PROJECT FACTSHEET

www.list.lu/index.php?id=29&no_cache=1&L=2&tx_listprojects_listprojectdisplay%5BlistProjects%5D=654&cHash=d70e582b4def34faabaaed433390d40d

DigitalDeConstruction

Develop an innovative digital decision support system to reduce waste within the construction sector and the huge CO2 emissions of the industry.



INSPIRATION

Construction and demolition waste (CDW) accounts for about 1/3 of all waste produced in the European Union. Ca. 50% of this amount is currently recycled in most EU countries, however the majority of CDW is destined for backfilling and other low value applications (downcycling). In North-West-Europe countries, reuse and high-quality recycling (upcycling) of CDW remains below 3%. Poor digitisation of the construction sector is one of the key factors hindering better exploitation of circular opportunities.

INNOVATION

Digital Deconstruction (DDC) is an innovated Interreg North West Europe (NWE) project in which smart digital services are developed to make circular construction possible. The project aims to develop an innovative digital decision support system, integrating various digital tools (3D scanning, Building Information Modelling, a digital materials & buildings database, blockchain technology) that helps to define the most sustainable and economical deconstruction and reuse strategy for buildings. By linking the digital system to innovative Building Information Model techniques, a cycle is created between design, construction and demolition. Scarce resources are reused in this way and will drastically reduce the huge CO2 emissions of the construction industry. Researchers within the project are working on this open-source software system so engineers can reuse materials released from the dismantling of renovation and demolition projects in the construction industry and create a more sustainable future. DDC focuses on regions having set sustainable materials management, ecotechnologies, ICT and digitization in industry as one of their RIS3 priorities in the Netherlands, Belgium, Luxembourg and France, paving the way for roll-out to the United Kingdom and Germany.

IMPACT

The project develops the following main outputs:

1. An integrated DDC system at Technology Readiness Level (TRL) 7 (system prototype demonstration in operational environment), to be made accessible to companies in IT, engineering, construction & real estate sector as an open-source software package for further development and integration to market-ready products and services.

2. A transnational network of Regional Innovation Hubs (RIH) that support the optimization, validation and roll-out of DDC solutions.

3. 10 pilots, where the digital tools are tested in operational environment; an interactive DDC Navigator supporting the use and further adaptation of DDC tools.

Partners

Provincie Limburg (NL) - Lead partner organisation , AREP (FR) , Block Materials (NL) , Campus Heerlen Management & Development BV (Brightlands Smart Services Campus) (NL) , Cyprès International (LU) , GreenFlex (FR) , Kempens Landschap (BE) , Laboratory for Green Transformable Buildings (NL) , Nobatek INEF4 (FR) , Schroeder et Associés s.a. (LU) , Société Nationale des Chemins de Fer - SNCF (FR) , Vilogia (FR) , Wetenschappelijk en Technisch Centrum voor het Bouwbedrijf - BBRI (BE)

Financial Support

Interreg North-West Europe

Contact

5, avenue des Hauts-Fourneaux
L-4362 Esch-sur-Alzette
phone: +352 275 888 - 1 | LIST.lu

Dr Arch. Annie GUERRIERO
(annie.guerriero@list.lu)

© Copyright March 2024 LIST

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST