



BIM based fast toolkit for
Efficient rEnovation in Buildings

D10.7 Interim Conferences



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D10.7 Interim Conferences

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EXECUTIVE AND PUBLISHING SUMMARY

This deliverable describes the objective of the interim conference: to disseminate the first version of the tools.

As well as the actions to be performed in order to promote them and the first results of the dissemination.

It also summarizes the steps that have been taken to face the Interim conference starting from its first postponement from the end of June 2020 to September 2020 first and then to October; from in-person conference in presence to a virtual one.

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1 Introduction

1.1 The evolution of the conference

The interim conference was planned as an in-person event at the beginning of July 2020 in Milano. However, the COVID-19 pandemic progress has motivated most of the partners to ask for the possibility to hold an event without travelling from their country. Therefore, the virtual mode became necessary together with the opportunity to give larger diffusion to the conference by being part of a major event.

Some events have the prerogative to address a qualified audience, others are more specific to a selected group of stakeholders. Due to the timetable among the autumn conferences Sustainable Places was chosen as the most suitable to European Project and partners, European public, and reviewers.

The interim meeting has been pre-announced in different steps in according to the following points:

- July with a news in the BIM4EEB website - to set up a cover for the whole conference
- September the 1st with a BIM4EEB newsletter
- October the 16th by a Tweet with press release
- 5 LinkedIn posts inviting stakeholders for the conference. First post on the 17/09/2020, a month before the meeting. Final post one day before the meeting. It achieved 1,562 impressions in total.

ACE INFO#9 May/June and ACE MOIS #2 - JUNE 2020. It was received by 10,200 ACE members and communicated through social channels of partners such as the publications in web pages, newsletter and social channels of Fondazione Politecnico di Milano, ACE, ...

The midterm conference took place officially on Thursday 29 October 2020 from 14:00 to 18:00 (CET, -2 UTC), during the 3rd day of Sustainable Places 2020. Its main focus was the presentation of the midterm project results and stakeholder feedback for future work progress of the BIM Management System (BIMMS) and the six BIM tools.

The final conference and materials can be watched in the links here below:

Presentation slides :

<https://www.sustainableplaces.eu/home/sp20-workshops-events/sp20-bim4eeb-interim-conference-workshop/>

Video presentation:

<https://youtu.be/ZyowLTYpv0Y>

Sustainable Places meeting with a summary of all event:

<https://www.sustainableplaces.eu/home/sp2020-closing-workshops-overview/>



Figure 1: Sustainable places website page



Figure 2: Announcement of BIM4EEB conference hosted at Sustainable places



Figure 3: Press release dedicated to BIM4EEB interim conference



Figure 4: BIM4EEB newsletter dedicated to BIM4EEB interim conference

2 Conference topics, papers and agenda

The proposal to join Sustainable Places 2020 was accepted by the partners before the summer months. At this point the Conference was set to take four hours with the aim to present in depth the different topics related to the BIM4EEB toolkit.

The conference was structured based in the 6 papers prepared for it. It was an opportunity to share the project developments and to check the first reaction from the stakeholders.

The related information on papers' titles and authors can be found below:

- 1) The BIM4EEB BIM-based toolkit for Efficient Renovation in Buildings. *Prof. Dr. Bruno Daniotti, Prof. Dr. Gabriele Masera, Prof. Dr. Cecilia Maria Bolognesi, Prof. Dr. Sonia Lupica Spagnolo, Prof. Dr. Alberto Pavan, Prof. Dr. Giuliana Iannaccone, Mrs. Martina Signorini, Mr. Simone Ciuffreda, Dr. Claudio Mirarchi, Dr. Meherun Lucky, Mr. Marco Cucuzza (WP1)*
- 2) An Enhanced CDE for renovation projects: The BIM4EEB BIM Management System. *Alessandro Valra, Davide Madeddu, Diego Farina, Jacopo Chiappetti (WP4)*
- 3) "AR-technology for Fast Mapping of Buildings". *Birgitta Andersson RISE, Andersson CGI and Anton Gustafsson RISE (WP5)*
- 4) BIMcpd: A combined toolkit for constraint checking, performance evaluation and data management in building renovation projects. *Brian O'Regan, Andriy Hryshchenko, Dominic O'Sullivan, Eoin O'Leidhin, Farah Tahir, Karen Mould, Stephen O Donovan, Sinead O Sullivan (WP6)*
- 5) "Towards a BIM-enhanced & role-oriented building construction & operations management tool - The BIM4EEB case scenario". *Markku Kiviniemi, Kostas Tsatsakis, Spiros Kousouris and Seppo Torma; (WP6/7)*
- 6) Early-stage energy refurbishment assessment using high-end BIM data, benefits and challenges. *Ala Hasan, Jari Shemeikka and Teemu Vesanen (WP7)*

The first paper introduces the project and the other five presents in detail the development of each tools.

