BIM-based EU -wide Standardized Qualification Framework for achieving Energy Efficiency Training

D6.5 – Dissemination and communication report

WP 6	**Leader: VTT**
Task 6.5	**Leader: VTT**
Prepared by	Tarja Mäkeläinen, Sylvain Kubicki
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Partners involved	VTT, LIST

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Abbreviations

AEC	Architecture, Engineering and Construction
ALO	Achieved Learning Outcomes
BEM	Building Energy Model
BIM	Building Information Modelling
CA	Consortium Agreement
DoA	Description of the Action
EE	Energy Efficiency
EPBD	Energy Performance Buildings Directive
EPC	Energy Performance Certificate
EQF	European Qualification Framework
GA	Grant Agreement
HOTS	High Level Thinking Skills
ICT	Information and Communication Technologies
ILO	Intended Learning Outcomes
KSC	Knowledge – Skills – Competencies
LAU	Local Administrative Unit
LO	Learning Outcomes
LOTS	Low Level Thinking Skills
Mx	Milestone date designating the start of a given task
My	Milestone date designating the end of a given document delivery deadline
NUTS	Nomenclature for Territorial Units for Statistics
PC	Project Coordinator
PSC	Project Steering Committee
QA	Quality Assurance
RIBA	Royal Institute of British Architects
RTO	Research and Technology Organisation
TAM	Technology Acceptance Model
TF-IDF	Term Frequency - Inverse Document Frequency
ToC	Table of Content
TUI	Tangible User Interface
UAS	Universities of Applied Sciences
WP	Work Package
WPL	Work Package Leader

1   Executive Summary

The report D6.5 wraps up the total picture of communication and dissemination activities of BIMEET project. Dissemination activities focus on providing information about the project to various target groups. Activities have included Workshops, trainings, and taking part of seminars and scientific conferences.

Dissemination material (paper-based and in electronic format) and the project website are prepared to strengthen exchange with externals and to raise the visibility of the project. Main dissemination material are the project deliverables which can be found on the BIMEET web side. Further the project participants have been very active in writing scientific conference papers and articles to scientific journals, distributing the new knowledge on building up skills in the area of BIM enabled energy efficiency, which serve academia, research community and industry developers.

The BIMEET web site has been strongly supported by the BIMEET platform (Energy BIM portal). Portal as an extensive knowledge base of BIM-EE- related information and a platform for the selected BIM-EE use-cases, as well as two BIMEET eLearning courses. With all the valid content and links to professional blogs, the BIMEET platform has transformed from a Technical Repository towards a Community of Knowledge Management.

Dissemination and Communication activities focus on delivering information through relevant media, engaging external stakeholders, interacting with them, and getting their inputs and feedback. All the partners have been active in dissemination, following their own specific plans. BIMEET twitter account is been used well for topical messages about on-going dissemination activities during a workshop, training, seminar or conference. Communities of Interest in each partner countries were identified early in the project, and they have been contacted in different ways.

Two external panel meetings have been held for exchanging ideas on the result of the projects. The final BIMEET seminar focused on introducing key project results and organising a workshop with researchers, stakeholders and BIM-tool developers on the area of managing energy efficiency and LCA in BIM process. The BIMEET trainings provided a way to communicate and test the concepts developed.

The impact of diverse dissemination and communication activities are analysed as (1) awareness rising, (2) Creating interest and motivation, (3) Valorizing the substance, (4) Understanding the substance, (5) Learning to master the substance.

2 Dissemination & communication activities

2.1 Different activities

BIMEET project has used many dissemination and communication methods, channels and activities, and targeted them to specific key audience (Table 1).

- Web page
- BIMEET platform (Energy BIM Portal)
- Messages and comments in social media / Twitter, Facebook, and LinkedIn
- Seminars
- National workshops
- Face-to-face meetings and teleconferences arranged with stakeholders of the project (also interviews)
- Training courses
- Presentation of BIMEET results in European and international conferences
- Articles of BIMEET results in trade magazines
- Articles of BIMEET results in scientific journals
- Participation in relevant fairs, workshops, seminars etc. organized by others to disseminate and communicate BIMEET ideas and results

2.1.1 Activities and their relevant target groups

Table 1: Dissemination methods and their main target audience

BIMEET dissemination methods	Target audience
Web page	BIMEET community of interest and other stakeholders
BIMEET platform	BIMEET community of interest
Messages and comments in social media / Twitter, Facebook, and LinkedIn	Building professionals, policy makers
Presentations, papers and posters in relevant conferences	Building professionals, researchers, teachers
Articles in open access scientific journals	Researchers, professors and teachers, PhD students
Articles in professional magazines	Building professionals, policy makers
Seminars	Expert panel, policy makers, standardization bodies
National workshops	National community of interest
Face-to-face meetings and teleconferences	Stakeholder and interviewees
Training courses	Students and professionals of design, construction and real estate

2.2 Dissemination plans: general and periodical

Plans were collected August 2018
Plans were collected second time in January- April 2020, with their result and estimated impact.

Dissemination plans are introduced in general topic level in section 4

A specific template (excel sheet) was created for collecting the dissemination actions from the partners (Table 2). The last round included impact estimations.

Table 2: The template for collecting Dissemination and Communication Activities from all BIMEET partners.

1. Planning the dissemination activites	Place and date	Purpose	Topics	2. Reporting the dissemination actions			3. Impact	
				Attendees / audience (number of participansts, profile/ stakeholder group)	Attendees from BIMEET project (names)	Responce from the audience	Impact in general (free description)	Defined / Estimated (versus DoW)
Seminars								
National workshops								
Face-to-face meetings and teleconferences arranged with stakeholders of the project (also interviews)								
Presentation of BIMEET results in European and international conferences				Please define audience / attendees as specific as possible. Thank you!				
Presentation of BIMEET results in trade magazines								
Presentation of BIMEET results in scientific journals								
Participation in relevant fairs, workshops, seminars etc. organised by others to disseminate and communicate BIMEET ideas and results								

2.3   Purpose, target group and contribution of partners

The purpose of this deliverable is to report the executed communication and dissemination activities during the second project period. Further we estimate the potential influence of dissemination action to estimated impact of BIMEET projects. Both direct influence and in-direct influence are discussed.

This report has been developed by VTT as the WP leader and Task 6.5 leader together with
- all Partners by providing their dissemination results,
- Cardiff UNI by providing communication data statistic of the BIMEET portal
- and reviewed by LIST as the coordinator of the project.

2.4   Dissemination and communication objectives of BIMEET

On the basis of the project work plan the dissemination and exploitation of BIMEET outcomes are based on the following guidelines:

- The sector has to be involved, through the expert panel first and widely through a community of interest, helping to develop acceptable results and contributing to the dissemination and impact locally.
- Local, national and European scales have to be considered. This CSA project has to help local practitioners and training institutes in delivering better quality and well aligned training

offers, coordinated at national level through involvement of policy makers. Moreover, transnational coordination is essential, first inside the consortium (5 countries represented) and second at the scale of EU member states, through BIM and EE networks as well as other professional associations and standardization bodies.

- Dissemination activities will be considered to increase the impact during project as well as sustain after the project.
- BIMEET project results will significantly contribute to increase qualifications of staff at all level only if sustainably managed. The need for a strong business model has already been identified by the project partners.

BIMEET dissemination activities cover the lifetime of the project.

2.5 Definition of the target groups

BIMEET has identified different target groups in accordance with the dissemination objectives:
- European and national policy makers
- International (world-wide) policy makers and standardization bodies
- Research institutes and universities
- National / regional / local policy makers
- Construction business community
- Associations and organizations representing the people of universities/business community or representing topics relevant to BIMEET
- Public audience and individuals

2.6 Target groups (communities of interest) in each partner countries

2.6.1 Finland

The most important target groups/ stakeholders in Finland by name (Table 3) and key communication and dissemination activities and their results. Key results include feedback given in dialogue with teachers from universities of applied sciences and industry stakeholders connected to BIM competence development. Especially the tables of BIMEET Learning outcomes (LO´s) from all main roles of management, design, construction and maintenance - as well SKC lists - were discussed and valuable feedback and ideas for further development was collected.

Table 3: Stakeholders and the most important target groups of communication in Finland

Organization	Description	Communication/ Dissemination and Results
FISE	FISE Oy offers services for certification of persons, verifying certifications of persons relating to the building, HVAC and real estate industries and maintaining the certifications register	Contacted and BIMEET results and main learning outcomes communicated. Feedback given from point of view of BIM or EE certifications

Finnish National Agency for Education	Prepares the national qualification requirements for vocational upper secondary qualifications, further vocational qualifications and specialist vocational qualifications. Education providers and schools draw up their own local curricula based on the national curricula.	not contacted Instead **RATEKO** contacted. The organization is providing vocational trainings for building workers.
MOTIVA	Motiva Group is an expert company promoting efficient and sustainable use of energy and materials. Motiva operates as an affiliated Government agency (an in-house unit).	Contacted as member of the EEAB. BIMEET results and main learning outcomes communicated.
buildingSMART Finland, Group of educational and training issues	Building Smart Finland is a collaboration forum founded by Finnish Property Owners, A/E Consultants, Software Vendors and Construction Companies. The Forum aims to disseminate information on BIM and support its member companies for implementing the BIM-based processes.	Presentation in a yearly meeting (by Metropolia/ Päiviä Jäväjä). Dissemination of LOs and gathering Feedback from members of Education Room of bSF.
Senate Properties	Organization that maintains and builds governmental building in Finland (9300 buildings, 6.20 million m2). Forerunner in BIM use. Requires BIM in all projects	Contacted through bSF, as the key companies of Finnish are members
Granlund, Sweco, YIT, FIRA, Consti, SITOWISE, Skanska	Significant engineering companies and construction companies that use BIM and require BIM skills from staff	Contacted through buildingSMART Finland, as the companies are members. Skanska contacted in SBE conference and face-to-face meeting Additionally, **Ramboll** contacted in face-to face meeting
RALA	The Construction Quality Association (Rakentamisen Laatu RALA ry). RALA collects in formation on en-terprises in the construction sector and evaluates their operating prac-tices. RALA grants Certificates of Competence and Certifications ba-sed on verification of corporate infor-mation and operations and the audits conducted by RALA.	Not contacted (RALA is more involved in the end qualities and processes of construction, not too much in competences of the experts.)
TAMK METROPOLIA TURKU AMK OULU AMK	Relevant teachers working at Finnish universities for applied sciences Focusing but not limiting to teachers that give education for building sector with regard to energy-efficiency and BIM topics	Contacted in telco with bSF Education Room members. Presentation and discussion on BIMEET K-S-C and LOs and their meaning education. Feedback given

2.6.2 Luxemburg

The most important target groups / stakeholders in Luxemburg by name (Table 4) and key communication and dissemination activities and their results. Key results have been improving the BIM training curriculum Luxembourg.

Table 4: Stakeholders and the most important target groups of communication in Luxembourg

Organization	Description	Communication/ Dissemination and Results
Centre de ressources des technologies et de l'innovation pour le bâtiment - CRTIB	CRTIB is a neutral and open platform for all stakeholders of the act of building and seeks to improve the productivity and competitiveness of the actors of the construction. It has created a website dedicated to BIM - digitalbuilding.lu. A guide has been edited in July 2017.	Regular communication of project results contributing specifically to: - Improving the BIM training curriculum Luxembourg-wide, as CRTI-B is piloting the training scheme for all professionals in Luxembourg. - Prepare the deployment of the BIMEET training repository (database) in Luxembourg, and for the French-speaking countries. It is expected to discuss this deployment of a French-speaking training modules database with BuildingSmart chapters.
Ordre des Architectes et des Ingénieurs-conseils	Beyond its missions as a legal body, as a professional organization and as an institution of public interest, the OAI enhances the real dimension of its members' work at an economic, social, artistic and cultural level, to attain a sustainable, smart and high-quality living environment.	David Determe (member of the External Expert Advisory Board) has been informed on a regular basis and was able to transfer information to the OAI's steering board. In particular, it has been useful in order to prepare the OAI training expectations in relation with BIM for Energy Performance Certificates to be delivered by House of Training later in 2020.
House of Training (HoT), Institut de formation Sectoriel Du Bâtiment S.A. (IFSB)	These 2 training institutions provide training sessions in the construction area and offering currently or in the future training sessions in BIM.	IFSB has been informed regularly through two members of the EEAB (Marcel Deravet and Guillaume Karmann). Communication towards construction companies and blue-collar workers have been performed with IFSB as part of BIMEET. A specific training module on BIM for blue collar workers is in preparation.

