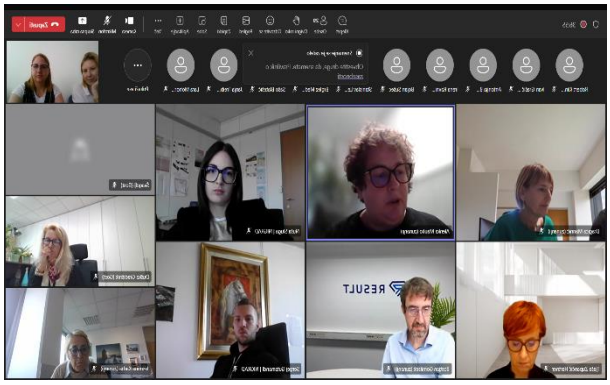
PP2 Chamber of Commerce and Industry of Štajerska (Slovenia)
PP3 Nigrad. Civil engineering company, d.o.o. (Slovenia)
PP4 Opencontent SCARL (Italia)
PP5 INFORDATA SISTEMI SRL (Italia)
PP6 Tehnical University of Vienna (Austria)
PP7 POR Consult, Projects of Sustainable Development, d.o.o. (Croatia)
PP8 BURST Nonprofit Llc (Hungary)
PP9 Vas County Government Office (Hungary)
PP10 Institute of Construction and architecture, Slovak Academy of Sciences (Slovakia)
PP11 Industry Innovation Cluster (Slovakia)
PP12 The Institute for Ecology of Industrial Areas (Poland)
PP13 Czech Green Building Council (Chechia)
PP14 Munich University of Applies Sciences MUAS (Germany)

B. KICK-OFF Meeting

During the last two days (17. 5. – 18. 5. 2023) the kick-off meeting of the **InterregCE** project **ReBuilt** took place at **ZAG Slovenia**, which is the lead partner of an international consortium of 14 partners from 9 EU countries. During the kick-off meeting the roles of each partner were presented and a common working strategy was defined.

The construction industry is a major contributor to resource consumption, waste generation and greenhouse gas emissions. Adopting circular and digital practices can help reduce the sector's environmental impact. ReBuilt promotes these approaches through an education program, deploys new pilot solutions using secondary raw materials, and proposes the creation of a network of regional circular and digital construction hubs to be implemented based on the first Central European Circular and Digital Construction Strategy.

C. Regional workshops for mapping of barriers and opportunities for circular and digital construction



Within the framework of the activity A1.1 "Mapping", Slovenian partners organised together, on 29.09.2023 online workshop - **The Importance of DIGITALISATION IN CROSS-CUTTING ENGINEERING IN SLOVENIA.**

The purpose of the workshop was to obtain additional information, knowledge, and first-hand experience from the participants, who are developing and co-shaping different areas of circular sustainable construction, supported by digital technologies. With their input, the ReBuilt project will be able to prepare the basis for the development of policies and national guidelines in this field for the whole of Central Europe.

The web workshop also brought together external experts:

- Slovenian National Building and Civil Engineering Institute: Dr. Alenka Mauko Pranjić, univ.dipl.geol.
- Chamber of Commerce and Industry of Slovenia - Antonija Božič Cerar
- Result d.o.o. - Boštjan Gomilšek
- Nigrad d.o.o. – Sergej Gutsmandl
- GIC Gradnje d.o.o. – Dr. Tjaša Zupančič Hartner
- University of Maribor, Faculty of Chemistry and Chemical Engineering – Red. Prof. Dr. Zorka Novak Pintarič, univ. dipl. inž. kem. teh.
- Ministry of Environment, Climate and Energy - Jasmina Karba

The workshop was attended by 38 participants.

D. Project partners

Slovenian National Building and Civil Engineering Institute (ZAG) is public research organization working in the field of construction industry. Their research is focused on the development of new materials and technologies that will help ensure sustainable development in Slovenia and Europe, as well as being of importance for the worldwide community. They participation in numerous international projects (e.g. FP7, H2020, HEU, LIFE, EIT RawMaterials, EIT Urban Mobility, Interreg).

ZAG is divided into 5 main departments: Department of Materials (which covers topics of circular economy, environmental technology, new construction materials and products), Department of Building Physics, Department for Research of Fire-safe Sustainable Built Environment, Department of Structures, Department of Geotechnics and Structures with horizontal activities on digitalisation (BIM, digital twins, digital logBooks, life cycle assessment and additive technologies) and accompanying services on certification and verification of construction products.

