



DELIVERABLE: D40 - D6.7 **International Net-UBIEP events**

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Network for Using BIM to Increase the Energy Performance

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A. Deliverable Details

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B. Short Description

The activity performed during two European events and one international event, are described. All the three events have promoted the qualification schemes in connection with the partnership with other three European projects related to the use of BIM for improving energy performance: BIMCERT, BIMPLEMENT, BIMEET. The events occurred in Dusseldorf in March 2019, in Barcelona in May 2019 and in Brussels in June 2019.



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1. buildingSMART International summit – Dusseldorf March 2019

1.1 Description of the event

The buildingSMART International Standards Summit took place in Düsseldorf, Germany 25-29th March 2019. The summit brings together all the international stakeholder of the building industry, to develop standards for any building domain.

The Professional Certification Program is one of the activities of the summit and is created to support training organization to deliver internationally standardized and recognized training content. buildingSMART is not delivering training itself, but defines learning outcomes and manages the approval of training providers and the testing and qualification of individuals.

The Program goals are:

- To standardize and promote openBIM training content
- To support and accredit training organizations
- To test and certify individuals

1.2 Achievements



During the summit a meeting with the person in charge of the qualification program, Mark Baldwin, allow to define the procedure to use the buildingSMART platform to introduce the learning outcomes produced for the use of BIM to improve energy performance of the buildings.

Guidelines and a draft of MoU was produced and distributed also to the other three projects coordinators: BIMCERT, BIMIMPLEMENT, BIMEET.

During the meeting we agreed that the “BIM alliance” of the European project would produce, for the Energy Analysis module, the following:

- 25-30 Learning Outcomes
- Question Database with at least 200 questions and answers
- Body of Knowledge

In the following the presentation of the qualification program presented by the coordinator Mark Baldwin.

