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New application of BIM and factors determining business model for the innovative IT tool

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Content

- 1. BIM expansion – European and global context**
- 2. Innovative projects in sustainable construction sector which use new types of BIM solutions**

**BUILDING ENERGY RENOVATION THROUGH
TIMBER PREFABRICATED MODULES**



**HOLISTIC INNOVATIVE SOLUTIONS FOR AN EFFICIENT
RECYCLING AND RECOVERY OF VALUABLE RAW MATERIALS
FROM COMPLEX CONSTRUCTION AND DEMOLITION WASTE**

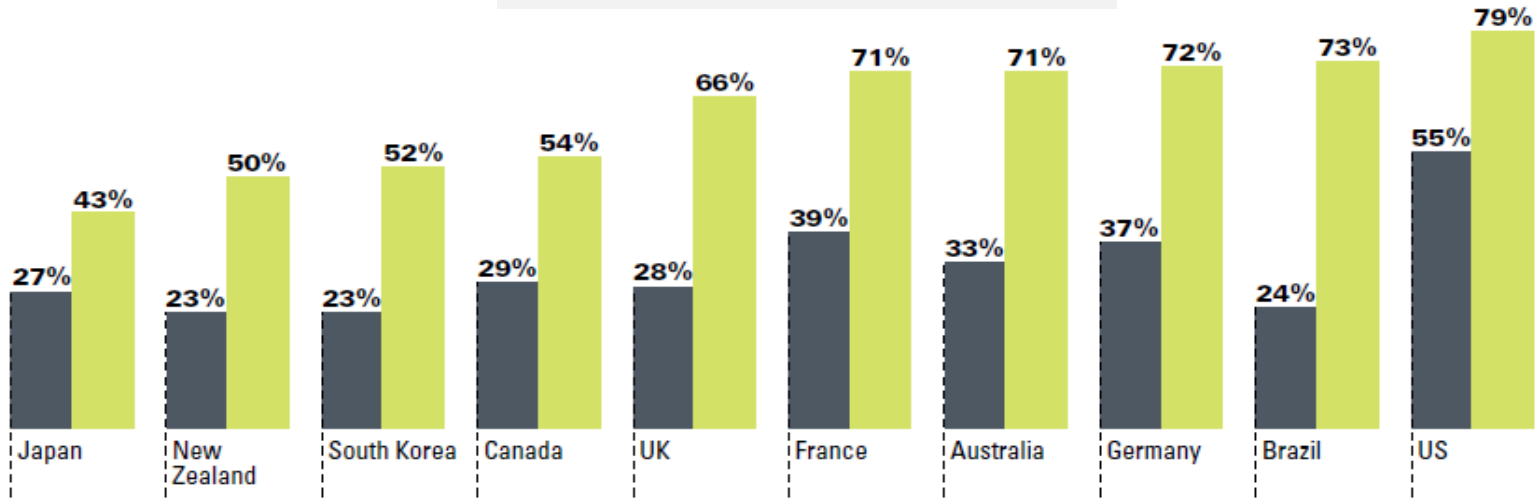
- 3. Technical elements of the new BIM solutions which have a crucial impact on the business models assumptions**

BIM expansion

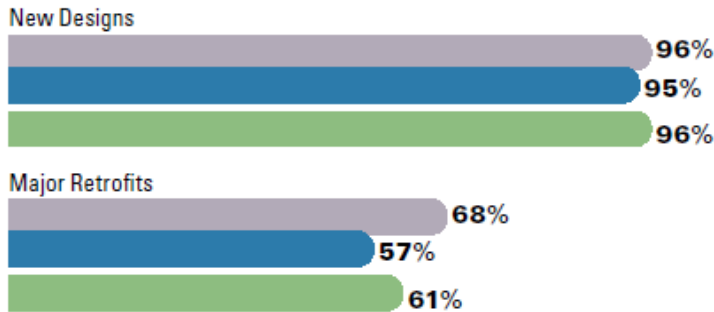
Source: McGraw Hill Construction, 2013

■ 2013 ■ 2015

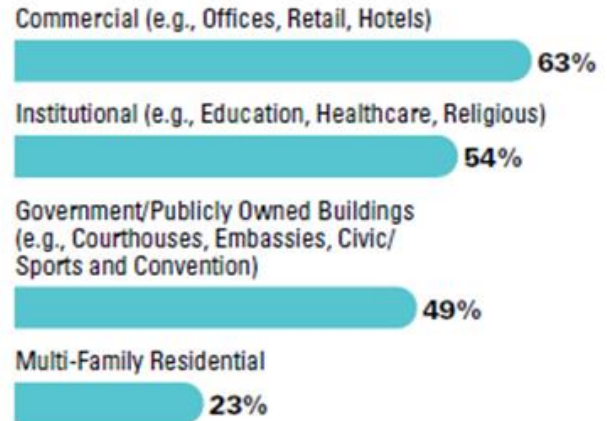
Popularity of BIM



What kind of activities?



