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Funded by: Erasmus+ KA2 – VET
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R2.3
Exchange between construction/deconstruction workers and education professionals on the BIM use at EOL practices: Strengths and challenges

ITALY Report

SCUOLA COSTRUZIONI VICENZA ANDREA PALLADIO

25.09.2024

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Introduction

Building Information Modelling (BIM) is an innovative and transformative technology in the construction industry, offering a 3D digital representation of the physical and functional characteristics of buildings and infrastructure. BIM facilitates improved collaboration, efficiency, and sustainability throughout the lifecycle of a project, from design and construction to operation and maintenance.

Europe has been at the forefront of BIM adoption, with varying degrees of implementation and maturity across countries. The Directive 2014/24/EU on public procurement, adopted by the European Union in 2014, plays a pivotal role in promoting the use of BIM across Europe. This directive encourages member states to consider digital tools, such as BIM, for public works contracts. The aim is to enhance efficiency, transparency, and innovation in public procurement processes.

A.2.1 has provided detailed research to conform a report on the current status of BIM uses providing an overview of the status of BIM in Belgium, Germany, Greece, Italy, and Slovenia, the countries that are represented in the BIM4D consortium. The second part of the research has been devoted to the use of BIM for deconstruction considering various elements: theoretical perspectives, benefits, current skills need, challenges, relating policies and links with sustainable waste management.

A.2.2 - Needs assessment on current skills needs of the use of BIM at EOL practices has been implemented via a survey to understand the skills required for effectively using Building Information Modeling (BIM) in the deconstruction phase of construction projects and detect skills needs to design the training within the BIM4D project. The survey has been addressed to professionals and companies who use BIM in their regular work or who have knowledge of the topic or who consider BIM an opportunity for their company.

A.2.3 - Exchange between construction/deconstruction workers and education professionals on the BIM use at EOL practices: Strengths and challenges has been implemented via workshops designed to foster exchange between construction, deconstruction workers, and education professionals regarding the use of Building Information Modeling (BIM) in End of Life (EOL) practices. The focus is on discussing the strengths and challenges of BIM in facilitating sustainable deconstruction and material recovery. A workshop has been conducted in each participating country of the BIM consortium (Belgium, Germany, Greece, Italy, and Slovenia) with construction workers, deconstruction workers and educational experts.

Agenda of the Workshop

Provide the

- **Workshop date:** 25.09.2024
- **Location** : SCUOLA COSTRUZIONI VICENZAANDREA PALLADIO
  Viale Cricoli 57 – 36100 Vicenza (VI)
  Face to face event

- **Timeframe:** 17:00 – 19:00

17:00 Participant's welcome & registration

17:10 Workshop's objective and agenda introduction

17:20 BIM4D project presentation

17:40 Discussion in plenary on topics:

Digital integration in the deconstruction process

Strength and challenges of digital technology in deconstruction

18:30 Coffee break

18:40 Discussion in plenary on topic

Ability & skills needed to digitalize deconstruction process

Gathering participants' opinions

19:00 Workshop survey & conclusion of the workshop

Profile of the participants

Participants involved in the workshop:

- **Number of participants:** Total of 15 participants + 2 SCVAP staff members

Breakdown of professional roles:

- 03 Deconstruction / excavator operator
- 04 Construction workers
- 03 Construction / deconstruction technicians
- 02 Construction / deconstruction surveyors
- 01 Engineer
- 02 Educational experts
- 02 SCVAP Educational expert & staff members

Content of the discussion

Topics covered and key points raised during the workshop discussions:

- **Key themes:**

The main topics in which we have focused are:

- What is BIM and how could be implemented in the deconstruction practices,
- How BIM may facilitate comprehensive tracking of materials throughout the construction and deconstruction phases, enhancing sustainability by promoting efficient resource use.
- Challenges that Italy face in deconstruction since the complexity of existing structures and the archeological value of the buildings.
- Differences between renovation, redevelopment, and modernizing structures, as well as how digital processes could be integrated effectively into these activities

- **Exchange of experiences:** In plenary it emerged that the companies in which the participants are working do not have construction sites that require the use of BIM. Participants that already started to use BIM, did on a voluntary basis but complained about the lack of clear rules and standards, making digital collaboration complicated. Regarding deconstruction phase, it emerged that the quality and typology of materials found in buildings make the difference in the deconstruction phases, at the moment it is simpler and less expensive to demolish rather than recycle or reuse.