Myenergy	Myenergy is the national structure for promoting a sustainable energy transition. Supported by the State of the Grand Duchy of Luxembourg, represented by the Ministry of the Economy, the Ministry of Sustainable Development and the Ministry of Housing, its mission is to be the partner and the public reference facilitator to mobilize and accompany Luxembourg society towards a rational and sustainable use of energy.	Not contacted
energieagence	energieagence is a private-public stock company which offers services in the fields of energy efficiency and renewable energy sources with a focus on consulting and training.	Energieagence has been involved in the BIMforEPC course definition, and is involved in the delivery of a Luxembourg-focused BIMforEPC course in 2021 (partly based on the BIMEET material)
Neobuild	Neobuild is the technological innovation pole of the sustainable construction sector. By adopting a "business" approach, Neobuild oversees and facilitates innovation, with a view to valuing long-term gains for the Luxembourg economy. Neobuild takes a transparent, responsible and collaborative approach to realize and value the potential contribution of sustainable construction to our daily lives.	A close collaboration with NeoBuild has been maintained all over BIMEET's duration through: - Two articles published in NeoMag, the magazine for professionals edited by NeoBuild, - The use of Construction21.org's Luxembourg portal for eLearning modules dissemination.
Ministère du Développement durable et des Infrastructures (MDDI)	The Ministry of Sustainable Development and Infrastructure comprises four departments devoted respectively to spatial planning, environment, transport and public works.	As CRTI-B is in direct collaboration with MDDI, there was no need to contact the ministry directly.

2.6.3 France

The most important target groups / stakeholders in France by name (Table 5) and key communication and dissemination activities and their results. Key results are the expression of interest from buildingSMART France to start developing BIM and BIM-EE competence building network for the French speaking buildingSMART Chapters.

Table 5: Stakeholders and the most important target groups of communication in France

Organization	Description	Communication/ Dissemination and Results
PTNB European and national (regional, local) policy makers	The Plan for digital transition in the building sector has been created for helping professionals to appropriate the digital in the sector, by upgrading their skills about the BIM and promoting	PTNB organization has ended and evolved at "Plan BIM 2022". Not contacted at this time

	normalization's work and developing interoperability of tools and software	
DHUP European and national (regional, local) policy makers	The Direction of Housing, Urbanism and Landscapes participate on projects about energy efficiency and the BIM	Not contacted
CSTB Research institutes and universities	By its activities of research, CSTB contributes to normalization's works, interoperability's works about the BIM, but also works about energy efficiency	Publication on CSTB website https://recherche.cstb.fr/fr/nous/partenariat/projets/
Ecole des Ponts, Research institutes and universities	Engineer's school which also provides training about the BIM	Not contacted at this time
Building Smart France International (world-wide) policy makers and standardization bodies	Building Smart FRANCE is a collaboration forum founded by Property Owners, A/E Consultants, Software Vendors and Construction Companies. The Forum aims to disseminate information on BIM and support its member companies for implementing the BIM-based processes.	building Smart France was contacted in November 2019 for the last time to talk about last evolutions of the BIMEET project. Sylvain also contacted them because they are interested by the tangible tool.
AQC Construction business community	The Construction Agency Quality is in charge sine 2015 of the technical secretary of the Action for Construction Quality and Energetic Transition Program (PACTE). This program is about to increase skills of professionals in energy efficiency for a better construction quality.	Not contacted
QUALIBAT Construction business community	QUALIBAT offers services of certification and qualification to company or craftsmen ("blue collars") about their quality of work. Some certifications are linked to energy efficiency.	Not contacted
CSTB FORMATIONS Associations and organizations representing the people of universities/business community or representing topics relevant to BIMEET	Relevant experts about the BIM and also about energy efficiency	Same than CSTB
CEREMA Associations and organizations representing the people of universities/business community or	CEREMA participates to bring scientific and technical knowledge, innovative solutions in territorial projects, including energy efficiency and the BIM representing topics relevant to BIMEET.	Not contacted

representing topics relevant to BIMEET		
ENSA Val de Seine	French school of architects	Not contacted
EDU	EDUBIM is a network of teachers, searchers and trainers in link with the BIM	Informal contacts thourhg the involvement of INES/CSTB/LIST
INES	Research and training institute for the energy activities	Feedback on the workshop https://www.ines-solaire.org/actu/!/news/accompagner-la-transition-numerique-et-environnementale-des-batiments-a-travers-le-process-bim-building-information-modeling/
ASTUS Construction	French organisation for innovation in the Building & Energy field	Organization of the workshop
Construction 21	Network of professionals in the construction field	Publication of an article about the e-learning training developed within BIMEET (Coming soon)

2.6.4 United Kingdom

The most important target groups / stakeholders in UK by name (Table 6) key communication and dissemination activities and their results.

Table 6: Stakeholders and the most important target groups of communication in UK

Organization	Description	Communication/ Dissemination and Results
UK BIM Alliance	The UK BIM Alliance is an industry organization supporting the dissemination of BIM and good-practice around information management. The UK BIM Alliance are also the UK and Ireland chapter for buildingSMART	Informal contact
CIBSE	CIBSE is the chartered institute of building services engineers. Responsible for the qualification and management of competent building services professionals in the UK	Not involved
UK Green Building Council	UKGBC is a consortium of organizations and bodies who aim to radically improve the sustainability of the built environment, by transforming the way it is planned,	Not involved

	designed, constructed, maintained and operated.	
The Carbon Trust	The Carbon Trust is an independent, expert partner of leading organizations around the world, helping them contribute to and benefit from a more sustainable future through carbon reduction, resource efficiency strategies and commercializing low carbon technologies.	Not involved
Energy Efficient Infrastructure Group	EEIG help the UK by supporting a 20-year national infrastructure programme to bring all UK homes up to a decent standard of energy efficiency, warmth and comfort without increasing energy bills.	Not involved
BRE	BRE are an innovative group of researchers, scientists, engineers and technicians who share a common goal – to make the built environment better for all.	Partner of the project
BSRIA	BSRIA offers a wide range of services to help companies improve the design, build and operation of buildings. Our unique blend of product testing and market research can also help manufacturers gain the relevant certification and plan their marketing strategy.	Not involved
Energy Saving Trust	EST are a leading and trusted organization helping people save energy every day. Our experts speak with millions of householders every year, deliver first class programs for governments and provide consultancy to UK businesses and international companies. All that we do is underpinned by our pioneering world-renowned research.	Not involved
Passivhaus Trust	The Passivhaus Trust is an independent, non-profit organization that provides leadership in the UK for the adoption of the Passivhaus standard and methodology. Passivhaus is the leading international low energy, design standard. Over 65,000 buildings have been designed, built and tested according to this standard worldwide.	Not involved

2.6.5   Greece

The most important target groups / stakeholders in Greece by name (Table 7) and key communication and dissemination activities and their results.

The main key-result of the project's collaboration with the stakeholders is the dissemination through the Expert Panel Greek Member, Mrs Panagiotidiou, founder of BIM Design Hub (former Break with an Architect), which participated actively during the implementation of the project and has integrated the project's outcomes to the learning procedures of the HUB. Furthermore, a liaison with INZEB has been established, which is working towards energy efficiency in buildings and is willing to integrate BIMEET's outcomes to INZEB's activities. The recent years in Greece there has been a significant increase to the interest towards BIM in the building sector. The increased number of existing training courses is a proof (mostly concerning BIM, less concerning BIM & EE). The Technical Chamber of Greece has organised a special event for the dissemination of BIM to its members, the Greek engineers (Mrs Panagiotidou participated as a BIM expert). Despite the fact that this event was not concerning Energy efficiency, it is still a significant step towards the integration of BIM to the building sector.

Table 7: Stakeholders and the most important target groups of communication in Greece.

Organization	Type of stakeholder	Communication/ Dissemination and Results
Break with an Architect - BIM Design Hub	BIM consulting and training sessions.	Very strongly established liaison during the project's implementation, and very good connections and potentials for further collaboration.
Institute of Zero Energy Buildings	The fundamental aim of INZEB is the study, evaluation, training, coordination and promotion of practices, standards, and actions, which relate to the concept of "zero energy buildings". They have knowledge and expertise in BIM	Very good communication and dissemination results. Given the similar interest towards Greener Buildings, INZEB has shown a proven interest in the project, an intention of collaboration for similar events and a willing to contribute to the dissemination of the outcomes.
EB/Architects	An architectural practice that provides design and consulting services for the construction industry, specializing in Building Information Modeling (BIM).	Not much active interaction during the project's implementation.
Association of Civil Engineers of Greece	The Union of Civil Engineers in Greece	Not much active interaction during the project's implementation.
Consolidated Contractors International Company	Construction company that use BIM and require BIM skills from staff.	There were some communication activities (through mails) in the first months of the project, but no continuation after that.
National Technical University of Athens	University	No contribution to the project.
Technical Chamber of Greece	The union of the engineers in Greece. Many of the members are engineers in the construction sector with potential interest in the training on BIM	Participation to the Workshop, with active interest on BIM and the integration to the Building sector (for the engineers). In BIMEET's workshop, the representative of TCC Contacted the Expert Panel member to contribute to their workshop with information on training on BIM.
cadlab	Cadlab is an expert company providing training on Autodesk material, and also	No contribution to the project.

	is a BIM & Visualization Senior Consultant	
Association of Architect Diplomats/ Panhellenic union of Architects	The Union of Architects of Greece, with members from the Technical Universities.	There were some communication activities (through mails) in the first months of the project, but no continuation after that.
Association of Architect in Thessaloniki/ Panhellenic union of Architects	The Association of Thessaloniki has shown specific interest in BIM, since it has organized several training sessions for its members and students.	There were some communication activities (through mails) in the first months of the project, but no continuation after that.

2.6.6 buildingSMART network

Group of experts in the area of adopting BIM in national level, are naturally part of BIM and energy interest group. These experts, researchers and industry stakeholders, working actively in the national buildingSMART communities, have possibilities to take the lead on organising BIM and energy competence building. These communities maintain the national BIM guidelines, which include the key knowledge on BIM based energy performance management.

For example, buildingSMART Finland includes 150 organisations, and ca 500 experts (https://buildingsmart.fi/en/home/).
Experts working at VTT and Metropolia are also active in a specific buildingSMART Finland group, Education Room, whit development project related BIM knowledge and skills and issues related to trainings and education.

2.6.7 BIM Alliance network

The four EU "Sister projects", BIMcert, BIMplement, Net-UBIEP and BIMEET, are collaborating under the title BIMalliance to explore areas of mutual opportunity and increase the energy efficiency and to minimise the energy footprint in construction.

Focus of work:
- Energy targets, energy savings – Energy week presentation
- Dissemination and communication
- Accreditation and certification – utilize databases
- Exploitation
- Future Collaborative opportunities

1. Energy targets, energy savings: To determine the position of BIM in European Energy and Climate Roadmaps beyond 2020; to explore fields of coordination and support actions, research and innovation, as well as potential funding sources for the activities,

2. Dissemination and communication: Establishing a common communication and collaboration platform of the 4 projects (e.g., linking their web pages; sharing information about the Alliance common work, organisation of joint events, etc.), in order to provide better informing and multiple use of individual projects' stakeholders and followers.
3. Accreditation and certification: To initiate a common pan-European recognized certification scheme of BIM and EE skills in AEC industry (buildingSMART option to be considered)

4. Exploitation of results: To prepare and distribute a survey via the common platform / united web pages / for assessment of the progress on BIM maturity and acceptance, as a result of the activities of the 4 projects; to develop a common report with guidelines for future actions.