What kind of buildings?



HISER project

The **main objective of HISER** is to develop and demonstrate novel cost-effective holistic solutions (technological and non-technological) to increase the recovery rates from increasingly complex C&DW, according to the principles of circular economy approach throughout the whole value chain in the construction sector.



www.hiserproject.eu

The following **solutions are proposed** within the project:

- advanced sorting and recycling technologies with automated quality control for the production of high purity raw materials from complex C&DW,
- development of optimized construction products (such as low embodied energy cements, green concretes, bricks, gypsum plasters and gypsum plasterboards or extruded composites) with higher rates of recycled materials,
- **harmonized procedures, supplemented by an intelligent tool and systems for traceability of the supply chain, for highly-efficient sorting at source in demolition and refurbishment works.**



HISER: Smart BIM-SD tool

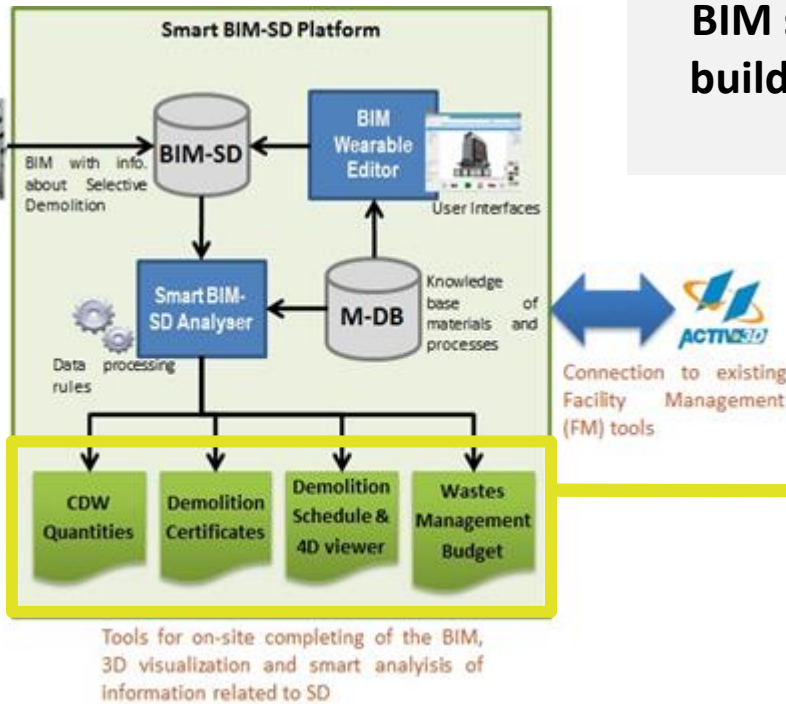
The **Smart BIM-SD tool** will deliver more accurate identification and quantification of materials comprising the whole building or space to be demolished/refurbished, harmonized inventories of waste materials, assessment on reuse and recycling options or other outputs set out during the project.



Advantages of Smart BIM-SD:

- more accurate inventories from existing buildings,
- most feasible and secure recovery options for the subsequent C&DW materials,
- quick **identification of potential health risks** during the selective demolition activities, thereby improving the health assurance and protection against hazardous substances.
- conceived in a web-based, open and flexible architecture, integrated with existing Facility Management tools, thereby facilitating the updating. The Smart BIM-SD will be easily adaptable to those existing BIMs incorporated at the building design phase.

HISER business plan



BIM solutions are used only at the beginning of the building cycle. The End-of-Life phase is still not well integrated with BIM solutions

The BIM-SD tool overcomes this barrier and contributes to a cost effective highly efficient selective sorting at source during the execution of demolition and refurbishment works

This BIM-SD will help European demolition companies to quick identify and quantify potential new raw materials through the smart processing of data

It will also lead to identification and implementation of the most feasible and secure recovery options for the subsequent C&DW materials

POTENTIAL CUSTOMERS:

- European demolition companies
- Architects and engineers

BERTIM project

BERTIM will develop a prefabricated solution which will provide the opportunity to renovate improving energy performance, air quality, aesthetics, comfort, and property value at the same time, while ensuring low intrusiveness during renovation works.



The activities to be carried out along the project include **design, development and introduction** of following solutions:

- **High energy performance prefabricated modules** for deep renovation, integrating windows, insulation materials, collective HVAC systems, renewable energy systems and energy supply systems.,
- **Affordable business opportunity** for different stakeholders
- An **innovative holistic renovation process methodology** from data gathering to installation that will improve the current processes of the wood manufacturing and installation industry.