ŠGZ is an independent chamber representing the business community in the Podravje region, providing a range of services such as information, support, advice, non-formal education and training for companies. SGZ has knowledge, experiences, competences of providing services in areas such as legislation, policies, internationalisation, digitalisation, circular economy, HRD, energy management, aimed at strengthening the competitiveness of its members. SGZ's activities: business contacts, networking, advisory services, promotional activities, training and education, conferences, congresses, business delegations, workshops, seminars, consultations, international events, research, professional materials. SGZ is a non-profit organisation with not obligatory membership - it has around 400 members. The Chamber with 11 employees has many years of experience in national, international projects (Interreg SI-AT, Horizon 2020, Interreg Danube, Central Europe, Interreg SI-HU, DG Enlargement, Interreg IIIA SLO-HUN-CRO). CCIS has been managing the national Strategic Research and Innovation Partnership - Networks for the Transition to a Circular Economy (SRIP – CE) since November 2016, which is a part of SI Smart Specialisation Strategy, S4. SRIP – CE is an ecosystem on quadruple helix model includes focus areas: sustainable energy, biomass and alternative raw materials, secondary raw materials, which also includes the construction sector, sustainable functional materials, green technologies and processes, circular business models.

Nigrad d.o.o. is a company with a 160-year tradition in construction and maintenance of municipal infrastructure. The total annual revenue of the company is about 15 million €. About 240 employees per day care for the smooth operation of the public transport infrastructure and separation and treatment of wastewater and precipitation waters. Public utility services include the maintenance of public transport surfaces, sewage network management and wastewater treatment plants, publiclighting management and traffic control, parking management and the removal of improperly parked vehicles. Market services comprise contractual work obtained through public tenders and consulting work for individual users and legal entities, while the accredited activity of the company are also laboratory tests for municipal wastewater and precipitation water. On the basis of cooperation within the framework of the Wcycle Maribor circular economy project and based on research of development possibilities, in 2017 the company began to implement the project of waste collection and its recovery system and the production of recycled aggregates, construction composites and recycled soils with the construction of necessary facilities and infrastructure for this, as well as the purchase of necessary equipment for operation at the location of the former gravel pond (urban degraded area). Nigrad has been succesfully demonstrating revitalization of this degraded area and construction with the secondary raw materials as part of H2020 project CINDERELA. The mid-term vision of the NIGRAD is to become a main regional contractor for the urban area of Maribor, as well as the Podravje region (radius 35 km) in the field of integrated management of all waste generated in the urban area under the circular economy concept.

OpenContent is a private and independent SME located in Trento, Italy, registered in 2010. Legally constituted as a cooperative society with limited liability (SCARL). It has 6 founding members and 6 employees for a total headcount of 12. Open Content offers methodologies and ICT technologies through innovative web-based systems and tools with a twofold mission: simplify the content /information management process inside and between small, medium and large organizations and enabling the possibility to extract the maximum value from content and information stored in the ICT systems. OpenContent pursues an opensource and opendata inspired business model that assures the economic viability of achievements focusing on real innovation and efficiency and reusing already developed building blocks, along within the possibilities offered by its partners and customers with other onplace available ICT systems. OC is offering ICT research, consultancy design, development and management services and has it is working both with public and private organizations, and it has record of more than 100 different customer organization.

Infordata Sistemi specializes in RFID automatic identification systems, security and design of tracking systems in general. Infodata team is composed by electronic and IT engineers, software developers and managers with 20+ years of project management experience. Infordata team has a deep knowledge for design and develop of tracking systems by helping companies with automation of processes and activities. In specific works with municipalities in Italy for waste collection and stocking management. Infordata was involved in more R&D projects, one recent in green field economy was the “Retracking

Project by Interreg Italy-Slovenia program. Infordata is certified ISO9001 and ISO27001 (with extensions 27017 and 27018).