 In practical level BIMEET partners have collaborated development of in common agenda and disseminated BIMEET project in common events, for instance in the final seminar of BIMcert. Collaborative efforts were made in development of a preliminary set of LOs for a BIM EE course on basics level. The draft was asked by a Team of buildingSMART International developing BIM competence standardization. Altogether the BIMalliance with its partners form a large group of expertise, and cover almost many European countries,

3   Dissemination material and media

3.1   Dissemination material

The dissemination and communication take place with the help of several means and using many channels. The dissemination material of BIMEET has included:

-   Public reports of BIMEET which can be found from BIMEET web site (www.bimeet.eu). Also, the summaries of each report are given.
-   Conference papers and articles, which can be found from BIMEET web. Also, the summaries of each report are given.
-   Leaflet
-   Presentations in seminars, conferences and other events
-   Online articles and articles in scientific journals.
-   LIST Showroom permanent BIMEET booth installed in 2018 (Figure 1)

Figure 1: BIMEET booth installed in LIST showroom in Belval, Luxembourg

BIMEET - BIM for energy efficiency, training, education, expertise and best practice

BIMEET brings together nine partners around BIM technology as a key digital support for the energy efficiency of the built environment. It also aims at solving the key issue of knowledge dissemination in, and stakeholder engagement with, BIM practices and construction.

3.1.1   BIMEET Deliverables

BIMEET research and development results have been reported in 25 deliverables and most of them are public. List of deliverables is found as Appendix 3
To support the use of report, a summary of every deliverable is provided on BIMEET web page.

3.2 Dissemination channels

3.2.1 Web site https://www.vtt.fi/sites/bimeet

BIMEET web site profile is planned to be an informative web address, including all relevant project news, information, results and publications, easy to find.
Being part of the VTT's web service system for projects, the BIMEET web page will be open for several years.

Most of the partners have had basic information on their own web site on BIMEET project. For instance, LIST website has e reached 310 unique page views in English and 65 unique pageviews in French September 2017, https://www.list.lu/en/research/project/bimeet/

3.2.2 Activities social media

Twitter account has been the mostly used social media channel for BIMEET related information sharing. Tweets have been sent in every events and workshops to share quickly current news. Altogether BIMEET project (#BIMEET) has tweeted **183 individual Tweets and the account has 235 followers.**
The other social media account of BIMEET: BIMEET in Facebook and BIMEET in Linked in have not been used actively as there has not been any specific reason or need. Twitter has served the need to share BIMEET news, and has been used actively in events, where BIMEET project and results have been disseminated. Some highlights of the project time are collected as Appendix 2.

3.3 BIMEET Energy-BIM Portal, Community of Knowledge Management

BIMEET platform (Energy BIM Portal, www.energy-bim.com) was firstly aiming at delivering public information on BIM and EE, with the aim of nurturing both the External Expert Advisor Board and the community of interest.
During 2,5 years BIMEET project, the Portal has now transformed from a Technical Repository to a Community of Knowledge Management in the areas of BIM and Energy, with all the valid content and links to professional blogs (Figure 2).

The presence of the Energy-BIM blog: https://blog.energy-bim.com/, that fetches most important BIM news automatically and periodically via RSS feeds, is a trigger (and a service) for users seeking new information and know-how on the Energy-BIM substance.

Energy-BIM.com Blog - News about BIM for energy efficiency in the built environment

The only BIM and Energy Efficiency Global News aggregator, part of the BIMEET portal, that brings together nine partners around BIM technology as a key digital support for the energy efficiency of the built environment.
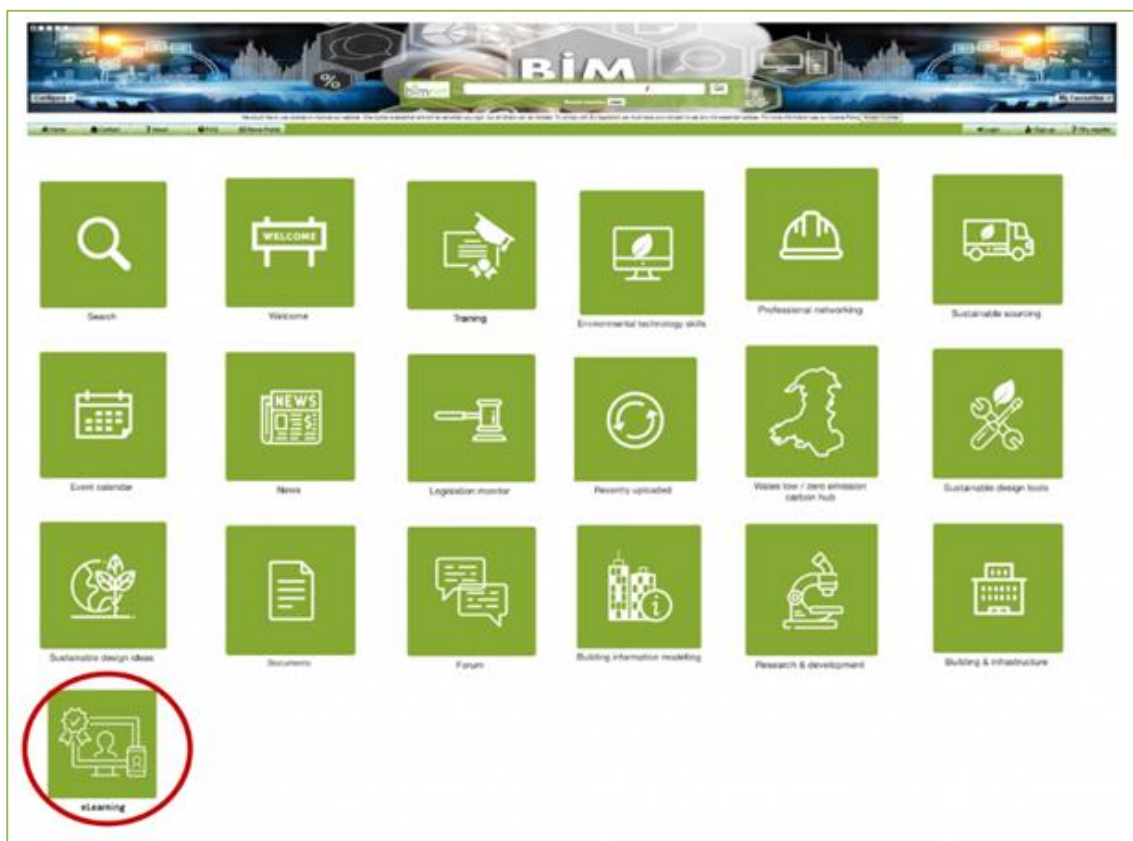
blog.energy-bim.com

Figure 2: BIMEET platform (Energy BIM Portal) main page and latest widget for eLearning.

3.3.1 Statistics

Appearance in search
The BIMEET portal appears on the FIRST PAGE of Google for the query: "bim for energy" (as per screenshot attached).
The BIMEET blog appears on the FIRST PAGE of Google for the query: "bim news blog" (as peer screenshot attached).
The BIMEET portal has had visitors from all over the globe (again, as per screenshots attached);
that the main visitors' source was organic search results.

Registered users
BIMEET project maintains BIM and energy portal that support stakeholders in using BIM for better energy performance of buildings. The users of the portal formulate an important target group for the project outcomes thus also belonging to the community of interest.

This portal had (October 2018) 144 registered users. The number of users directly related BIMEET was 43. The portal has at present **(February 2020) 177 registered users**. The number of users directly related BIMEET is 76 (Figure 3),

Other statistics
Number of registered Twitter accounts: 167
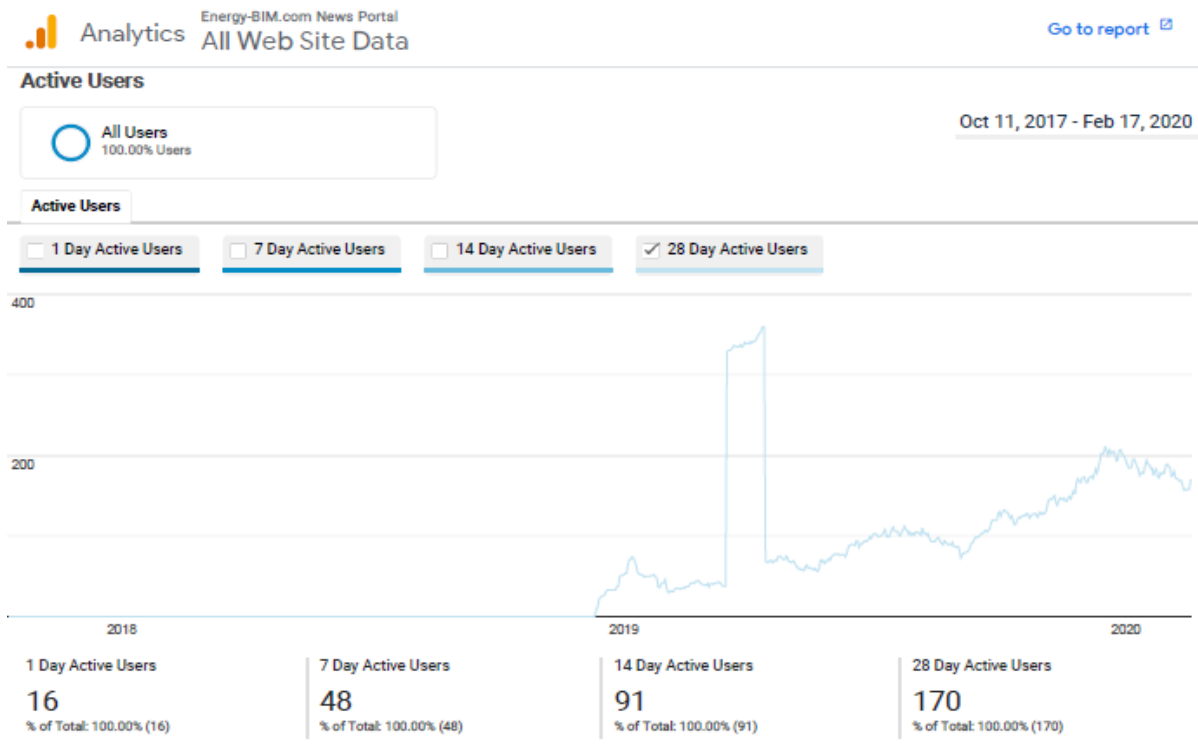Number of registered LinkedIn accounts: 167

Figure 3: BIMEET platform (Energy BIM portal) statistics

3.3.2   Use-cases

Content of BIMEET platform include 52 real life use-case project or research project were collected in BIMEET community (Figure 4). Use case statistics: https://www.energy-bim.com/view/bim?usecaseanalysis=Y&doctitle=Use-Case%20analysis

BIM guideline	3
BIM tools	1
Project	1
R&D	19
R&D, Real-world application	1
R&D, real-world application	1
R&D; Master Thesis	2
Real world (prototype)	1
Real world application	1
Real world application involving R&D aspect	1
Real world project	1
Real-world application	20
Total	**53**

Current Use Cases by Type

- 5 test cases and 1 real-world application
- BIM guideline
- BIM tools
- Project
- R&D
- R&D, Real-world application
- R&D, real-world application
- R&D; Master Thesis
- Real world (prototype)
- Real world application
- Real world application involving R&D aspect
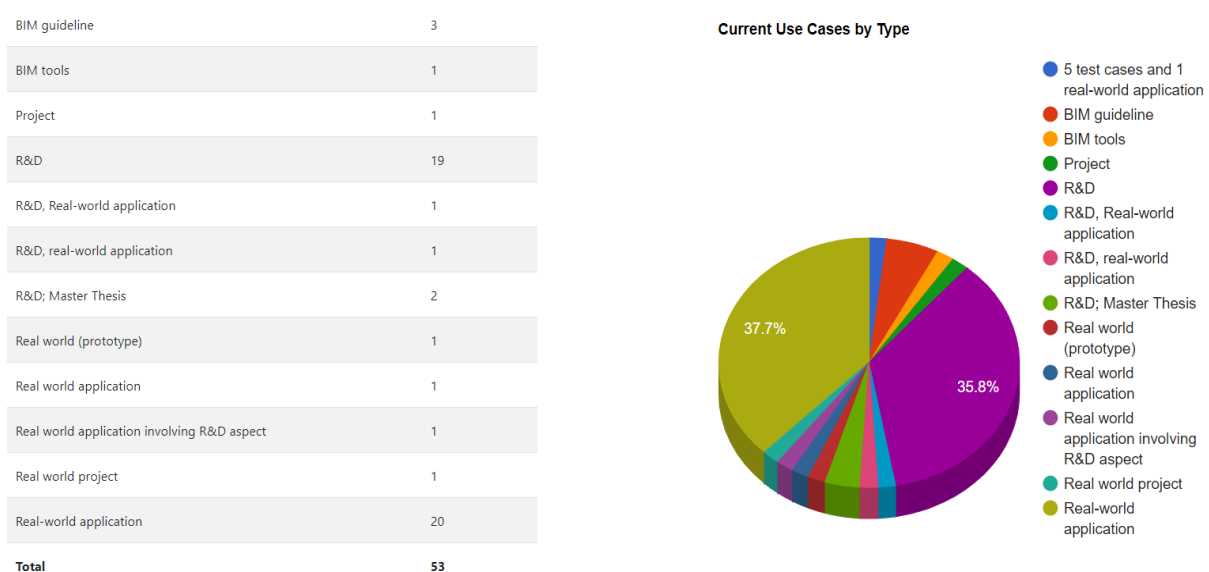- Real world project
- Real-world application

37.7%   35.8%

Figure 4: Statistics on Use Cases in the BIMEET platform: numbers and type.