The conference agenda have followed the presentation order of the papers presented above. The first part of the agenda covered a brief introduction of the project and the tools were provided by Bruno Daniotti and Cecilia Bolognesi. The second part was dedicated to the presentation of the tools and the video tutorial by each partner followed by the poll questions and 10 minutes for discussion.

The name of the interim conference at Sustainable Places 2020 was "*The BIM4EEB Project: a mid-term review of the BIM based tools for efficient renovation of buildings Workshop*". The conference was schedule by the Sustainable Places organisation on the 29th October 2020 from 14:00 to 16:00.



AGENDA

14:00 - 14:15	Introduction Cecilia Maria Bolognesi, Bruno Daniotti (Polimi)
14:15 - 14:45	BIM-based toolkit for Efficient rEnovation in Buildings Bruno Daniotti (Polimi)
14:45 - 15:05	The BIM Management System: an open Common Data Environment using Linked Data to support the efficient renovation in buildings Alessandro Valra, Davide Madeddu (One team)
15:05 - 15:15	Poll and Questions and Answers session
15:15 - 15:35	Fast Mapping for Buildings AR-toolkit Birgitta Andersson (RISE), Per Andersson (CGI)
15:35 - 15:45	Poll and Questions and Answers session
15:45 - 16:00	Coffee break (15 minutes)
16:00 - 16:30	BIMcpd: A combined toolkit for constraint checking, performance evaluation and data management in building renovation projects Andriy Hryshchenko (UCC), Brian O'Regan (IERC)
16:20 - 16:30	Poll and Questions and Answers session
16:30 - 16:50	Towards BIM-enhanced building construction operations management tool Markku Kiviniemi (VTT), Seppo Törmä (Visualynk), Kostas Tsatsakis (Suite5)
16:50 - 17:00	Poll and Questions and Answers session
17:00 - 17:20	Early stage energy refurbishment assessment tool for buildings using high-end BIM data Teemu Vesänen (VTT)
17:20 - 17:30	Poll and Questions and Answers session
17:30 - 18:00	Closure Cecilia Maria Bolognesi (Polimi)

Questions and answer and Poll moderator: Larissa De Rosso (ACE)

Figure 5: The interim meeting agenda

2.1 Material prepared for the conference

All tool developers who were speakers in the conference were requested to provide a set of

information/material for the presentation. The material covered

- a PowerPoint presentation,
- a tutorial video of the tool and
- a maximum of three poll questions that would provide feedback for their tool development

The presentations provided by authors were collected in an online single file in which all speakers shared their presentation before the conference. This methodology and tool provided the opportunity for all speaker to see each other presentations before and avoiding overlaps and creating a consistent visual appearance for the entire presentation.

The 127 presentation slides are publicly available in the link below.

<https://www.sustainableplaces.eu/home/sp20-workshops-events/sp20-bim4eeb-interim-conference-workshop/>

Additionally, a set of six infographics was created to introduce the BIM Management system (BIMMS) and the tools.

The hand-out material made available to the conference participants encompasses the following.

- BIM4EEB second leaflet about the BIM Management System (BIMMS) and tools,
- Link to the videos Tutorial for the BIM Management System (BIMMS) and tools,
- Infographic about BIM Management System (BIMMS) and tools.