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BERTIM: RenoBIM tool

BERTIM will develop a **new platform targeted to mass manufacturing methodologies applied to the whole renovation process of a timber-based building**. This new tool will comprise three main blocks:

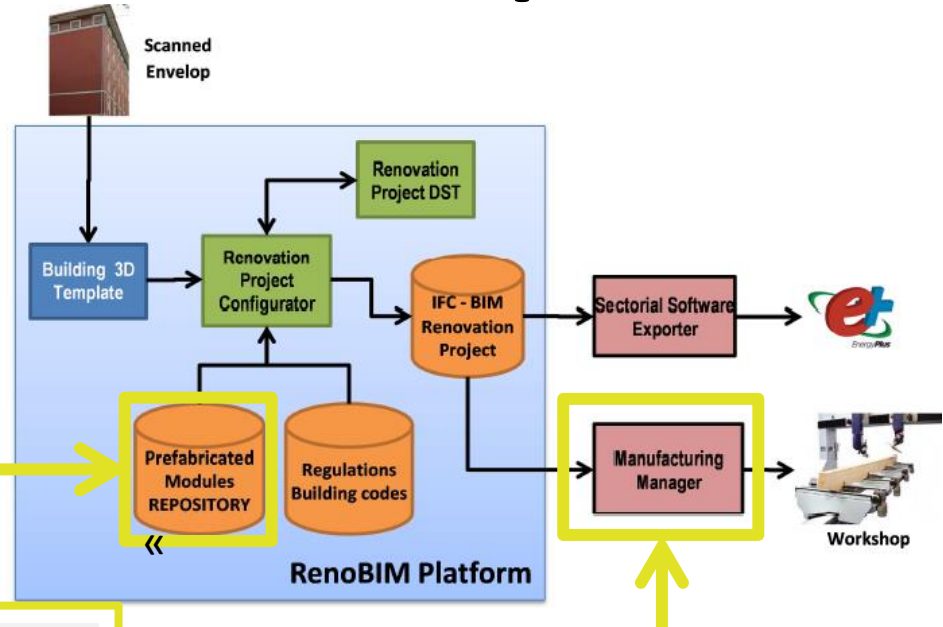


- Data gathering and building model template: from the 3D laser scanning methodology to the development of the building 3D template for renovation. This methodology will provide added value to the companies currently working only in data acquisition.
- The developed modules will be described in BIM (IFC) for future use in any software compatible with BIM.
- The renovation project will be defined in BIM, so that any sectorial software (thermal, structural, fluid, etc.) importing BIM will directly have the building model and will be able to carry out the required analysis.

Additional benefit:

- Integration of the Dietrich's CAD/CAM software for the wood building industry in the automated information flow from design to manufacturing (currently no CAM tool in the timber construction sector that supports the IFC data model)

BERTIM business plan



Dynamic (on-line) libraries with several catalogues of prefabricated modules

POTENTIAL CUSTOMERS:
The prefabricated modules' developers who would like to include their products in the Repository of RenoBIM

The unique advantages of RenoBIM will allow the BERTIM consortium to better promote:

- Holistic renovation approach
- 3d residential prefabricated pannels



Interoperability between RenoBIM and different CAD/CAM/CNC systems

POTENTIAL CUSTOMERS:

- Architects and engineers designing building renovation
- Timber manufacturers

RenoBIM fills a gap in the value chain of the building renovation with prefabricated modules: it will eliminate disruption in the information flow from the design tools to the CNC machines that will manufacture the modules

AMBITION OF CLUSTERING ACTIVITIES:

- to **exchange knowledge** (e.g. similar methodologies, KPIs, difficulties faced , solutions, good practices)
- to **integrate dissemination activities** to achieve bigger impact, to promote results, awareness raising

POSSIBLE COLLABORATION AMONG SIMILAR PROJECTS:

➤ **Dissemination:**

- publish key results in newsletters of other projects, websites, other communication channels like social networks, exchange of links on each project webpages,
- joint organisation of events planned within the projects to increase impact,

➤ **Exchange of knowledge:**

- organise workshops/meetings with representatives of all projects during events like SP, dedicated teleconferences – to discuss progress, difficulties faced, common dissemination
- invitation to project events, share of public results.

EUROPEAN CIRCULAR CONSTRUCTION ALLIANCE (ECCA) - ADOPTING CIRCULAR ECONOMY FOR INTERNATIONALIZATION AND GLOBAL COMPETITIVENESS OF EUROPEAN SMES IN BUILDING AND CONSTRUCTION

- Project supported by European Commission (COSME) and the European Cluster Collaboration platform
- **Duration:** 01/2016 – 12/2017
- **Partners:** Construction Cluster of Slovenia (Slovenia), sEaNERGIA Baltic Cluster (Poland), Sustainable Building Cluster (Spain)
- **Main objective:** to establish European Circular Construction Alliance, an EU wide meta-cluster supporting clusters and their members (especially SMEs) in collaboration for innovation, market up-take, marketing and internationalization of the products, services and technologies in circular construction.
- **Interested in collaboration? → JOIN the ALLIANCE**
- Contact: a.oleksik@seanergia.pl / <http://circularconstruction.eu>



Thank You for attention



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