<p>Professional Certification - Overview</p> <p>Goal:</p> <ul style="list-style-type: none"> • To provide a global benchmark for openBIM Learning & Certification <p>Benefits</p> <ul style="list-style-type: none"> • Promote buildingSMART Standards, processes and best practices • Position buildingSMART as a global brand and assurance of quality in BIM competence certification • Create revenue stream for Chapters and bSI <p>Professional Certification </p>	<p>Professional Certification - Overview</p> <p>Our goal is <u>not</u> to deliver trainings</p> <p>but rather to provide a global learning framework, to:</p> <ol style="list-style-type: none"> 1. Standardise openBIM training content 2. Accredite training organisations 3. Test and certify individuals (who have undertaken these accredited trainings) <p>Professional Certification </p>
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<h3>Market Need</h3> <p>81% - 'BIM competence certification is necessary'. 79% - 'based on openBIM principles' (12% said it not openBIM) 68% - 'buildingSMART should be involved' (16% felt buildingSMART should not be involved) 64% of respondents felt that certification should involve a fee - 41% more than US\$ 100 - 23% less than US\$ 50. - 20% believed certification should be free</p> <p>Professional Certification</p>	<h3>Scope</h3> <p>Professional Certification</p>												
<h3>Phase 1: Individual Qualification</h3> <p>3 components:</p> <ol style="list-style-type: none"> 1. Learning Outcome Frameworks (LOF's) - which describe the content of each of the eight modules 2. Course approval – the procedure to review and approve candidate trainings. 3. Individual qualification – the testing and qualification of individuals who have undertaken an approved training. <p>Professional Certification</p>	<h3>LOF Overview</h3> <p>BASIC - Learning Outcome Framework Overview</p> <p>Below is a preview of the LOF for the Basic module. Please note that not a complete LOF, but rather a listing of the areas to be covered, for preliminary chapter review and comment.</p> <p>To be comfortable with what BIM is, why it is needed, and its specific Terminology. Delegates on completion should be able to:</p> <ul style="list-style-type: none"> Define BIM Identify & Define key BIM terminology Define BIM maturity levels, and Define what constitutes an Information Model. <p>To appreciate the advantages that BIM can bring compared to a traditional project, the historical issues within the industry and its role BIM has in satisfying government targets. Delegates on completion should be able to:</p> <ul style="list-style-type: none"> Explain why collaborative and new ways of working are required. Identify the effects of poor information management on projects. Identify the benefits of BIM to construction professionals and Identify the benefits of BIM addition to clients, and facility management. <p>Professional Certification</p>												
<h3>Example LOF (bS Norway)</h3> <table border="1"> <thead> <tr> <th>No.</th> <th>Learning target</th> </tr> </thead> <tbody> <tr> <td>01-01-01</td> <td>Know the effect of up to three projects that use openBIM and which demonstrate: - Increased multidisciplinary collaboration - Economic benefits - Improved quality</td> </tr> <tr> <td>01-01-02</td> <td>Know the benefits of openBIM for clients: - More streamlined process - Increased consistency between order and result (quality) - Improved time and financial management - Improved profitability</td> </tr> <tr> <td>01-01-03</td> <td>Know the benefits of openBIM for consultants: - Improved quality of collaboration - Increased consistency in multidisciplinary coordinated production documentation - Competitive advantage because openBIM experience is requested for more and more projects</td> </tr> <tr> <td>01-01-04</td> <td>Know the benefits of openBIM for contractors: - Competitive advantage by being able to submit quotes and tenders with less uncertainty with regard to cost and time - Better management of time and finances - Improved profitability</td> </tr> <tr> <td>01-01-05</td> <td>Know the benefits of openBIM for management and operations: - Improved functionality in the building - Lower operating expenses</td> </tr> </tbody> </table> <p>The following point assumes FM & Operation documentation is available from openBIM - Improved access to and maintenance of FM & Operation documentation</p> <p>Professional Certification</p>	No.	Learning target	01-01-01	Know the effect of up to three projects that use openBIM and which demonstrate: - Increased multidisciplinary collaboration - Economic benefits - Improved quality	01-01-02	Know the benefits of openBIM for clients: - More streamlined process - Increased consistency between order and result (quality) - Improved time and financial management - Improved profitability	01-01-03	Know the benefits of openBIM for consultants: - Improved quality of collaboration - Increased consistency in multidisciplinary coordinated production documentation - Competitive advantage because openBIM experience is requested for more and more projects	01-01-04	Know the benefits of openBIM for contractors: - Competitive advantage by being able to submit quotes and tenders with less uncertainty with regard to cost and time - Better management of time and finances - Improved profitability	01-01-05	Know the benefits of openBIM for management and operations: - Improved functionality in the building - Lower operating expenses	<h3>Testing Platform Prototype</h3> <p>Professional Certification</p>
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<h3>Logos & Branding</h3> <ul style="list-style-type: none"> • Page on buildingSMART.org - www.buildingsmart.org/professional-certification/ • New Domain: buildingSMART.education • Logos <p>Professional Certification</p>	<h3>Programme Structure</h3> <p>Gold Sponsors: mensch & maschke CAD as CAD user, BIM reference, buildingSMART, DeuBIM Gruppe, Implenia</p> <p>Professional Certification</p>												

2. BIMalliance conference - Barcelona 16 may 2019

2.1 Description of the event

The Building Barcelona Construmat is home to an array of products and services such as construction machineries, construction equipment and accessories, construction technologies,



products and materials and all construction related goods and services. The event is known to offer great networking and contacts with industry people. The event also presented the latest news and development that is taking place within the industry. A corner was reserved to Building Information Modelling.



The BIM Spot

by ITeC

Industry Arena

BIM product and service companies, seminars, networking and presentations of BIM products at a single venue

The meeting point for professionals from the sector who still haven't implemented the **BIM** (Building Information Modeling), **LEAN** and **IPD**.

A space providing knowledge that also had an exhibition area for companies specialising in this technology.



[Link to the event in Barcelona](#)

The event was considered a good opportunity to meet among different European projects dealing with the use of BIM to improving energy performance during the life cycle of a building. The following was the agenda co-organized with EASME.



2.2 Agenda

1. Introduction BIMalliance

Introducing the 4 BIM projects and the collaboration. Detailing BIM as a skills enabler

2. Plan – BIMplement

Energy savings targeted? Energy savings targeted during the design phase. Utilising BIM tools to proactively reduce the gap between predicted and actual building performance. Utilising BIM as an enabler of effective collaboration between design disciplines Reducing performance disparity from conception - **Potential Energy**

3. Design – BIMEET

Energy savings designed into the build - BIM utilised to achieve energy optimization in operation phase. BIM as a tool to support the visualisation of a building's energy performance; Design- operation transition – identifying the obstacles **Embedded Energy**

4. Build – BIMcert

Energy savings achieved through the building operation stage – monitored and managed continually with lessons learned fed back to design teams for future projects. The practicality of implementing BIM assists performance management through effective data management in building operations by support interlinking of data environments (BIM supported Energy Management System of Buildings). Effective energy management reducing energy consumed whilst maintaining occupants ' health, safety and comfort conditions. BIM utilised to improve existing processes aimed towards sustainable usage of energy – **Operational Energy**

5. Operate – net-UBIEP

Energy savings through the lifetime of the building- energy performance during the life cycle of a building BIM as a tool to support energy management of a building's performance; Overcoming the barriers to using BIM with in-use building performance management. **Sustainable Energy**

Discussion in subgroups:

1. certification and accreditation of BIM related skills,
2. BIM for blue-collar workers,
3. how to use BIM models as training tools,
4. how to use BIM to upskill building professionals towards higher level of energy efficiency etc.
5. Reducing the carbon footprint of construction utilising BIM

2.3 Presentation by ENEA

Net-UBIEP was presented through the following slides:

Lifecycle	Preparation Brief and concept design	Developed and technical design	Construction	Handover and close out	In use and refurbishment
Responsible for the authorization process	Digitalize existing information in graphical format	Reduce Contractor data requirements for the authorization process	to provide and reuse information related	to provide and reuse information related	Desired state - Complete update of information in graphical format - All the authorization process is smooth and clear
Designers	Reduce the impact of all the requests and communication requirements regarding energy performance	Use simulation to reduce the heat reduction from technical and performance point of view	Reduce the all the requests that provide the better information	Reduce the all the requests that provide the better information	Desired state - All the information for the authorization are available in any time - All the authorization process saves up
Constructors	Reduce the impact of all the requests and communication requirements regarding energy performance	Use simulation to reduce the heat reduction from technical and performance point of view	Use the BIM model to reduce the impact of the building information and management system	Use the BIM model to reduce the impact of the building information and management system	Desired state - Reduce the information available through BIM - Increase the communication with the designers and installers, the users
Technicians	Reduce the impact of all the requests and communication requirements regarding energy performance	Use simulation to reduce the heat reduction from technical and performance point of view	Use the BIM model to reduce the impact of the building information and management system	Use the BIM model to reduce the impact of the building information and management system	Desired state - Reduce the information available through BIM - Increase the communication with the designers and installers, the users
Owners both private & public	Reduce the impact of all the requests and communication requirements regarding energy performance	Use simulation to reduce the heat reduction from technical and performance point of view	Use the BIM model to reduce the impact of the building information and management system	Use the BIM model to reduce the impact of the building information and management system	Desired state - BIM building - Easy management - Low cost and maintenance



2.4 Photos

A photo of the panel publicizing the event was taken and here attached.



Poster of the Net UBIEP project prepared by Slovakia

After the event, during an informal meeting of the four project leader, it was decided to carry on common dissemination and exploitation strategies and a first draft of the future common activities was drafted. These the points that were agreed:

- Identify the same qualification framework for all the four projects based on learning outcomes
- Propose the learning outcome framework (LOF) to buildingSMART international in order to include the LOF in their qualification platform.
- Find other funding opportunities within the following H2020 calls.