3.4 eLearning material

Very tangible materials developed in BIMEET project are **two eLearning courses** with learning material. The courses can be joined and material reached. The BIMEET group believe this material is useful for teachers and lecturers, and serve also as self-learning material for professionals.

3.4.1 BIM for energy efficiency in buildings

General introduction for the eLearning course, "BIM for energy efficiency in buildings" (Figure 5): Computing heating needs, energy consumption, simulating the energy behaviour of the building more generally and conceiving the better energy efficient building can be costly and time consuming. BIM is an innovating process that is being used to make the construction industry more energy efficient and more economically sustainable.

BIM for Building Energy efficiency training makes an overview of BIM, energy efficiency of buildings and how BIM can optimize energy efficiency of buildings. The course consists on design motion videos. The learner begins the training by a placement test in order to have an overview of his knowledge level and finishes the programme by a final test to validate the aimed learning outcomes. Dear learner, if you are interested in BIM and BEM (Building Energy Modelling) technologies and want to understand how BIM is supporting the energy and environmental transitions in buildings, follow this link and create an account. The training consists of two tests and three courses for which you have to register the corresponding "registration keys":

> Placement test : key "BimTEST&2052"
> Introduction to BIM : key "IntroTOBim&2053"
> Introduction to energy efficiency in buildings : key "IntroEEb&2056"
> BIM for energy efficiency in buildings : key "BIMfEEB&2055"
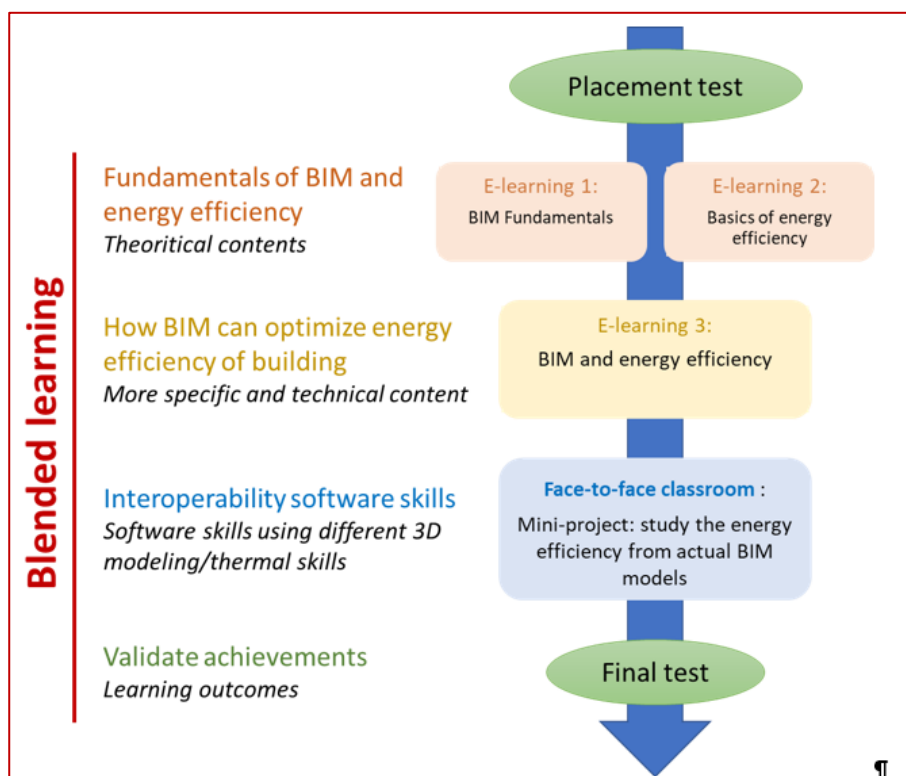> Final test : key "teSTBIM&201"

Figure 5: Outline of eLearning course of BIM for energy efficiency in buildings.

3.4.2 BIM enabled EPC assessment

General introduction for the eLearning course, "BIM enabled EPC assessment" (Figure 6):
Assessing EPC (Energy Performance Certificate) is mandatory for most of the buildings in the EU. EPC has the potential to direct construction projects towards sustainable solutions and enable comparison of different buildings. The traditional way of generating EPC can be time consuming. BIM (Building Information Modeling) is becoming a more popular information source during building projects and building life cycle. BIM is a virtual data-bank of the building and has the potential to excessively enhance the EPC process.

Each country in the EU has their own approach to EPC and BIM. During the course, learner is able to follow course materials from general perspective and a selection of different country perspectives. Course consists of slideshows, videos, extra-materials and exams. An overview of different use cases helps the learner to understand the benefits and challenges of current tools.
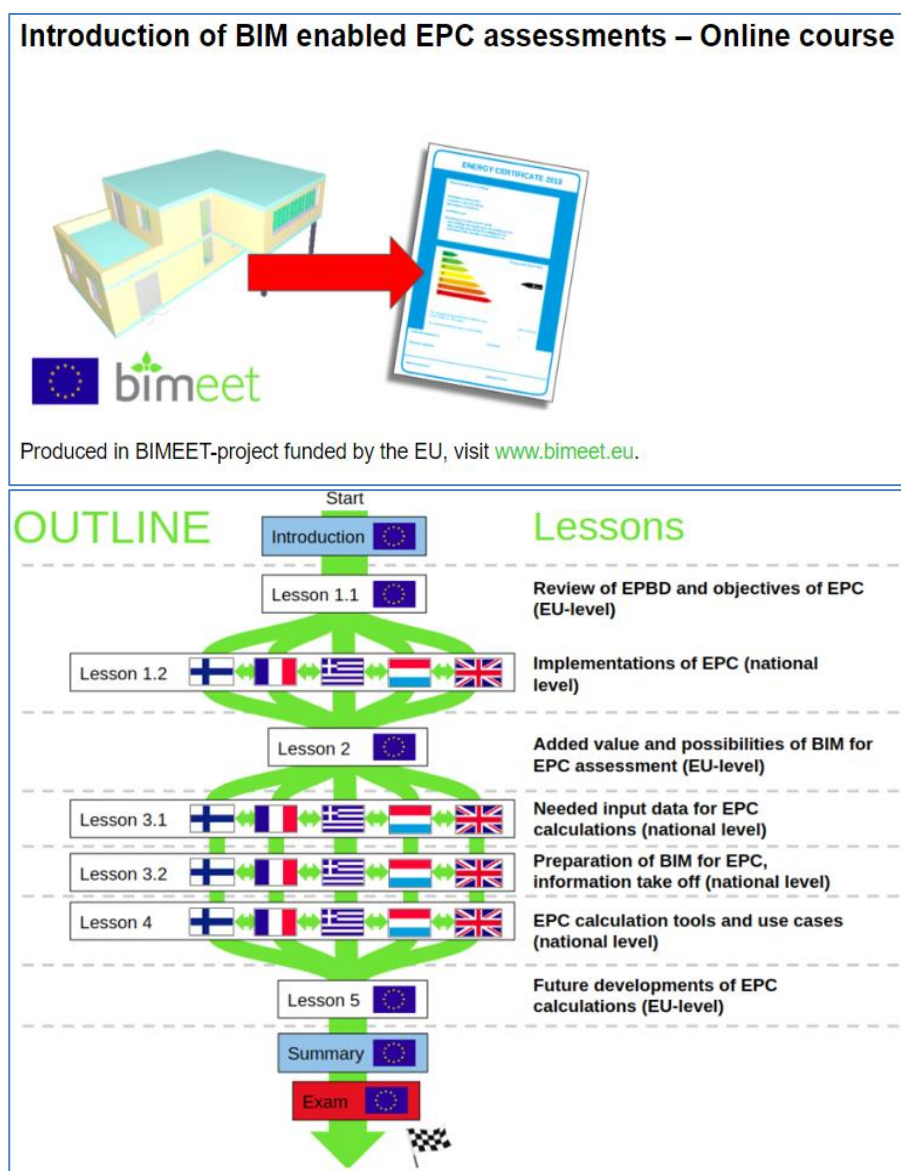

Figure 6: Outline of eLearning course: BIM enabled EPC (Energy Performance Certificate) assessment

3.5 Conference presentations, scientific articles and other articles

BIMEET partners have been active in presenting the project and results in scientific conferences and more industrial seminars. The abstracts and open access papers can be seen in BIMEET web page (https://www.vtt.fi/sites/bimeet/journal_articles_and_conference_papers). Table 8 presents a Summary table on all conference papers and journal articles: **altogether 6 scientific papers and conference presentations and 3 articles in scientific journals.**
Abstracts of the papers and articles, with information about the authors, please see Annex 1.

Other articles include such as Publication in trade magazines or blogs at professional web sites.

Table 8 gives a summary of other BIMEET articles, in professional magazines or other forums.

Table 8: Conference presentations and scientific articles

Name of Conference or Journal	Title and URL
Journal Paper: Energies 2020, 13(9), 2308	Promoting Energy Efficiency in the Built Environment through Adapted BIM Training and Education https://www.mdpi.com/1996-1073/13/9/2308
Journal Paper: Energies; Basel Vol. 10, Iss. 8, (2017): 1167.	Optimizing Energy Efficiency in Operating Built Environment Assets through Building Information Modeling: A Case Study Citations: 24 https://www.mdpi.com/1996-1073/10/8/1167
Journal Paper: Renewable and Sustainable Energy Reviews 113(2019)	Review of building energy performance certification schemes towards future improvement Link
ICE conference participants and industry stakeholders	Social media mining for BIM skills and roles for energy efficiency (Dissemination of WP2.3 results in conference) Link
12th European Conference on Product and Process Modelling (ECPPM)	Use-case analysis for assessing the role of Building Information Modeling in energy efficiency. (Dissemination of WP2.1 results in conference) https://www.taylorfrancis.com/chapters/use-case-analysis-assessing-role-building-information-modeling-energy-efficiency-alhamami-petri-rezgui/e/10.1201/9780429506215-4

Conference Paper: CIB World Building Congress 2019, July 2019, Hong Kong.	A smart low carbon district energy network renovated from the largest steelworks in Luxembourg Link
Conference Paper: ICCCBE 2018, June 2018, Tampere, Finland. 17th International Conference on Computing in Civil and Building Engineering.	Building Energy-Efficiency delivered with the Help of Improved Building Information Modelling Skills Link
Conference Paper: SBE19, May 2019, Helsinki, Finland. SBE 19 - Emerging Concepts for Sustainable Built Environment.	BIM and Energy Efficiency training requirement for the construction industry Link
Conference Paper: PRO-VE 2018, September 2018, Cardiff, United Kingdom. 19th IFIP Working Conference on Virtual Enterprises	A virtual collaborative platform to support Building Information Modeling implementation for energy efficiency Link

Table 9: Articles in professional magazines and other forums

Name of Magazine or distribution channel	Title
2019/10/28 **CORDIS article** **https://cordis.europa.eu/article/id/411694-tailored-bim-training-for-construction-professionals**	"Tailored BIM training for construction professionals" by Sylvain Kubicki
Construction 21 **https://www.construction21.org/france/articles/fr/des-formations-bim-au-service-de-l-efficacite-energetique.html**	"The right BIM training for each construction professional's needs", by Donia Marzougui
Mini Article about BIMEET e-learning (in France)	BIMEET final seminar and workshop in February 2020, by Donia Marzougui
IHS Press	"BIM for energy efficiency - Decarbonizing the built environment through informed decision-making using digital simulation and analysis", by Ioan Petri, Yacine Rezgui Link

A **book** has been published through BRE Press, and relies on results from BIMEET and other European Projects carried out by Cardiff University.

BIM for energy efficiency describes a pioneering study that contributes to the in-depth understanding of BIM engineering issues covering the complete environmental and building life cycle, including energy efficiency design, construction and operation stages.
It provides a fully integrated theoretical and practical guide to BIM for energy efficiency, to better tackle the complex challenges in the construction domain with an emphasis on the orchestration of the whole built environment through informed interventions.
The contribution of this study is twofold:
- a fundamental change to a systematic BIM-based approach towards achieving a sustainable built and energy efficient environment
- a world-class unified open and informed vision for sustainable engineering supported by BIM.

BRE Press - IHS https://www.brebookshop.com/samples/328035.pdf	**BIM for energy efficiency - Decarbonising the built environment through informed decision-making using digital simulation and analysis, Book, by Ioan Petri, Yacine Rezgui**

4 Dissemination and communication events

One of the key activities of BIMEET has been organising trainings on the subject of BIM and EE. These trainings have been listed in D6.9, where also the energy related impact of BIMEET project has been estimated. In this chapter we list all other BIMEET events, seminars, conferences and workshops, for the whole project duration.

4.1 Conferences

Audience of the conferences in which BIMEET project and its results have been disseminated can be estimated: an average audience of a conference presentation is 50 specialists in one session (PhD students, researchers and industry stakeholders). BIMEET project and results have been presented and disseminated in 7 international conferences during 2017-2020, and reached around **350 experts**. All these conferences are listed in table 8.

4.2 National Workshops and meetings

The key workshops with feedback will be reported in D6.7 - BIMEET Workshops.

In each of BIMEET training the project results are tested and the new learning material and information distributes on BIM and EE. Table 10 shows the national workshops and the scale of BIMEET trainings.
Training courses are listed one by one in D6.9 - Monitoring the Energy related impact of BIMEET project.

Table 10: All national workshops 2017-2020, Expert panel meetings and Summary of BIMEET trainings.

Organizer, Place and date	Purpose	Topics	Attendees
VTT and Metropolia Espoo, Finland. August 21st, 2018. http://www.metropolia.fi/koulutukset/taydennyskoulutus/tekniikka/bimene-seminaari/	BIMEET presentation in BIMENE - BIM Education and Networking Event. The purpose was to present the BIMEET project, consortium, main objectives and tasks, and to present and discuss the first results.	Introduction of BIMEET project (Tarja Häkkinen VTT) Energy-efficiency aspects in the Finnish COBIM(Maaria Laukkanen) Presentation of the first draft for the national Skills-Knowledge-Competences matrix (Tarja Häkkinen) and discussion	100 attendees including teachers and BIM professionals.
CRES October 2018	BIM: info, training and networking. Presentation of BIMEET	1) Informing about BIM; The way it functions, why to use it, who is involved, how people can be trained. Presentation by Mrs N. Panagiotidou 2) BIMEET (BIM and Energy Efficiency Training) Presenting the BIMEET project and the up-to-date results.	Not available
LIST November 14th, 2018	BIMEET project workshop in Luxembourg during BIMLUX 2018Conference	General information, presentation of a poster on LIST's booth (see below), introduction of BIMEET during a keynote talk (Sylvain Kubicki presentation) Review of BIMEET findings and brainstorming with professionals	250 participants, construction stakeholders
BRE BIM workshop including BIMEET session at BRE	BIM workshop including BIMEET session at BRE	BIM info and project info	Not available
Cardiff University UK organized a workshop on 18.9.2018 at Cardiff University	The session was linked to PRO-VE conference in Cardiff.	BIMEET workshop in the UK. Presentation and a panel discussion about Elements of Adoption of Digitalization including Competence building (Participants: Ioan Petri from CU, Tarja Mäkeläinen from VT, Sylvain Kubicki from LIST)	50 researchers and experts from the industry, mainly from process industry

VTT and Metropolia	Workshop in SBE19, May 2019, Helsinki, Finland. SBE 19 - Emerging Concepts for Sustainable Built Environment	To introduce BIMEET S-K-C definitions and BIMEET learning outcome (LOs) structure and content. Presentations from Sunil Suval, Maaria Laukkanen and Tarja Mäkeläinen. The target of the workshop was to collect feedback on presented BIMEET results from researchers and experts from the industry.	16 experts
LIST November 19th, 2019	BIMEET project presented during BIMLUX 2019 Conference	General information, presentation of a poster and tangible table tool on LIST's booth (see below), introduction of BIMEET during a keynote talk (Sylvain Kubicki presentation)	**500+ participants**, construction stakeholders
All BIMEET participants	Expert panel meeting number 1 February 2018, Brussels, Belgium	Project results Presentations by all BIMEET partners Getting feedback on the WP2 work and preliminary results which informed the elaboration of D2.1 and D.2.3 deliverables.	Expert panel members, around 40 specialists in the field of BIM.
	Expert panel meeting number 2 November 2019, Brussels, Belgium	Project results, all WPs Presentations by all BIMEET partners Presentations by all BIMEET partners Feedback in from of Group work on use-cases, LO's and eLearning material	Expert panel members, around 35 specialists in the field of BIM.

Training courses	number of courses		Altogether 293 students and experts trained
INES, Institut National de l´Énergie Solaire	Workshop and final seminar, February 2020 in Le Bourget-du-Lac, Savoie, France	Project final results Getting feedback on the WP2 work and preliminary results which informed the elaboration of D2.1 and D.2.3 deliverables.	70 researchers and experts from the industry. also, participants from Scotland and Italy

4.3   Plans for the dissemination and communication activities

4.3.1   First period plan

Dissemination activities focus on providing information about the project to various target groups. Dissemination material (paper-based and in electronic format) and the project website are prepared to strengthen exchange with externals and to raise the visibility of the project (from D6.4).

Dissemination and Communication activities focus on delivering information through relevant media, engaging external stakeholders, interacting with them, and getting their inputs and feedback. The tasks include, as planned in D6.4:

- Setting up the External panel.
- Setting up the Community of Interest in each member country.
- Organization workshops and final seminars with the expert panel.
- Organization of workshops on national level with different members of the community of interest.

- Preparing material and publishing at the public web site. It will be used for providing detailed information on objectives, partners, methods, results, publications, news, events and links to related activities.
- Identifying relevant social media and establishing a profile for the project in them. Project should attract followers with active presence in the media and network in social media groups (e.g. LinkedIn groups, and EC-hosted collaboration spaces for energy efficient buildings and smart cities).
- Planning and managing all dissemination / communication activities. Each partner will be assigned specific actions with respect to audience, technical scope, timing and geographic coverage. Reporting of dissemination activities.
- Preparing a leaflet to present the project objectives, partnership and expected results at a glance, in English. It will be mainly distributed in electronic version and will be printed for distribution at relevant events.
- For promoting the project at events, a poster can be prepared, when needed. It will have similar contents as the leaflet but will be edited to suite the scope of each event.
- Presenting the project results at conferences, tentatively 2, one during each project year.
- Publishing the project results in at least 10 articles in trade and scientific journals.

4.3.2 Second period plan

BIMEET will continue the communication and dissemination activities and deliver information about BIMEET results in additional areas (from D6.4):

- Discussions and contributions with BuildingSMART chapters and International association.
- Collaboration with other projects funded under the call: Net-UBIEP (CO: ENEA) and BIMplement (CO: Alliance Villes Emploi)
- Improving and updating the BIMEET web site
- Updating and extending the Energy BIM platform
- Participating in 5+ international conferences
- Participating in European and national BIM events and seminars
- Extending the national communities of interest
- Organizing 2 national workshops for the community of interest in each member country focusing on national and harmonized plans for training requirements
- Organizing face-to-face meetings and teleconferences with stakeholders
- Applying BIMEET outcomes in training courses
- Writing 2 journal articles about the required BIM skills and knowledge for different roles in building processes and about the related needs in the development of the learning outcomes
- Continuing BIMEET postings in Twitter
- Writing articles in LinkedIn (1 per each partner)
- Writing articles in 3 articles in trade magazines about the new defined requirements for learning outcomes

4.3.3   Estimated dissemination and communication activities by the end of 2020

BIMEET project know -how is used for the planning on upcoming training courses by the end of 2020 the partners are planning training courses where the number of participants will rise up to 690 students and professionals. Further the estimated audience for eLearning is around 2920 students and professionals. These estimations are introduced in D6.9.

The invitations for free BIMEET eLearning courses are distributed via national Communities of Interest and Expert Panel members.

5   Impact of dissemination and communication

In Table 11 we define the goals and level of impact for dissemination in 5 levels, to different target audience.

- Awareness raising on the substance is 1. level of impact. Its achieved with distributing basic information, news and results from the project. General information reaches a wide target group or specific audience.
- Creating interest and motivation is 2. level of impact. It achieved with special news with detailed level information and tips of interesting new research knowledge. Twitter is a good channel of this type of messages.
- Valorizing the substance is 3. level of impact. Its achieved through presentation of the results, discussions and dialogue
- Understanding the substance is 4. level of impact. Its achieved with concentrating into the meaning of results or during studies (in training programs and education)
- Learning to master the substance is 5. level of impact. It achieved with intensive studies and practicing.

At the levels 3, 4 and 5 the focus of the research team has also been using/ testing and seeking for feedback on the results of the BIMEET projects

Impact towards better energy efficient buildings based on project activities, mainly BIMEET trainings, are reported in D6.9. Foreseen impact is also estimated, when using project outcomes such as eLearning material.

Table 11: BIMEET dissemination methods, main target audience and goals with levels of impact

BIMEET dissemination methods	Target audience	Goals/ Levels of Impact
Web page	BIMEET community of interest and other stakeholders	General information for wide target group. **Awareness raising**
BIMEET platform, Energy BIM portal	BIMEET community of interest	General and specific information for professional target group Information services on the substance **Awareness raising**

		Understanding
Messages and comments in social media / Twitter, Facebook, and LinkedIn	Building professionals, policy makers	General, accurate information. **Creating interest and motivation** to seek more information
Presentations, papers and posters in relevant conferences	Building professionals, researchers, teachers, expert from the industry	Specific new knowledge and research outcome. **Valorizing the substance**
Articles in open access scientific journals	Researchers, professors and teachers, PhD students	Specific new knowledge and research outcome with background studies and discussion **Valorizing the substance** **Understanding**
Articles in professional magazines	Building professionals, policy makers	General and specific information for professional target group **Awareness raising**
Seminars	Expert panel, policy makers, standardization bodies	Sharing the outcome of the project, discussions and seeking for feedback **Valorizing**
National workshops	National community of interest	Specific information for professional target group. Seeking feedback and ideas for further development **Valorizing and understanding**
Planning and organizing training courses	**Students and professionals**	**Learning** using/ testing the results
Distribution of eLearning courses	**Students and professionals**	**Learning** using/ testing the results

5.1 Response from the audience and impact estimations of the dissemination and communication activities

5.1.1 Greece

Connection was made in one of BIMEET events with a representative of the Technical Chamber of Greece and Mrs Panagiotidou from BIM Design Hub, as a Training Expert in the field of BIM. The request was to organise a similar event for their registered engineers. The speakers received questions and discussion on the future of EE and BIM flourished.

At the national Workshop (held in October 2019), a connection between the Technical Chamber of Greece and the BIMEET's expert Mrs Panagiotidou was realised. This has very optimist potentials on the future of BIM training to specific roles. Mrs Panagiotidou has participated BIMEET Experts'

Panel meetings and using the project's outcomes for the Trainings providing. She upgraded her Training courses and platform and now is delivering eLearning as well. There is a very good collaboration with CRES and the BIMEET consortium. The project's outcomes are certain to be fully exploited through this collaboration.

5.1.2   Finland

The BIMEET project was followed by BIM developers in Finland. The project web page has been linked to buildingSMART Finland (bSF) web page, which enable active BIM technology and process developers and teachers to follow the project. Also, the project was introduced in bSF yearly meeting. Two skype meetings with buildingSMART Finland Education room members (around 30 participants) were organised for asking feedback on K-S-C lists and LO framework (outcome of D3.2)
General feedback was very positive. The question was asked what happens next: who is going to implement LO framework and how it should be integrated to other competence targets. LO's were seen as a good framework: it supports when teachers are planning courses /trainings and setting the learning targets.
Face-to-face meetings were organized (with Skanska and Ramboll) to analyse further the level of in-house training and possible usability of BIMEET Learning Outcome frameworks for companies for their in-house-training module planning. These discusses gave insights to the level of competence development in companies and enabled the researchers to draw conclusions.

5.1.3   Luxembourg

National workshops provided good response on the work done in BIMEET project in Luxembourg.
Face-to-face were organised (with AI+, Schroeder et Associés, BETIC consulting) in order to discuss potential use cases and review requirements for BIM&EE training. The respondents provided interesting ideas and workflows to use BIM for EE in Luxembourg.
Amongst others, it appears BIM is not enough developed to be efficiently used in relationship with Energy Efficiency (simulation, energy performance certificates) at the moment. Additional methods and software tools are required to empower the engineers and architects with BIM capabilities to improve the energy calculations and smooth the production of Energy Certificates.

5.1.4   UK

PRO-VE conference held in Cardiff, Wales in September 2018 is a well-known Conference series which is reaching hundreds of participants for each conference under specific themes.
BIMEET partners (Sylvain Kubicki, Ioan Petri, Tarja Mäkeläinen) participated to the panel discussion where BIMEET project goals was disseminated. The audience consisted of researchers and industry stakeholders of process industry in large which face similar challenges with digitalization than construction and real estate.
The discussion with the audience and panellists was open and livid lifting up the many challenges during adaptation and implementing digitalisation to the working practices industries. Some principles and practical cases in adaptation of systemic innovation like BIM were discussed.
Impact of sharing experiences and knowledge between different industries and fields may be significant, ad strategic decision made in one field can be up scaled to the business environment of another field.

5.1.5 France

The clear impact of providing trainings is learning and understanding the substance themes, supported by a good learning process. With BIMEET trainings the focus of the research team has also been using and testing the usefulness of LOs during the planning phase of training course.
Impact towards better energy efficient buildings has supported by BIMEET trainings, eLearning courses and webinars. Webinar session based on developed eLearning material was organised May 2020. There were 250 webinar participants, which clearly states for a growing interest for BIM enabled energy performance processes.

5.1.6 Feedback and impact related to scientific articles

Main impact of dissemination BIMEET results in conferences has been awareness raising. Also, audience outside Europe can be reached in the some of the international conferences, and conferences with long history tend to be good platforms for discussions, like experiences with ICCCBE conference in Tampere.

Different new results provided by BIMEET research has been valorised in scientific articles, when the results are discussed in the relation of earlier research. The audience of scientific articles give a clear quantitative feedback, which is expressed by views and references.
BIMEET project members from Cardiff University (Ioan Petri, Yacine Rezgui, Ali Hussain S Alhamami, Andrei Hodorog), and Luxembourg Institute of Technology (Annie Guerriero, Sylvain Kubicki and Haijiang Li) have been very productive in writing journal articles and this way sent a signal to scientific community about BIMEET results - and exposed them to discussion and further development.
For example, the article "Optimizing Energy Efficiency in Operating Built Environment Assets through Building Information Modelling: A Case Study", at Energies; Basel Vol. 10, Iss. 8, (2017): 1167, by Ioan Petri, Sylvain Kubicki, Yacine Rezgui, Annie Guerriero and Haijiang Li has already 7018 views, 2116 Downloads and 24 citations (May 2020).

5.2 Summary of BIMEET dissemination KPIS

Table 12 summarizes the dissemination activities carried out within BIMEET project.

Table 12: Summary of BIMEET dissemination activities

Activity type	Nb
Organisation of a Conference	0
Organisation of a Workshop	7
Press release	6
Non-scientific and non-peer-reviewed publication (popularised publication)	2
Exhibition	1
Flyer	1
Training	13
Social Media	200 posts or mentions
Website	1
Communication Campaign (e.g. Radio, TV)	0
Participation to a Conference	7
Participation to a Workshop	5
Participation to an Event other than a Conference or a Workshop	1

Video/Film	1
Brokerage Event	0
Pitch Event	0
Trade Fair	0
Participation in activities organised jointly with other EU project(s)	2
Other	

6 Appendixes

6.1 Appendix 1: Project results: Conference papers and scientific articles

The following section lists all abstracts of the papers and articles.

Social media mining for BIM skills and roles for energy efficiency

- Conference Paper: ICE/IEEE ITMC - International Conference on Engineering, Technology and Innovation at Nice, France. June 2019. DOI: 10.1109/ICE.2019.8792571
- Writers: Andrei Hodorog; Ali Hussain S Alhamami; Ioan Petri; Yacine Rezgui; Sylvain Kubicki; Annie Guerriro

ABSTRACT:

Information modelling for the construction industry can address the fragmentation, multitude of professions and companies that often require collaboration and data exchange. Construction projects involve various professions, including design teams, contractors, facility managers, product manufacturers and suppliers, user associations, clients and investors, and local/regional/national/international authorities. The increasing complexity of buildings is reflected in the continuous introduction of new procurement paths and methods, construction technologies, materials and construction methods to meet various economic, environmental and societal challenges. To address this level of complexity Building Information Modelling (BIM) can create synergies and support collaboration not only between traditional disciplines and roles (architecture, structure, mechanical and electrical), but also support many new professions and skills in areas such as energy, environment, waste and connected objects / Internet of Things. In this paper, we explore the dynamic nature of BIM with associated skills and roles and demonstrate how engagement and training can be informed by social media analysis to identify roles, skills and training needs. We conduct a data mining process by analysing the Twitter data of various companies and institutions involved in the BIM construction sector to discover new skills and roles for energy efficiency.
Full text:
https://www.researchgate.net/publication/334679789_Social_media_mining_for_BIM_skills_and_roles_for_energy_efficiency

Use-case analysis for assessing the role of Building Information Modeling in energy efficiency.

- Conference Paper: 12th European Conference on Product and Process Modelling (ECPPM)
- September 2018 DOI: 10.1201/9780429506215-4 In book: eWork and eBusiness in Architecture, Engineering and Construction
- Writers: Alhamami, A. H. S., Petri, I. and Rezgui, Y.

ABSTRACT:
https://www.researchgate.net/publication/330232595_Use-case_analysis_for_assessing_the_role_of_Building_Information_Modeling_in_energy_efficiency

Review of building energy performance certification schemes towards future improvement

- Journal Paper: Renewable and Sustainable Energy Reviews 113 (2019)
- Writers: Y.Li , S. Kubicki, A. Guerriero, Y. Rezgui

      o   Luxembourg Institute of Science and Technology LIST, Luxembourg. BRE Trust Centre for Sustainable Engineering, Cardiff University, UK

ABSTRACT

The building sector accounts for 40% of the total energy consumption in the EU. It faces great challenges to meet the goal of transforming the existing building stocks into near zero-energy buildings by 2050. The development of Energy Performance Certificate (EPC) schemes in the EU provides a powerful and comprehensive information tool to quantitatively predict annual energy demand from the building stock, creating a demand-driven market for energy-effective buildings. Properties with improved energy rating have had a positive impact on property investments and rental return because of the reduced energy bills. In addition, the EPC databases have been applied to energy planning and building renovations. However, it should be mentioned that the current evaluation system faces problems, such as not being fully implemented, delivering low quality and insufficient information to stimulate renovation, therefore requiring improvements to be made. This paper provides a review of the current EPC situations in the EU and discusses the direction of future improvements. The next generation EPC should rely on BIM technology, benefit from big data techniques and use building smart-readiness indicators to create a more reliable, affordable, comprehensive and customer-tailored instrument, which could better re-present energy efficiency, together with occupants' perceived comfort, and air quality. Improved EPC schemes are expected to play an active role in monitoring building performance, future energy planning and quantifying building renovation rates, promoting energy conservation and sustainability
Full text: https://www.sciencedirect.com/science/article/abs/pii/S1364032119304447

Interoperability Gaps from Building Information Modelling to Building Energy Modelling

- Conference Paper: Building Simulation 2019. 16th IBSA International Conference / Building Simulation BS 2019, Rome, Italy
- Writers: Yu Li, Sylvain Kubicki, Annie Guerriero, Donia Marzougui, Maaria Laukkanen
  - Luxembourg Institute of Science and Technology, Luxembourg. Institut National de l'Energie Solaire, France. Helsinki Metropolia University of Applied Sciences, Finland.

ABSTRACT

Building information modelling (BIM) has been proven to be a useful tool allowing sharing information with enhanced collaboration at the building design and construction processes. To this context, BIM contains the required information that could be extracted and transferred to Building Energy Modelling (BEM) software systems to perform energy simulation. This study testified the BIM to BEM process on the most prominent BIM tool Revit and 6 different BEM tools, including Revit Green Building Studio, Openstudio, Designbuilder, Grasshopper (Honeybee), Pleiades and IDA ICE to examine the interoperability gaps from BIM to BEM. Industry Foundation Class (IFC) and Green Building XML (gbXML) are used for the data information transfer between the tools. This study seeks to investigate the recent development in building energy simulation and the technology capability of integrating BIM for building energy analysis. The BIM to BEM process contributes to the automation of building energy simulation. Compared with traditional building energy simulation practices, the creation of BEMs directly from BIMs offers great time saving in the effort for gathering data and geometry construction, and reducing the burden of work for energy study. The BIM to BEM process is testified in 6 energy simulation tools. Results show that for each tool there exists certain kind of information misinterpretation in terms of building components and material properties. Modification and additional information are required before conducting energy analysis. The potential usage of the different tools by architects for energy efficient design or by engineers for HVAC system optimization is discussed.
Full Text: Conference Proceedings. http://buildingsimulation2019.org/conference-proceedings/

A smart low carbon district energy network renovated from the largest steelworks in Luxembourg

- Conference Paper: CIB World Building Congress 2019, July 2019, Hong Kong.
- Writers: Y.Li , S. Kubicki, A. Guerriero, Y. Rezgui
    - Luxembourg Institute of Science and Technology LIST, Luxembourg. BRE Trust Centre for Sustainable Engineering, Cardiff University, UK

ABSTRACT

This paper presents a newly constructed smart low carbon district energy network in Belval, Luxembourg. The district was the site for the largest steelworks in Luxembourg and currently a majority of the site is renovated into a new modern community with university, research institutes, banks, shopping malls, hotels and residential apartments. The waste heat generated from the remaining steel factory is recovered to provide heating to the district, which covers 70% of the heating requirements. PV panels will be installed on the roofs of a building for electricity supply. The CUSP (Computer Urban Sustainability Platform) developed by Cardiff University is deployed to simulate dynamic management of the energy network to achieve the smart energy vision. Relying on a semantic framework, the system enables gathering site and building datasets together with Building Information Modelling (BIM) for building management. The platform enables interactive monitoring and informed decision making based on developed artificial intelligence for energy prediction and optimization algorithms for energy dispatch. The smart energy network will greatly enhance renewable energy penetration, reduce CO2 emission and minimize operation costs in the district.
Full text: CIB WBC
Proceedings https://www.cibworld.nl/app/export/vzRErpDn/20174953/08618799a062211ec69567f8c69d1032/WBC%202019%20Proceedings%20article.pdf

Building Energy-Efficiency delivered with the Help of Improved Building Information Modelling Skills

- Conference Paper: ICCCBE 2018, June 2018, Tampere, Finland. 17th International Conference on Computing in Civil and Building Engineering.
- Writers: Sunil Suwal, Päivi Jäväjä, Sylvain Kubicki, Tarja Häkkinen, Tarja Mäkeläinen, Donia Marzougui, Sean Mccormick, Ali Alhamami and Ioan Petri
    - Metropolia University of Applied Sciences, Espoo, Finland. Luxembourg Institute of Science and Technology (LIST), Luxembourg. VTT Technical Research Center of Finland, Espoo, Finland. The National Solar Energy Institute (INES), France. BRE Academy, UK. Cardiff University, UK.

ABSTRACT

Construction industry has a wide impact on the socio-economic development of any nation. It employs a large number of population and contributes to a nation's built wealth -buildings and infrastructure. In contrast, this sector has an adverse environmental impact and is responsible for high energy use, greenhouse gas emissions, resource consumption, solid waste generation, environmental damage and pollution. Energy efficient (EE) buildings are an important and cost-efficient way today to mitigate the release of greenhouse gases. Moreover, technological changes namely building information modelling (BIM) has brought about a digital transformation in the industry and have significant interest across Europe. This has created a potential for a better digital management of energy-efficiency of buildings and –concurrently -a huge demand in new skills and

competence requirements for the construction workforce -professionals, managers, labors as well as engineering students. This paper presents the objectives and discusses the challenges and initial results of BIMEET (BIM-based EU -

wide Standardized Qualification Framework for achieving Energy Efficiency) research program fu nded under H2020 program. BIMEET project aims to leverage the take-up of ICT and BIM through a significant upgrade of the skills and capacities of the EU construction workforce. The paper provides an overview of the BIMEET project and discusses the use cases that especially will need a description of skills related to BIM and energy-efficiency. Such descriptions should rely on the European Qualifications Framework in order to be standardized across Europe and countries' specific competencies and training schemes. The paper finally defines the purpose of the training platform aiming to widely disseminate the BIMEET outcomes. The platform will support registering labelled training offering and finding suitable BIM training in different levels of AEC sector.

BIM and Energy Efficiency training requirement for the construction industry

- Conference Paper: SBE19, May 2019, Helsinki, Finland. SBE 19 - Emerging Concepts for Sustainable Built Environment.
- Writers: Sunil Suwal, Maaria Laukkanen, Päivi Jäväjä, Tarja Häkkinen, Sylvain Kubicki.
  - Metropolia University of Applied Sciences, Espoo, Finland. VTT Technical Research Center of Finland, Espoo, Finland. Luxembourg Institute of Science and Technology (LIST), Luxembourg.

ABSTRACT

Construction industry has a wide impact to our built environment. It plays a vital role for governments and supports in both developed and developing economies. The industry supports economic growth of a nation through various trades and activities as well as provides new jobs. It is one of the largest industrial sectors that has a projected output of 13.5% by 2025. Climate change, resource depletion and rapid urbanization are the most severe amongst the challenges we face today. The construction industry alone is responsible for 20% of the global energy consumption and approximately one-third of energy-related CO_2 emissions. The industry entails the high energy saving potentials and provides various opportunities to implement sustainable solutions to decrease the environmental impacts and thus lower greenhouse gas emissions. In the construction projects today, we can implement different energy efficiency strategies and products virtually during the planning phases of the construction projects using model based environment and tools commonly known today as virtual design and construction (VDC) as well as building information modeling (BIM). We can accurately simulate and calculate the impacts and thus support the increasing demand of complex high-performance buildings in order to effectively address energy and carbon reduction targets. However, one of the key challenges, the industry faces is the availability of skilled workforce and experts that have enough BIM and energy efficiency skills. The paper addresses such needs and presents the current status of a H2020 project with a focus on defining roles and responsibilities construction project stakeholders have for the energy efficiency measures along the different project phases. It also provides an outlook for the development of the learning outcomes based on knowledge, skills and competence (KSC) framework as well as systematically presents the base for harmonization of the learning outcomes at the EU level.

Full text: https://iopscience.iop.org/issue/1755-1315/297/1

A virtual collaborative platform to support Building Information Modeling implementation for energy efficiency

- Conference Paper: PRO-VE 2018, September 2018, Cardiff, United Kingdom. 19th IFIP Working Conference on Virtual Enterprises
- Writers: Ioan Petri, Ali Hussain S Alhamami, Yacine Rezgui, Sylvain Kubicki, Andrei Hodorog
  - School of Engineering, Cardiff University, Wales, UK
  - Luxembourg Institute of Science and Technology (LIST), Luxembourg

ABSTRACT

With the new regulations and policies related to climate change, the construction industry has been put under pressure to increase the sustainability of its practices. Many organizations are now adapting their processes to meet government legislative targets (e.g. reducing carbon emissions) and consider the environmental, social and economic performance of buildings. Such strategies have managed to improve current practices in managing buildings, however decarbonizing the built environment and reducing the energy performance gap remains a complex undertaking that requires more comprehensive and sustainable solutions.

In this context, Building Information Modeling (BIM) can help the sustainability agenda as the digitalization of product and process information provides a unique opportunity to optimize energy efficiency-related decisions across the entire lifecycle and supply chain. BIM is foreseen as a mean to waste and emissions reduction, performance gap minimization, in-use energy enhancements, and total lifecycle assessment.

A virtual collaborative platform that provides integrated access to BIM resources in the form of interactive, dynamic, and user-oriented services that fully exploit latest advances in computing technologies may address these barriers.

In this paper we present how a virtual collaborative system can be efficiently used for implementing BIM based energy optimization for controlling, monitoring buildings and running energy optimization, greatly contributing to engaging BIM construction community with energy practices. The solution described, known as energy-bim.com platform, disseminates energy efficient practices and community engagement and provides support for building managers in implementing energy efficient optimization plans.

Optimizing Energy Efficiency in Operating Built Environment Assets through Building Information Modeling: A Case Study

- Journal: Energies; Basel Vol. 10, Iss. 8, (2017): 1167.
- Writers: Ioan Petri, Sylvain Kubicki , Yacine Rezgui , Annie Guerriero and Haijiang Li

ABSTRACT

Reducing carbon emissions and addressing environmental policies in the construction domain has been intensively explored with solutions ranging from energy efficiency techniques with building informatics to user behavior modelling and monitoring. Such strategies have managed to improve current practices in managing buildings, however decarbonizing the built environment and reducing the energy performance gap remains a complex undertaking that requires more comprehensive and sustainable solutions. In this context, building information modelling (BIM), can help the sustainability agenda as the digitalization of product and process information provides a unique opportunity to optimize energy-efficiency-related decisions across the entire lifecycle and supply chain. BIM is foreseen as a means to waste and emissions reduction, performance gap minimization, in-use energy enhancements, and total lifecycle assessment. It also targets the whole supply chain related to design, construction, as well as management and use of facilities, at the different qualifications levels (including blue-collar workers). In this paper, we present how building information modelling

can be utilized to address energy efficiency in buildings in the operation phase, greatly contributing to achieving carbon emissions targets. In this paper, we provide two main contributions: (i) we present a BIM-oriented methodology for supporting building energy optimization, based on which we identify few training directions with regards to BIM, and (ii) we provide an application use case as identified in the European research project "Sporte2" to demonstrate the advantages of BIM in energy efficiency with respect to several energy metrics

Full text: https://search.proquest.com/openview/2b85881cb0327e7e4c4eac300d9ef3af/1?pq-origsite=gscholar&cbl=2032402

Promoting Energy Efficiency in the Built Environment through Adapted BIM Training and Education

- Journal: Energies 2020, 13(9), 2308
- Writers: Ali Alhamami, Ioan Petri, Yacine Rezgui and Sylvain Kubicki

ABSTRACT

The development of new climate change policies has increased the motivation to reduce energy use in buildings, as reflected by a stringent regulatory landscape. The construction industry is expected to adopt new methods and strategies to address such requirements, focusing primarily on reducing energy demand, improving process efficiency and reducing carbon emissions. However, the realisation of these emerging requirements has been constrained by the highly fragmented nature of the industry, which is often portrayed as involving a culture of adversarial relationships and risk avoidance, which is exacerbated by a linear workflow. Recurring problems include low process efficiency, delays and construction waste. Building information modelling (BIM) provides a unique opportunity to enhance building energy efficiency (EE) and to open new pathways towards a more digitalised industry and society. BIM has the potential to reduce (a) waste and carbon emissions, (b) the endemic performance gap, (c) in-use energy and (d) the total lifecycle impact. BIM also targets to improve the whole supply chain related to the design, construction as well as the management and use of the facility. However, the construction workforce is required to upgrade their skills and competencies to satisfy new requirements for delivering BIM for EE. Currently, there is a real gap between the industry expectations for employees and current training and educational programmes. There is also a set of new requirements and expectations that the construction industry needs to identify and address in order to deliver more informed BIM for EE practices. This paper provides an in-depth analysis and gap identification pertaining to the skills and competencies involved in BIM training for EE. Consultations and interviews have been used as a method to collect requirements, and a portfolio of use cases have been created and analysed to better understand existing BIM practices and to determine current limitations and gaps in BIM training. The results show that BIM can contribute to the digitalisation of the construction industry in Europe with adapted BIM training and educational programmes to deliver more informed and adapted energy strategies.
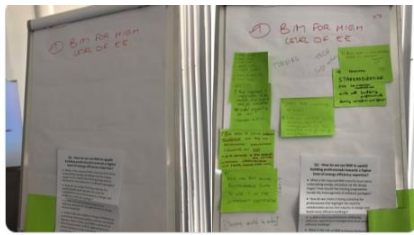
Full text: https://www.mdpi.com/1996-1073/13/9/2308

6.2   Apendix 2: Highlights from BIMEET Twitter account

6.3   Appendix 3: All dissemination and reflection actions listed.

All trainings and active dissemination & reflection actions are listed in the figures and tables of this appendix.

Attendees in BIMEET trainings:
- Training courses 18 with 293 participants
- eLearning courses 2, with 754 participants
  - o   estimation of the learners by end of year 2020: 3893

Participation in workshops
- National workshops 270
- Conferences 750
- Expert panel meetings 75
- Final workshops 70

Experts and teachers, professionals and students reached, an **estimation of total number of attendees and participation: 2212 (6105 by the end of year 2020).**
This estimation does not include number of persons reached via www-pages or BIMEET social media channels. Further, the Energy BIM community have 76 registered users in the Energy BIM platform, connected to BIMEET project.

When	Participants	How many persons?	How many days?
2019	BIM coordinator course participants - professional education	14	3
2020	BIM coordinator course participants - professional education	21	3
2019	BIM basics course online	12	3
2020	BIM basics course online	14	3
2019	BIM manager course	8	1
2018	Students from Master's program at Metropolia _Product modeling course	30	3
2019	Students from Master's program at Metropolia_product modeling course	26	3
2019	Students from Bachelor program at Metropolia_Utilization of BIM in construction	17	2
2020	Students from Bachelor program at Metropolia_Utilization of BIM in construction	8	2

When	Participants	How many persons?	How many days?
February 2018	Trainers of the French national education	18	3
October 2018	Professionals: ARCH, CD, ASS, BM, BC, C	14	1
2018 – 2019 – 2020	Students from ENSAM (Ecole des Arts et Métiers) and USLB (Université Savoie Mont-Blanc)	40	4
2018 – 2020	Professionals: site managers on energy efficiency	12	0,5

When	Participants	How many persons?	How many days?
2017	Association of Architects Thessaloniki	20	4
2018	Professionals ARCH,STR engineers + company of MEP engineers	9	2
2019	Professionals ARCH,STR engineers + 2 construction firms	11	2
2020	Professionals ARCH,STR engineers	4	1

When	Participants	How many persons?	How many days?
2018	Professionals ARCH,STR engineers, MEP engineers, constructors and researchers on BIM and improved energy efficiency	15	1

TRAINING COURSES + E-LEARNING

Total number of participants: 293

	Students	Professionals	All
House of Training	-	15	15
Metropolia	81	69	150
INES	58	26	84
BIM Design Hub	-	44	44
TOTAL 1	139	154	293
eLearning courses	300 (estimated minimum)	900 (estimated minimum)	1200 (estimated minimum)
TOTAL 2	439	1054	1493