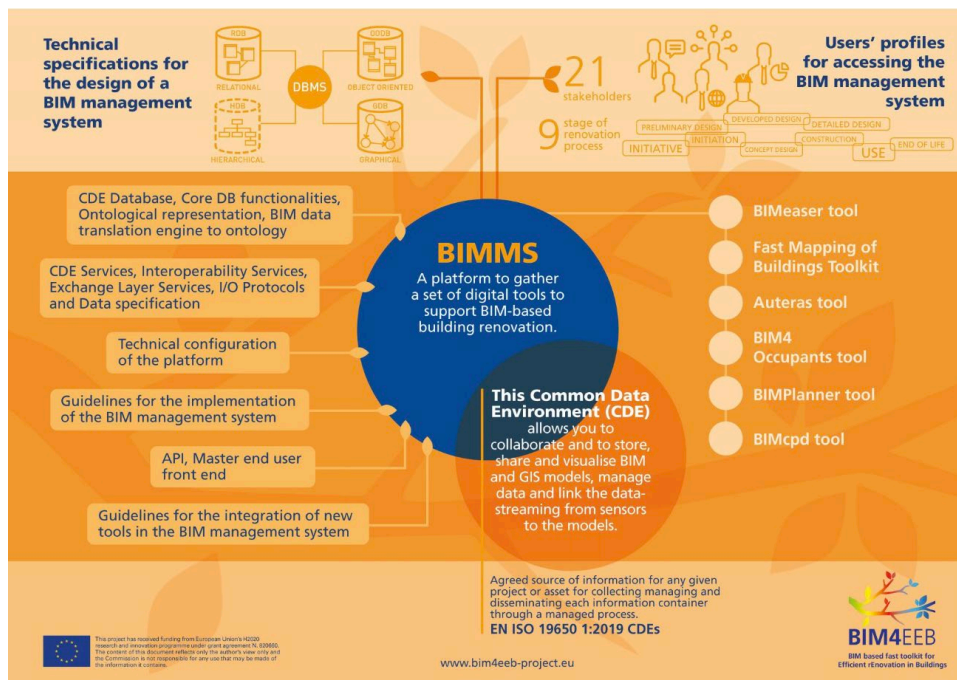


Figure 5: Infographic for BIMMS (BIM Management System) tool.

FAST MAPPING TOOLKIT

The tool incorporates a range of new tools developed to speed-up the scan-to-BIM process and to improve the data visualisation of an existing building by using Augmented Reality (AR).

You will be able to map an existing building in an efficient and effective way using

sensorstick

Augmented Reality Tool:

- for finding electrical cables
- to find studs and humidity inside the walls
- for finding magnetic materials
- to detect differences in temperature

headset

The headset will be the user interface with the tool providing all features available.

Laser scan & sensor scan with the tool, are imported in an IFC-file in the HoloLens device and uploaded into a laptop and the **BIMMS**

Architects, engineers, construction workers will be able to use the 3D digital representation to visualise the building including hidden elements inside walls such as wall studs, water pipes, and electrical ducts.

Point clouds **generated** by digital mapping and scanning can be imported in the toolkit.

The IFC file can be automatically **selected** on the hololens device.

The scan-to-BIM **process** provides a 3D digital representation of the building including hidden elements inside walls.

You can **visualize** the point cloud in the editor, you can **create** a new IFC file from it.

Than you start a **scanning** process with sensorstick and controller.

- inductance
- electricity
- capacitance

The scan-to-BIM **process** provides a 3D digital representation of the building including hidden elements inside walls.

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www.bim4eeb-project.eu

Figure 6: Infographic for Fast mapping toolkit.

BIMcpd

WILL ALLOW USERS TO

A combined toolkit for constraint checking, performance evaluation and data management in building renovation projects; it is a user-friendly self-intuitive software suite that provides users with the necessary tools to carry out tasks in these areas.

FIND recommended positions for HVAC Heating, Ventilation and Air Conditioning, lighting and other devices.

ANALYSE data from sensors, energy bills and other sources (weather for example).

MANAGE the data that they have and create new data sets that they can share with other tools.

CONSTRAINT CHECKING TOOL

PERFORMANCE ANALYSIS TOOL

- **Data viewer** for viewing data uploaded in the data management module and apply outlier detection methods to the data
- **Measurement and Verification** Measure and Verification devii mettere: for creating a baseline model of the building prior to the implementation of Energy Conservation Measures (ECM's) or building renovation

DATA MANAGEMENT TOOL

BIMCPD TOOLSET CONSISTS OF A RESPONSIVE WEB-BASED SOFTWARE

JavaScript

PHP

jQuery

Python

MySQL

JSON

The tools developed in BIMcpd are designed to be used mostly by:

BIM Designer

Energy Auditor

M&V Practitioner

Administrator

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www.bim4eeb-project.eu

Figure 7: Infographic for BIMcpd (Constraint Checking, Performance Analysis and Data Management) tool.

