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R2.3

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

Germany Report

BFW NRW

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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 a 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 needs, 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 and location** 26.09.2024, ABZ Kerpen

- **Timeframe:** 120min

Agenda

Introduction and framework	10 minutes
Initial presentation	20 minutes
Small group discussions	40 minutes
Small break	*10 minutes*
Plenary reporting and discussion	30 minutes
Closing	10 minutes
TOTAL	120 minutes

Profile of the participants

A brief overview of the participants involved in the workshop, focusing on their professional backgrounds:

- **Number of participants:** 14.

- **Breakdown of professional roles:** A short description of the participants by category
- 6 construction workers
- 4 deconstruction workers
- 4 educational experts

Content of the discussion

This section detail the topics covered and key points raised during the workshop discussions, such as:

Key themes:

- Current status of BIM use in demolition
- Prerequisites for successful BIM integration
- Training for facility managers
- Role of construction companies
- Necessary measures for the introduction of BIM
- Recommended training content

- **Exchange of experiences:**
  Currently, the use of BIM in the demolition of buildings is hardly possible. Historically, BIM has rarely if ever been used in this phase in recent years. Even today, BIM is rarely used in the demolition process, which makes it difficult to utilise this technology effectively.

- **Challenges and opportunities:**
  An essential prerequisite for the successful use of BIM in demolition is the existence of a general basic knowledge of BIM among all persons involved. However, the current training framework for all professions in the construction industry does not include a comprehensive introduction to BIM. It is therefore essential to make BIM and its fundamentals an integral part of training in all construction professions.

- **Participant comments:**
  In addition to general training, the training of facility managers is also crucial.
  To promote the use of BIM, construction companies responsible for the care and maintenance of buildings could introduce mandatory BIM use during the first phase of a building's life.

Main conclusions

Main conclusions:

Prerequisites for successful BIM integration

An essential prerequisite for the successful use of BIM in demolition is the existence of a general basic knowledge of BIM among all persons involved. However, the current training framework for all professions in the construction industry does not include a comprehensive introduction to BIM. It is therefore essential to make BIM and its fundamentals an integral part of training in all construction professions.

Training for facility managers

In addition to general training, the training of facility managers is also crucial. Facility managers need to utilise BIM throughout the lifecycle of a building to ensure that all relevant data is continuously updated. This is another hurdle, as many facility managers are not yet sufficiently trained in the use of BIM.

Role of construction companies

To promote the use of BIM, construction companies responsible for the care and maintenance of buildings could introduce mandatory BIM use during the first phase of a building's life. This would ensure that all necessary data is systematically recorded and updated.

Necessary measures for the introduction of BIM

Specific training for trainees in the first year of their apprenticeship is of central importance. The time spent at vocational school or in inter-company training provides sufficient time to impart additional knowledge. It is imperative to teach simple basics to enable trainees to understand a BIM platform. The different BIM software makes this considerably more difficult.

Recommended training content

Basic knowledge of BIM should be taught, including:

- Basics of BIM technology
- Advantages and possible applications of BIM
- Understanding of BIM platforms
- Introduction to various BIM software

Conclusion

The integration of BIM in the demolition and end-of-life phases of buildings poses a considerable challenge. To overcome this, comprehensive training is required for all those involved. BIM must

become an integral part of training in all construction professions, and facility managers and construction companies must receive targeted training. Only through these measures can the construction industry fully utilise the benefits of BIM in all phases of a construction project and thus contribute to greater efficiency and sustainability