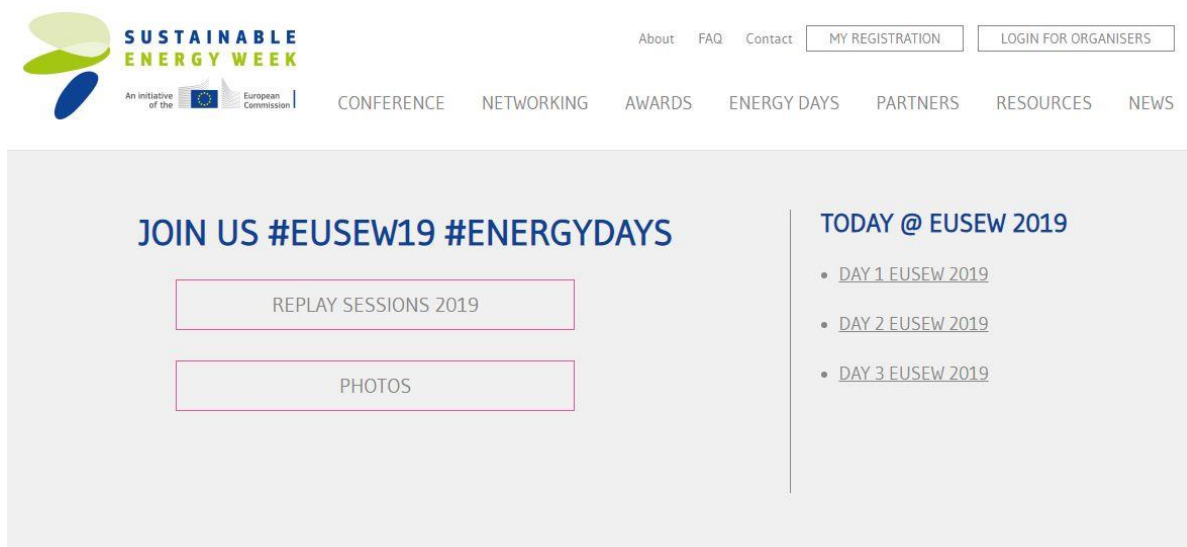


3. EU Sustainable Energy Week - Bruxelles 18-20 June 2019

3.1 Description event

EU Sustainable Energy Week (EUSEW), the annual flagship event organised by the European Commission, brings together public authorities, private companies, NGOs and consumers to promote initiatives to save energy and move towards renewables for clean, secure and efficient power. In 2019, activities are focused around the theme 'Shaping Europe's Energy Future'. Now in its 14th year, EUSEW is bigger and livelier than ever with over 90 policy sessions, more than 4,000 registered participants, 380 speakers and 100+ unique networking opportunities.

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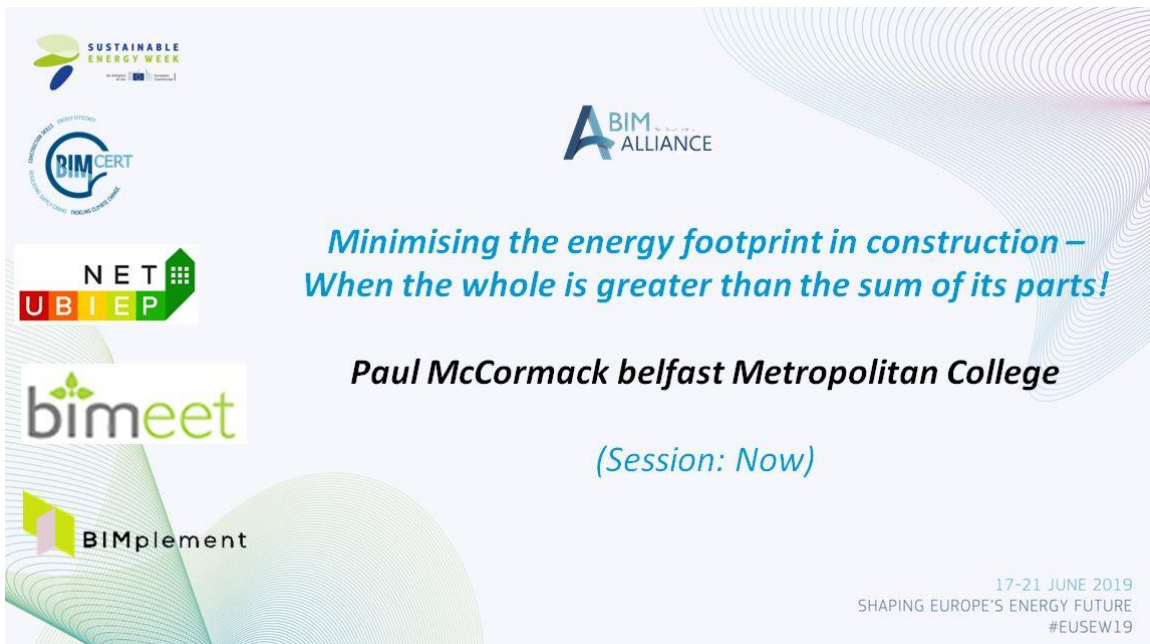


[Link to the event in Bruxelles](#)

3.2 Presentation by BIM Alliance

BIM alliance prepared a proposal for a workshop during the sustainable energy week event and was accepted. The speakers were from both BIMCERT and Net-UBIEP. The workshop saw the participation of around 80 people with many Q&A.

