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PRESS RELEASE

BIM4EEB, a BIM-based toolkit for the renovation of residential buildings: an efficient flow of information, decreasing construction time, while improving building performances, quality and comfort for inhabitants.

A new EU-funded Horizon 2020 project kicked-off with a meeting at the Politecnico of Milan, Italy in January. Its name **BIM4EEB** stands for **"BIM based fast toolkit for Efficient rEnovation in Buildings"**. The project consortium aims to develop an attractive and powerful BIM-based toolset, able to support all stakeholders in building retrofitting during all stages of the project, from designers to construction companies and service companies.

Context

Tackling climate change and cutting greenhouse gas emissions, in order to prevent huge repercussions for the planet's ecosystem, has become one of the most important global challenges and one of EU's top priorities. Decarbonisation of energy use in the European building stock is at the top of the EU agenda for gradually transforming EU's economy into a high-efficiency low carbon economy.

A significant fraction of the current building stock in Europe is over 50 years old, but the overall improvement in energy efficiency requires the significant acceleration and growth of the EU renovation market, at rates of over 3% (over the whole EU building stock) in contrast to the current annual rate of approximately 1%. The EU has set an 80% reduction goal in primary energy consumption by 2050 (European Climate Foundation, 2010), supported by the definition and implementation of the Zero Energy Building (ZEB) and nearly Zero Energy Building (nZEB) targets.

To achieve those ambitious targets, the Architecture, Engineering and Construction (AEC) industry is even undergoing a significant shift away from the use of 2D and 3D CAD models towards more semantically enriched digital models based on the implementation of Building Information Modelling (BIM). The need for managing information in digital environments along the building life-cycle has been recognised also by the European Union Public Procurement Directive (EUPPD), encouraging the 28 European Member States to require the use of BIM for publicly funded construction and building projects in the EU by 2016.

This trend has reached a point, where BIM is being used by several operators of the AEC industry, mainly for new buildings, but several barriers need still to be overcome for enhancing BIM implementation, especially for renovation processes. Due to the complex nature of digital information in BIM, the model creation process for existing buildings is a time consuming and costly process. Moreover, the most significant challenges in BIM as a domain for interoperability are collaboration and scale, handled by a large and complex Industry Foundation Classes (IFC) language.

Expected results

The general objective of **BIM4EEB** is to propose methods and tools for overcoming current barriers arising in different stages of renovation processes (from field survey, initiation and design to construction and management), developing guidelines for BIM implementation and providing an easy, practical and operational platform as a central repository of information, namely Common Data Environment (CDE), with different connected tools.

Public and private owners will be able to use a tool that eases decision-making and asset management, thanks to the exploitation of augmented reality and the use of updated digital logbooks. This toolkit is the basic instrument for increasing semantic interoperability between software and stakeholders involved along the overall renovation process (design, planning, construction, performance assessment and management).

End-users of the entire renovation process will actively participate in the development phases ensuring the full matching of project deliveries with the market expectations. In particular, two public administrations and two general contractor companies will validate the toolset in a social housing setting and private residential buildings in Italy, Poland and Finland. Inhabitants will benefit by the increase of building performances, quality and comfort.

The project targets low energy performance multi-store residential buildings of the second half of the 1900s that account for about 20% of the existing European building stock. These case studies have significant energy retrofit potential and the applied retrofit strategies (including times and costs for BIM implementation) will be scalable and replicable.

Useful information

The project, running from January 2019 till June 2022, is coordinated by Politecnico di Milano, together with Fondazione Politecnico di Milano, and involves fourteen partners: Teknologian tutkimuskeskus VTT Oy, Solintel M&P, Research Institutes of Sweden (RISE), University College Cork - National University of Ireland, Suite5 Data Intelligence Solutions Limited, One Team Srl, Technische Universität Dresden, Caverion Suomi Oy, VisuaLynk Oy, Architects' Council of Europe (ACE), CGI Sverige AB, Regione Lombardia, Azienda Lombarda per l'Edilizia Residenziale di Varese - Como - Monza Brianza - Busto Arsizio (ALER) and Prochem.

- **Project reference:** Horizon 2020. Grant agreement n.820660
- **Timeline:** January 2019 – June 2022
- **Website:** Coming soon
- **Twitter:** [@Bim4Feb](#)
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