"Technology for people" – that is **TUW**'s mission statement. It stands for academic excellence through research and wide-ranging competence through teaching. Research rests on twin pillars: basic research differentiated according to discipline, and application-orientated university research. TUW pursues a strategy of successful international networking based on forming bilateral university partnerships, securing an attractive, intercultural teaching and research environment at TUW. The Institute of Material Technology, Building Physics and Building Ecology at TUW has laboratory equipment for characterization and optimization of building materials (in fresh state /rheometer, porosimeter, mixing equipment, density measurement, characterization of material in various state, etc.), testing of material under various load conditions, i.e. compression, tension, flexure, wedge splitting test, climate chambers for accelerated aging of the material, various analytical tools and computer software for evaluation and analysis of test result. It has the necessary IT infrastructure and the personnel for successful operation. Due to the embedding in the cross-faculty research network "Energy and Environment" at TUW, experts for special questions in the field of electrical engineering, mechanical engineering, computer science and architecture can be found quickly if need. The staff members undertaking the work within this project proposal are partners with the biggest industry stakeholders and in the area of civil engineering and the building materials sector in Austria.

The company **POR Consult d.o.o.,** meaning Projekti Održivog Razvoja – Projects of Sustainable Development, is primarily involved in environmental projects with emphasis on the circular and collaborative economy. These approaches entail cross-sector resource recovery strategies and projects with their implementation into the public and private sector. POR is also involved in smaller and more particular environmental problem solving activities, such as spatial regenerative urban redevelopment, conserving urban water cycles, alleviating air pollution with nature-based solutions and green policies, all based on cross-cutting goal of combating the climate crisis with positive economic and social spill out effects. The company is continuously trying to educate young prospective employees as best as possible to promote knowledge of European goals in the areas of environmental engineering, resource efficiency, green economy and best environmental practices.

BURST (Bright Urban Solution Team) is a non-profit private consultancy brought to life by a group of senior experts with profound knowledge and experience in addressing urban challenges. Acting as a multi-disciplinary team of experts, BURST assists urban authorities in finding smart/innovative solutions for contemporary urban challenges and making cities prepared for the future. The core topics addressed are circular economy, low-carbon /climate resilient future, enhancing innovation performance. It is experienced in bottom-up multi-engagement processes and working together with large partnerships on European level (e.g. in projects funded by Interreg Central Europe, Interreg North West Europe, Urban Innovative Actions, URBACT and LIFE Programme). Thanks to its strong urban competences, BURST is a key partner in research/mapping and policy supporting activities, monitoring and evaluation. Our

experts have developed specific competences for ReBuilt activities such as sustainable, low carbon, resource efficient economy, reuse and high-quality recycling of CDW, Building Information Modelling, breakthrough innovative material and social circular solutions.

Amongst its various competences, Vas County has institutional responsibility in coordinating mobility, environment and cultural planning at county level. **The Vas County Government Office** (VMÖH) is the economic organization of the Vas County Government.

Competences are: Organizing of county level regional development and mezo-level spatial planning, Boosting economic & infrastructural development, Managing and developing of international relations, Participating in preparation, coordination and realization of development initiatives in and around Vas County, Mobilizing partnerships of professional organizations in business, cultural and civic spheres of life VMÖH currently employs 28 professionals working in 5 department groups; one of them is the International Project Department. The tasks of the International Project Department of the Office include the creation, management and development of international relations. The department took place as lead partner or as project partner in the management of several international projects. These projects are financed by European Union Programs, such as Interreg SI HU, Interreg AT-HU, Interreg Europe, Central Europe, Erasmus+, Europe for Citizens Program, COSME Program, etc. VMÖH, taking into account the scope of the project, has good working relationship with the following organizations, who could support the implementation of the project activities in Vas region: • Vas County Chamber of Architects.

The Institute of Construction and Architecture from the Slovak Academy of Sciences is well - established Research and Development Institute with renowned experience in the field of Applied Mechanics, Development of advanced computational methods for smart materials, Building Physics, and Materials and Structures.

The main R & D activities of the Institute are focused on:

Multicomponent cementitious materials with objective to develop and use low-carbon building materials, Low-carbon recycled aggregate concrete based on different Supplementary Cementitious Materials, Theoretical and experimental research of composite materials, including the study of design and technological features and optimization of their engineering properties for possible areas of application in construction. Material composition and properties of the Heavyweight Concrete. Study of multicomponent cement material degradation under conditions simulating CO2 enriched geothermal environment. Mathematical-physical modelling and numerical simulations of multiphysical and multiscale phenomena in composite and nanomaterials, theoretical and experimental mechanics and dynamics, Moisture, heat and mass transfer in building materials and structures, Integrated Solutions for daylighting and electric lighting, Daylight in architectural and interior environment, and light-pollution modeling.

The **IIC** established in 2017, is a group of highly committed and proactive companies established and operating in Slovakia with the aim of implementing innovative technologies. Its projects, resulting from Matchmakings or Internal Sharing, bring concrete results in projects for our members, SMEs, Universities and the entire ecosystem. We are a pro-innovative corporate´s organization, which in RIS countries would promote and support collective intelligence cooperation on all topics in using modern technologies such as AI, automation, IoT, Big Data on secure Infrastructure such as the Cloud, EDGE, etc. while respecting European values, sustainable value chains and our independence and competitiveness. We operate inside several international advisory or advocacy domains such as the OECD, European Commission, etc. The aim is always to make Europe stronger, especially regarding the European Data Space such as the project Gaia – X or the Circular economy as this project concerns the construction sector. WE as Slovakia have a lot of foreign subsidiaries and it is our role to show that to be a strong Europe, we must work together. Industries, including the Manufacturing and the Construction sector can be successful globalized, even corporate borders can be better overcome with the support of a devoted team specializing in innovation management and funding options for innovation projects. This approach can also function in a country such as Slovakia. The Cluster's joint initiatives operate to support sharing innovative ideas, creating joint teams with various know-how in order to generate innovation projects and funding of innovation-related projects, often based on cross sectorial talent.

IETU is an R&D unit acting under the Ministry of Climate and Environment. The Institute has a wide experience in development of environmental policy, strategic management and policy tools for sustainable development at different levels for the state administration, as well as regional and local governments including the area of waste management and prevention and strategic environmental impact assessments. In particular, experience concerns determination of recycling and utilisation methods for different waste types, optimisation of waste management systems, consulting services on the selection of waste management technologies, development of technological concepts for waste management facilities. In this field IETU heavily cooperating with domestic market, public administration and waste operators. Focusing on industrialized and urbanised areas, IETU research agenda includes also issues related to studying phenomena occurring in ecosystems under the stress of anthropressure as well as environmental aspects of spatial transformations in cities with focus on sites revitalization, urban structures, remediation and circular planning of land use. IETU has also a long track record-term experience in EU cooperation including participation in consortia of over 60 EU projects and coordination of 8. Recent relevant projects include: H2020 "New-InnoNet" (European Near Zero Waste Stakeholder Network), "CINDERELA" (New Circular Economy Business Model for More Sustainable Urban Construction),"Circ4Life" (A circular economy approach for lifecycles of products and services), LIFE2020: RE-PLAN CITY LIFE (RElevant Audience Plan Leading to Awareness Network for CIrcular Economy Use of Recycled TYre materials in city LIFE) . IETU is a member of the European Circular Economy Alliance (ECERA).

The Czech Green Building Council (CZGBC) is a non-profit organization established in 2009. The Council has about 75 members at present. Its supreme body is the Member Meeting, which votes the Board. The Board (11 persons) then chooses the executive director, who forms professional executive team (4 FTE + external graphics, PR, accountancy). Members of the Council participate on its activities mainly through Task Groups that work on topics and problems from the green building sector in accordance with the vision and mission of the Council. The Czech Green Building Council strives for a good reputation. Its management structure and decision making are transparent, the Council adopted the Ethical codex. The Czech Green Building Council integrates companies and organizations from all sectors of the economy related to the real estate market and the construction industry and stimulates the market to transform methods of design, construction, renovation and operation of buildings and urban structures with the aim to create a healthy, prosperous, environmentally and socially friendly built environment that enhances the quality of life.

Hochschule München University of Applied Sciences (HM) is the second largest university of applied sciences in Germany. With 18,000 students and 14 faculties it is located in a leading European business centre, what also mean a responsibility in industrial, economic and social contexts. HM is an University and has its main tasks in education and research. The faculty of Civil Engineering and the Research Institute for Materials and Building Research offer a wide range of researching members. The Laboratory for Building Materials and Chemistry has got wide experiences and did always research in the field of concrete technology, especially in high strength concrete, light weight concrete, fibre reinforced concrete and in recycling concrete. Prof. Kustermann is doing research in the field of alternative reinforcement made of basalt fibre reinforced polymers, in selective dismantling of houses, and in the field of alternative binders and methods for restoration of mineral building materials. She has got a lot of experience in structural analysis of concrete and did her PHD about the formation of microcracks in high strength concrete structures. At the moment she is head of three research projects about using 100% of recycled aggregate in concrete and especially reuse the recycled sand as filler and also as reactive or activated binder in concrete.

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