Estimated number of participants until end of 2020: 3893

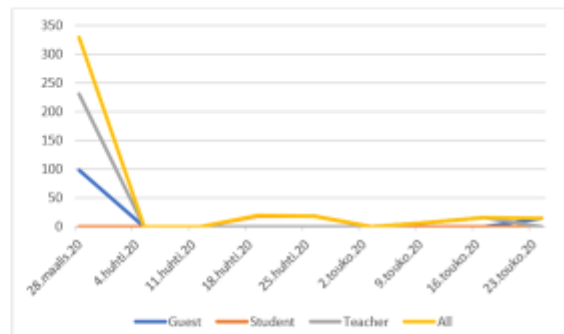|	Students	Professionals	All
Executed training courses during BIMEET project	139	154	293
Planned training courses 2020	560	120	680
TOTAL training	699	274	973
Estimated minimum audience for eLearning courses	300 (estimated minimum)	900 (estimated minimum)	1200 (estimated minimum)
Estimated average audience for eLearning courses in 2020	2230	690	2920
TOTAL participants and audience	2929	964	3893

In 6 months the estimation will be total 1300 users in blended learning courses (using BIMEET eLearning material)

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BIMEET E-LEARNING MATERIAL USERS

from mid Feb to mid May

BIM and EE ~ 354 users

BIM and EPC ~ 404 users

TOTAL (in 3 months): 754 users
In 6 months the estimation will be total 2262 users.
- Target was set: 1200 in impact estimations

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E-LEARNING COURSES

from mid Feb to mid May
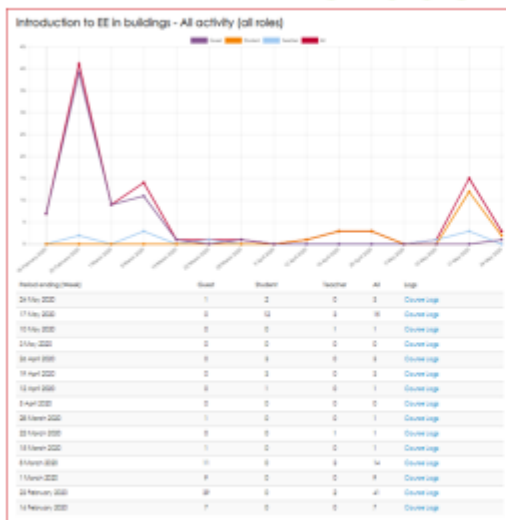
Students: 21. Professionals: 76
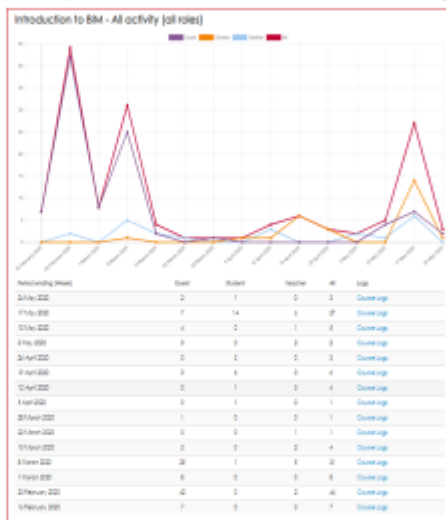
Students: 48. Professionals: 120

TOTAL (in 3 months): 265

Students: 69
Professionals: 196

In 6 months the estimation will be total 800.
- Target 1200
- in September 500 students from Metropolia => 1300

20 students have got a certificate (by Eksergia). More students daily…
BIM for EPC -eLearning might be part of a course in Lappeenranta AMK.

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Organizer, Place and date	Purpose	Topics	Attendees
VTT and Metropolia Espoo, Finland. August 21st, 2018. http://www.metropolia.fi/koulutukset/taydennyskoulutus/tekniikka/bimene-seminaari/	BIMEET presentation in BIMENE - BIM Education and Networking Event. The purpose was to present the BIMEET project, consortium, main objectives and tasks, and to present and discuss the first results.	Introduction of BIMEET project (Tarja Häkkinen VTT) Energy-efficiency aspects in the Finnish COBIM(Maaria Laukkanen) Presentation of the first draft for the national Skills-Knowledge-Competences matrix (Tarja Häkkinen) and discussion	100 attendees including teachers and BIM professionals.
CRES October 2018	BIM: info, training and networking. Presentation of BIMEET	1) Informing about BIM; The way it functions, why to use it, who is involved, how people can be trained. Presentation by Mrs N. Panagiotidou 2) BIMEET (BIM and Energy Efficiency Training) Presenting the BIMEET project and the up-to-date results.	Not available, *estimation: 50*
LIST November 14th, 2018	BIMEET project workshop in Luxembourg during BIMLUX 2018Conference	General information, presentation of a poster on LIST's booth (see below), introduction of BIMEET during a keynote talk (Sylvain Kubicki presentation) Review of BIMEET findings and brainstorming with professionals	250 participants, construction stakeholders
BRE BIM workshop including BIMEET session at BRE	BIM workshop including BIMEET session at BRE	BIM info and project info	Not available, *estimation 50*
Cardiff University UK organized a workshop on 18.9.2018 at Cardiff University	The session was linked to PRO-VE conference in Cardiff.	BIMEET workshop in the UK. Presentation and a panel discussion about Elements of Adoption of Digitalization including Competence building (Participants: Ioan Petri from CU, Tarja Mäkeläinen from VT, Sylvain Kubicki from LIST)	50 researchers and experts from the industry, mainly from process industry

VTT and Metropolia	Workshop in SBE19, May 2019, Helsinki, Finland. SBE 19 - Emerging Concepts for Sustainable Built Environment	To introduce BIMEET S-K-C definitions and BIMEET learning outcome (LOs) structure and content. Presentations from Sunil Suval, Maaria Laukkanen and Tarja Mäkeläinen. The target of the workshop was to collect feedback on presented BIMEET results from researchers and experts from the industry.	16 experts
LIST November 19th, 2019	BIMEET project presented during BIMLUX 2019 Conference	General information, presentation of a poster and tangible table tool on LIST's booth (see below), introduction of BIMEET during a keynote talk (Sylvain Kubicki presentation) 	**500+ participants**, construction stakeholders
All BIMEET participants	Expert panel meeting number 1 February 2018, Brussels, Belgium	Project results Presentations by all BIMEET partners Getting feedback on the WP2 work and preliminary results which informed the elaboration of D2.1 and D.2.3 deliverables.	Expert panel members, around 40 specialists in the field of BIM.
	Expert panel meeting number 2 November 2019, Brussels, Belgium	Project results, all WPs Presentations by all BIMEET partners Presentations by all BIMEET partners Feedback in from of Group work on use-cases, LO's and eLearning material	Expert panel members, around 35 specialists in the field of BIM.

Training courses	Number of piloted courses: 18		Altogether 293 students and experts trained
INES, Institut National de l´Énergie Solaire	Workshop and final seminar, February 2020 in Le Bourget-du-Lac, Savoie, France	Project final results Getting feedback on the WP2 work and preliminary results which informed the elaboration of D2.1 and D.2.3 deliverables. 	70 researchers and experts from the industry. also, participants from Scotland and Italy

6.4   Appendix 4: List of BIMEET deliverables (25)

WP No	Del Rel. No	Del No	Title	Description of BIMEET deliverables	Lead	Nature	Dissemination Level
WP1	D1.1	D1	Project Handbook	This report will contain all relevant information for partners about quality management and relevant instruction about project processes and responsibilities among partners.	LIST	Report	Confidential, only for members of the consortium (including the Commission Services)
WP2	D2.1	D2	BIM for energy efficiency requirements capture	This report will document the BIM for energy efficiency research and development landscape in Europe.	CU	Report	Public
WP2	D2.2	D3	Benchmark of existing training offers	This deliverable will provide a comparative analysis of BIM for energy efficiency related training initiatives across Europe identifying overlapping /complementarities as well as gaps.	BRE	Report	Confidential, only for members of the consortium (including the Commission Services)
WP2	D2.3	D4	BIM for Energy Efficiency required roles and skills	This report will list and describe the roles and skills needed to implement a European wide energy efficiency training agenda underpinned by BIM.	CU	Report	Public
WP3	D3.1	D5	Learning outcomes definition	This report will describe the learning outcomes matrix according to the EQF recommendations at the BIMEET participating countries level.	INES	Report	Public
WP3	D3.2	D6	European Standardized qualifications framework	This deliverable will describe the harmonized learning outcomes at a European level and the resulting standardised European qualification framework.	METRO	Report	Public
WP3	D3.3	D7	Country perspective to BIMEET EQF	This document will describe specificities of each BIMEET participating country and necessary adaptations aimed at the local training value chain.	CRES	Report	Confidential, only for members of the consortium (including the Commission Services)
WP3	D3.4	D8	BIM for Energy Efficiency Validation Report	This deliverable will document the EU wide validation of the proposed qualifications.	INES	Report	Public
WP4	D4.1	D9	BIMEET Platform Requirements report	This document will provide a detailed requirement capture and specification of the BIMEET training platform as well as details of the ERASMUS+ BIM4VET specification.	LIST	Other	Confidential, only for members of the consortium (including the Commission Services)
WP4	D4.2	D10	BIMEET training platform delivery	This prototype deliverable will be augmenting the ERASMUS+ BIM4VET platform with additional BIMEET functionality.	INES	Other	Public

WP							
WP4	D4.3	D11	BIMEET Training Repository	This software deliverable will provide the functionality to record training details (by training providers) and their accreditation by experts, in line with the proposed BIMEET EQF and underpinning business model.	CU	Other	Confidential, only for the consortium (including the Commission Services)
WP4	D4.4	D12	BIMEET Platform Testing and Validation Report	This report will detail the validation of the BIMEET platform.	LIST	Report	Public
WP5	D5.1	D13	BIMEET Expert Panel	This deliverable will describe the terms and conditions of the BIMEET expert panel as well as membership details.	BRE	Report	Public
WP5	D5.2	D14	BIMEET labelling scheme	This deliverable describes the BIMEET labelling scheme, including a business plan, outline costs, and requirements.	CSTB	Report	Confidential, only for members of the consortium (including the Commission Services)
WP5	D5.3	D15	Validation and documentation of BIMEET labelling	This report describes the testing of the labelling scheme on existing modules of training institutes and the direct impact on the labelled courses delivered during the project lifetime and monitoring of target trainees, at all levels.	HoT	Report	Public
WP5	D5.4	D16	BIMEET Exploitation plan	Report on roles, missions and business model of the identified organization sustaining and exploiting BIMEET results.	BRE	Report	Confidential, only for members of the consortium (including the Commission Services)
WP6	D6.1	D17	Project Web Site	Web site of the project	VTT	Websites, patents filling, etc.	Public
WP6	D6.2	D18	BIMEET Leaflet	Leaflet presenting the project	VTT	Websites, patents filling, etc.	Public
WP6	D6.3	D19	Dissemination and communication plan for 1st period	Dissemination and communication plan for 1st period	VTT	Websites, patents filling, etc.	Confidential, only for members of the consortium (including the Commission Services)
WP6	D6.4	D20	Dissemination and communication report and plan for 2nd period	Dissemination and communication report and plan for 2nd period	VTT	Websites, patents filling, etc.	Confidential, only for members of the consortium (including the Commission Services)
WP6	D6.5	D21	Dissemination and communication report	Report on dissemination and communication for the whole project duration.	VTT	Report	Public
WP6	D6.6	D22	BIMEET Community of Interest	Set up the BIMEET Community of Interest, consisting of tentatively 200+ members who are initially introduced in the proposal through the expert panel members within their respective countries.	VTT	Websites, patents filling, etc.	Public
WP6	D6.7	D23	BIMEET workshops	Common workshops with key participants of EeB&BIM projects and related activities identified in WP2. The reported workshops are: Expert panel meetings in Bryssels, a workshop in Luxembourg and in Helsinki.	VTT	Report	Public

WP6	D6.8	D24	BIMEET Final seminar	BIMEET Final seminar	VTT	Other	Public
WP6	D6.9	D25	Monitoring of energy-related impact of BIMEET	Improve calculation of energy-saving and disseminate project's results.	VTT	Report	Public