- **Challenges and opportunities:** In the comparison phase, many opportunities have been highlighted in the use of digital applications in construction, for example the reduction of variations during construction, thus minimizing errors, and cutting costs due to improvisation, moreover, simplify the construction process and phases. Major obstacles and barriers to implementation include management costs, the time and expense of training, a lack of IT skills, and the risk of speculation, which could drive up costs.

- **Participant comments:** points emerged were very interesting:
  Need to increase training courses on the topic
  Having an open-source application to reduce the cost,
  Start changing the way buildings are designed, starting from a focus on longevity and deconstruction to lower long-term costs.

Main conclusions

- **Main conclusions:** A lot of interest has been shown toward the topic of BIM and its use in deconstructions phase, all participants agree it is necessary to develop training sessions to go deeper into the topic, but they assess it is necessary starting to work with clear rules and unified standards and this for all categories involved in the construction process of a building.

- **Actionable insights:**

  Develop training courses on:

  Use of BIM
  How to design focusing on deconstruction process
  Re-use, recycle and research of building materials

Photos or Screenshots

- **Photos of the participants and the workshop environment:**

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R.2.3

Exchange between construction/deconstruction workers and education professionals on the BIM use at EOL practices: Strengths and challenges

Italy Report

Istituto di Istruzione Professionale Lavoratori Edili di Bologna

16.09.2024

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Agenda of the Workshop

Provide the

- **Workshop date: 09.16.2024**
- **Location**: IIPLE, via del Gomito 7, 40100 Bologna (physically workshop, **face-to-face event**)

- **Timeframe:** 14:00 – 16:00

10 minutes	Introduction and framework
20 minutes	Initial presentation
40 minutes	Discussion with a large group on the integration of digital (theme 1) and BIM in deconstruction (theme 2)
10 minutes	Coffee break
30 minutes	Discussion of skill needs of current and emerging construction professions (theme 3) and Summary
10 minutes	Closing
120 minutes	

Profile of the participants

Overview of the participants involved in the workshop:

- **Number of participants:** A total of 26 people participated
- **Breakdown of professional roles:**
  - N. 4 construction workers
  - N. 3 deconstruction workers
  - N. 18 Construction and deconstruction professionals and service
  - N. 1 educational expert

Content of the discussion

The topics covered and key points raised during the workshop discussions:

- **Key themes:**

The main topics addressed were:

- the integration of digital in the construction and deconstruction phases,
- the use of BIM in deconstruction
- the role of technology in EOL.

- **Exchange of experiences:** The participants shared their first-hand experiences as professionals in design studios and as construction and deconstruction construction companies.
  The designers share that they are using BIM in the design and deconstruction phases, experiences they have also had during catastrophic events such as earthquakes. These technologies have been used to understand the built and how to manage materials in an IOL key.

- **Challenges and opportunities:** Participants shared that there are still many technical gaps due to digital integration between potentially usable technologies and construction site practices managed in the construction and deconstruction phases.
  They agree that it is not easy to implement BIM to date but a great opportunity to increase skills and make material management more efficient according to the EOL process.

- **Participant comments:** it was pointed out by a design technician that more digital training on BIM is needed by the operators who work on site and by the people who integrate with the design part.
  It is also said that formal internal technical staff is also needed and to disseminate more the technical opportunities that are generated by the use of BIM in deconstruction.

Main conclusions

- **Main conclusions:**
  It was therefore highlighted how much BIM in construction and deconstruction is known and most used in the construction phase and that few still use BIM for the deconstruction phase, although they are interested in deepening the topic with specific training.

  In fact, many have expressed interest in developing a BIM process internally to digitize business processes.

- **Actionable insights:**
  The development of specific training on issues concerning the use of materials from an EOL perspective and the integration of BIM in the construction and deconstruction phase was of great interest.

Photos or Screenshots