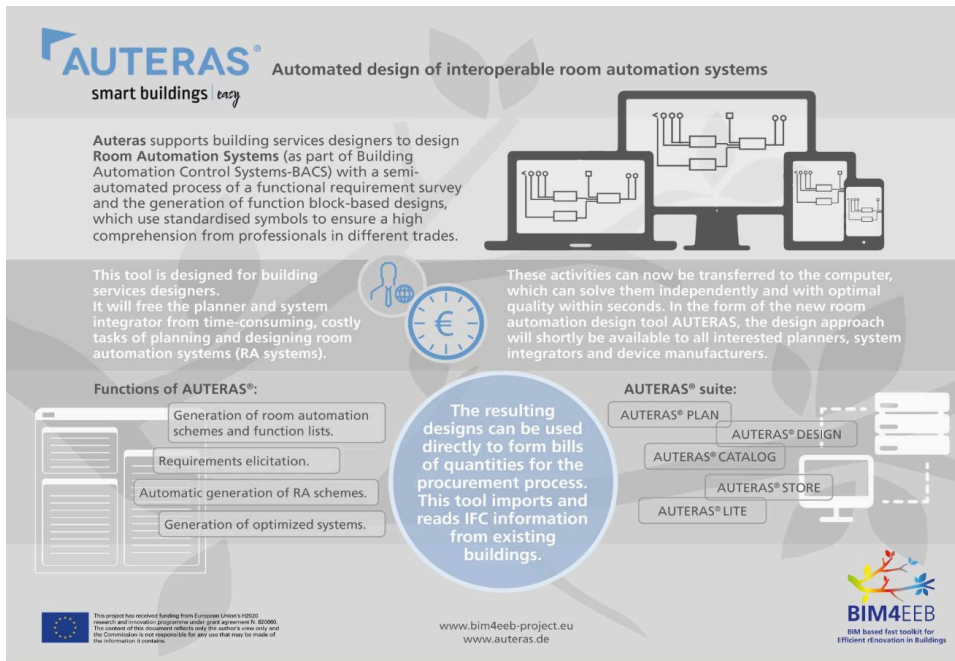


Figure 8: Infographic for Auteras.

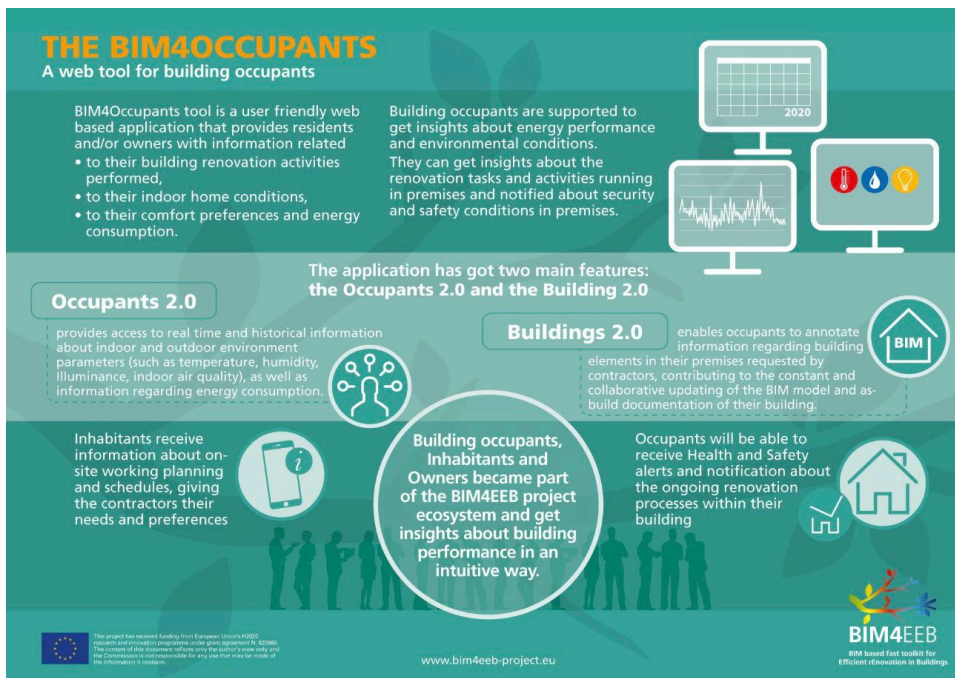


Figure 9: Infographic for BIM4Occupants.

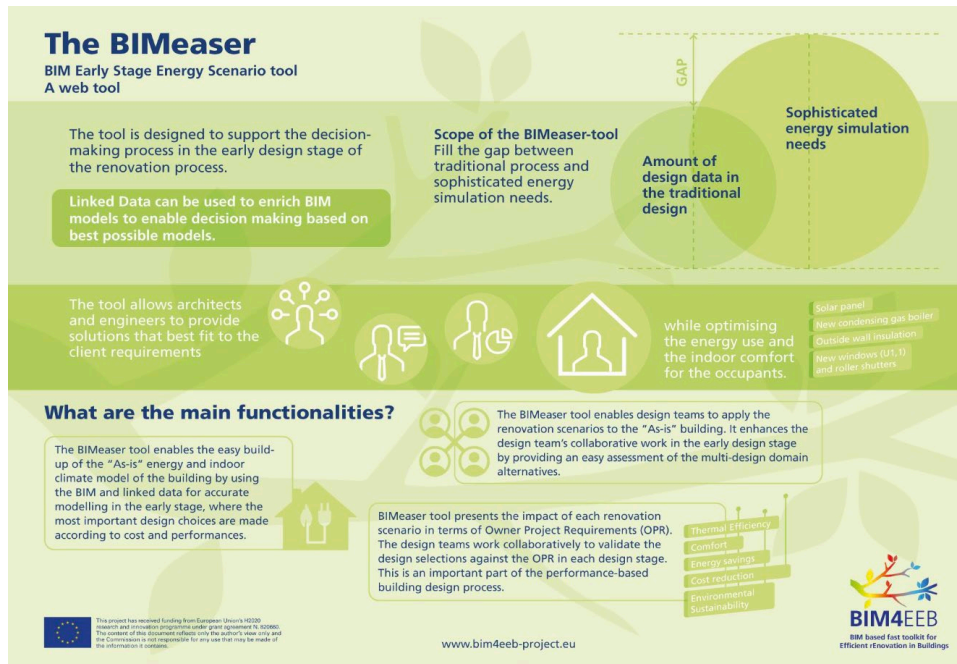


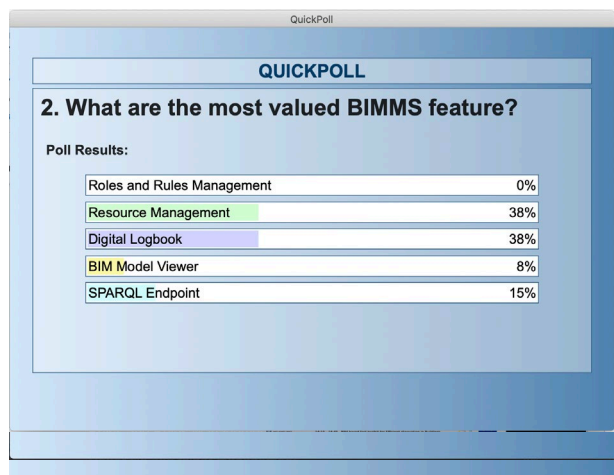
Figure 10: Infographic for BIM4easer (BIM assisted energy refurbishment assessment).

2.2 Feedback from stakeholders

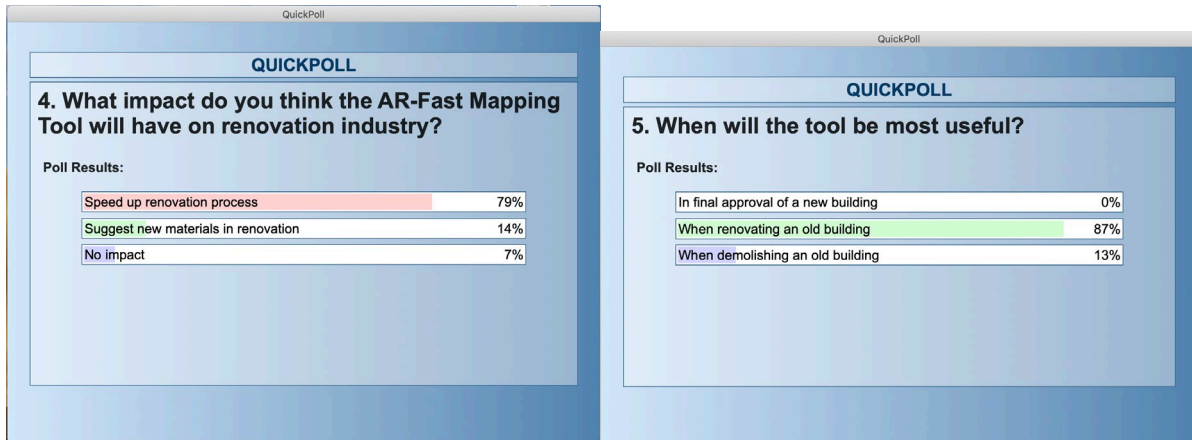
The interim conference aimed also to get feedback from the stakeholders on the development of the project. For this purpose, we had 12 poll questions answered by the audience after each tool presentation.

The poll rate response was 31%.

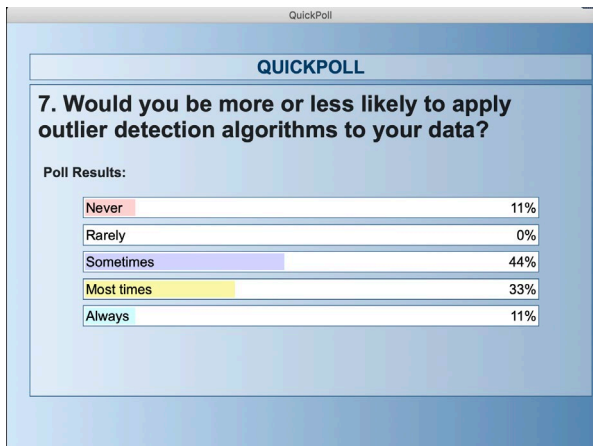
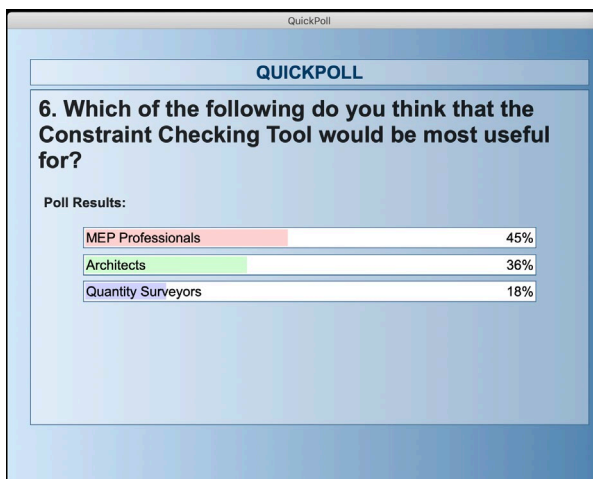
1. Poll questions results on BIM Management System (BIMMS)



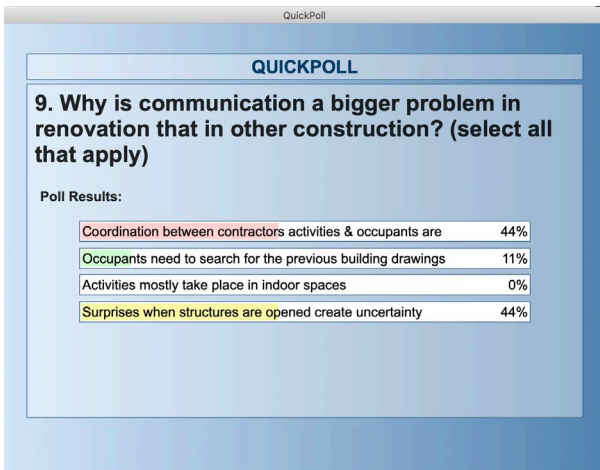
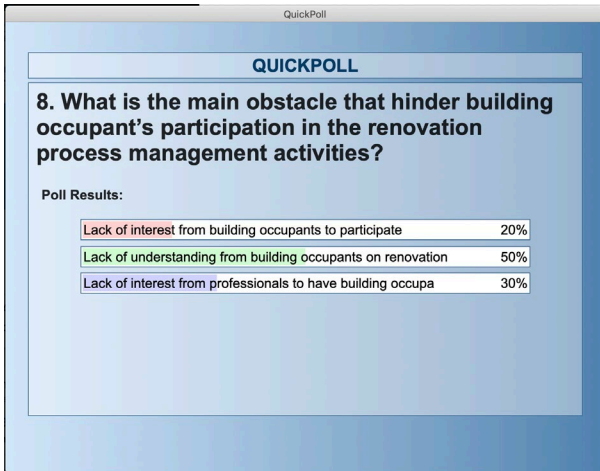
2. Poll questions results on Fast Mapping for Buildings AR-toolkit



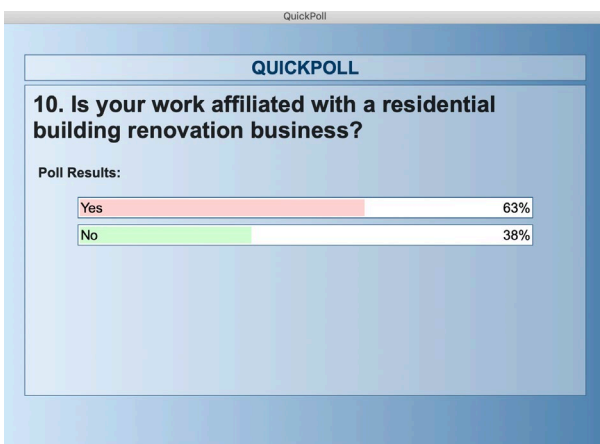
Poll questions results on BIMcpd tool



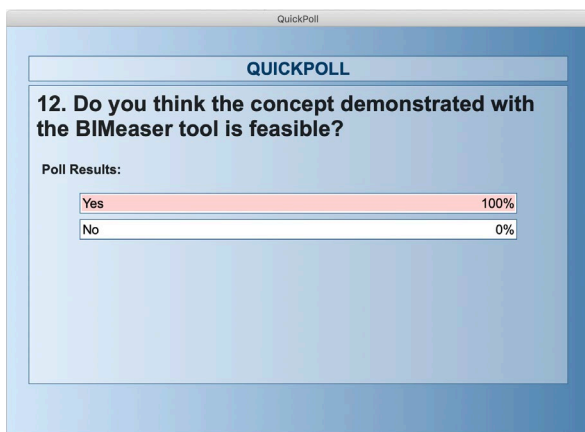
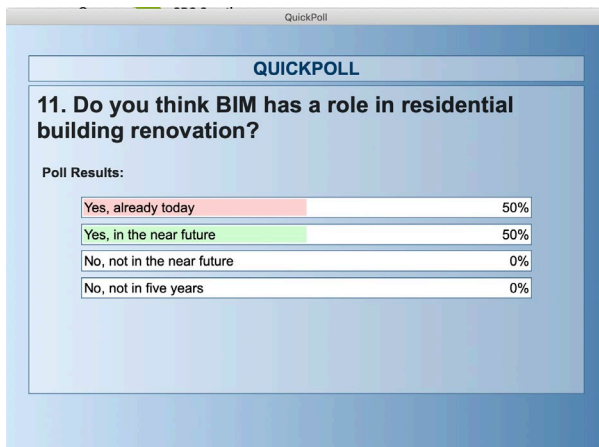
Poll questions results on BIM-enhanced building construction operations management tool



Poll questions results on Early-stage energy refurbishment assessment tool for buildings using high-end BIM data



OBJ:



Interim Conference in numbers. The conference had 42 registrants and 35 attendees; the average attendance rate is 83%. The duration was 4 hours and 36 minutes. The average interest rate was 63%

2.3 Social media campaign

The event was continuously disseminated in different social media platforms as follows:

- 7 tweets

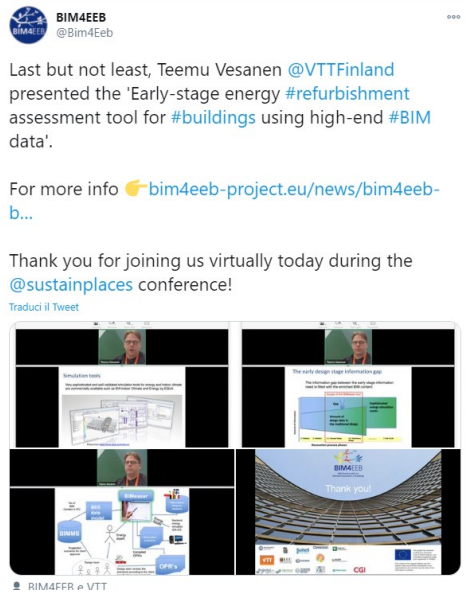


Figure 11: Tweets during the events

- 5 linkedin's posts

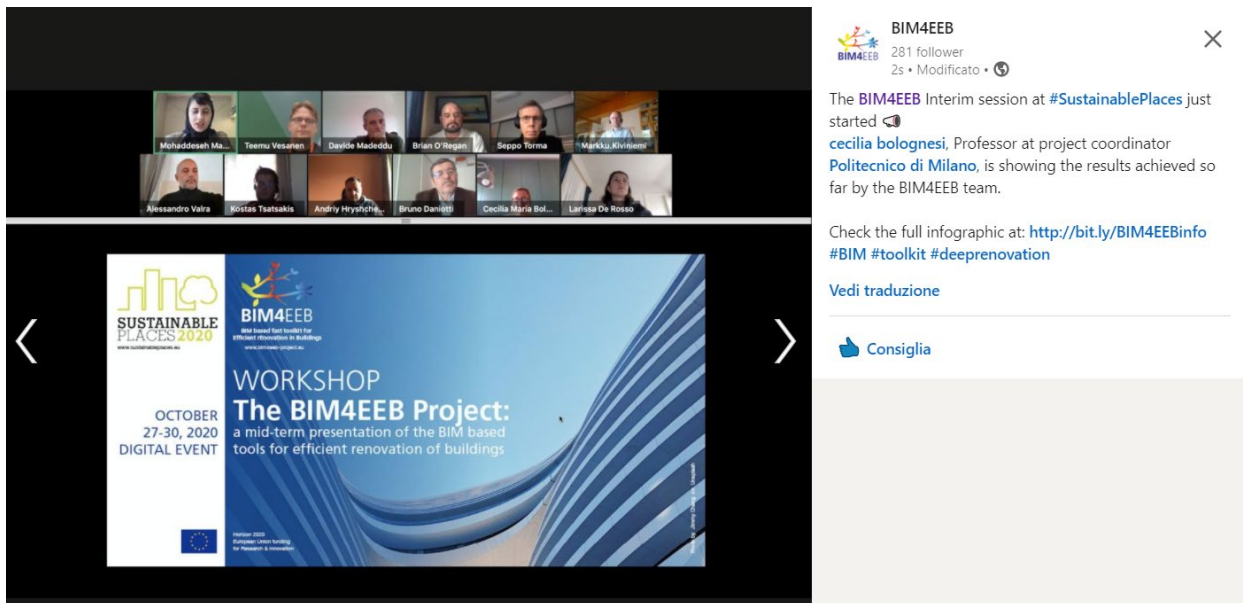


Figure 12: Linked-in post during the event

2.4 Scientific papers produced

The organization has allowed for this event the publication of a series of Proceedings related to the full conference in Creative Commons licence with MDPI edition.

It also proposed the publication of a summary of the workshop and the selection of a scientific paper in class A journals and we accepted both.

After the acceptance of the 6 papers for the Proceeding we received an acceptance for *Buildings* journal submission as well.

Presentation and video of the conference are still on site at the following link:

<https://youtu.be/ZyowLTYpv0Y>

3 Stakeholders involvement

Sustainable places event involved more than 600 participants during the workshops and meetings. The BIM4EEB meeting registered around 50 participants during its session, with a good interaction tested during the poll section, after every presentation.

The last day of the meetings we participated in the workshops overview involving participants in Sustainable Places meeting with a summary of our event as well with a wider share.

<https://www.sustainableplaces.eu/home/sp2020-closing-workshops-overview/>

During the conference eight among the eleven representatives of the advisory board participated, upon invitation.

The advisory board is formed by ten representatives coming from standardization body, Technician national Chambers, Research institutes, Buildings Institutes. Their comments have been collected during poll tests and final comments. The conference was structured to involve attendees during the explanation with pools with immediate response mainly to test their comprehension of the intention and main passages of the project.

The whole conference lasted 3 hours.

4 Conclusion

The conference marked a positive moment in terms of cooperation within and outside the working group. All stakeholders were involved and those who could not attend (less than 20%) were able to receive the videos of the day and the presentation.

The possibility to have a good dissemination due to the web dissemination was confirmed by the number of participants and the sharing of socials.

In the next months we will check download and reading of papers from MDPI proceedings as well.

We valued positively having shifted from single virtual BIM4EEB event to an event as a part of a larger one with other meetings and a wider participation.