The slides presented are the following:



BIMalliance focus

- Energy targets, energy savings** – BIM in European decarbonisation strategy and Energy Roadmap 2050
- Dissemination and communication** - European wide and broader
- Accreditation and certification**
- Exploitation** – Target groups inclusion via professional associations, focus on SMEs; mission to assist countries with low BIM maturity level in further progress and uptake
- Future Collaborative opportunities** – Research, innovation, development of new high skilled jobs and professions related to BIM and energy efficiency,
- A BIM skills passport for workers** – pan European unified scheme of competences and qualifications, providing market recognitions of skills, transferability, employability and competitiveness
- Assistance to countries with low BIM maturity level**
- More effective impacts of the projects related to construction skills and sustainable energy** - How to measure them and provide to be long-term prospective

17-21 JUNE 2019
SHAPING EUROPE'S ENERGY FUTURE
#EUSEW19

Using BIM to close the Energy Cycle

Plan&Design
Energy savings targeted during the design phase

Construction
Energy savings designed utilised to achieve energy optimization

Operation
Energy savings achieved through the building operation stage

End of Life
Energy savings through in-use building performance management

Potential Energy

Embedded Energy

Sustainable Energy

Operational Energy
A
B
C

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#EUSEW19



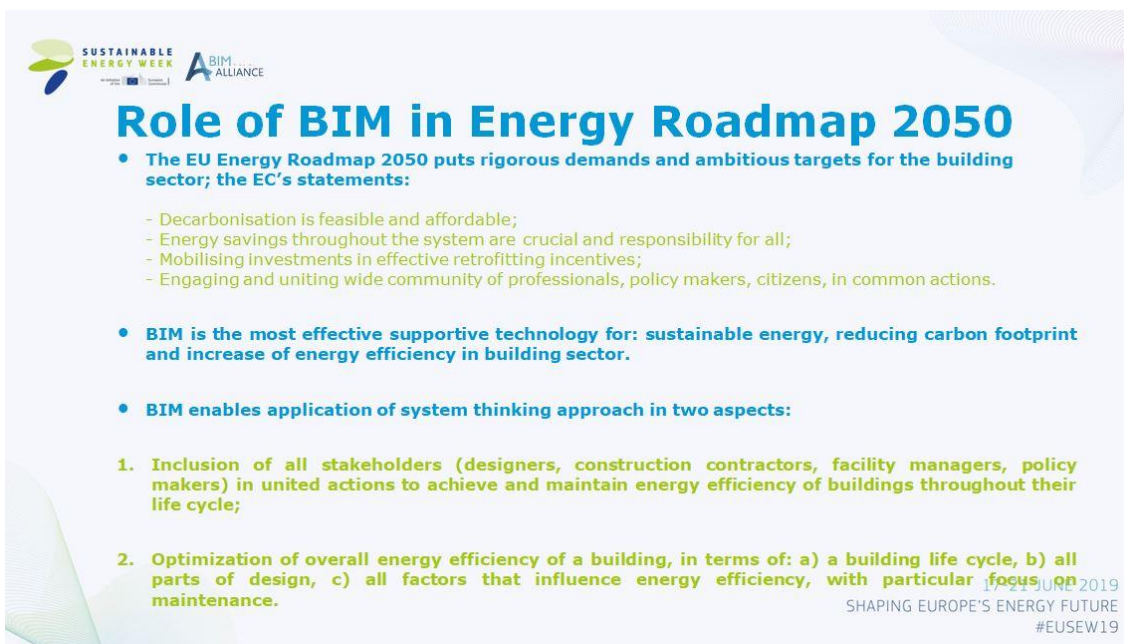
A presentation slide with a light blue background and abstract wave patterns. It includes logos for Sustainable Energy Week and BIM Alliance at the top left. The main text is centered and reads: "SESSION: FUTURE", "Anna Moreo ENEA DUEE-SIST-CENTRO", and "Dijana Likar IECE". At the bottom right, it says "17-21 JUNE 2019 SHAPING EUROPE'S ENERGY FUTURE #EUSEW19".

SESSION: FUTURE

Anna Moreo ENEA DUEE-SIST-CENTRO

Dijana Likar IECE

17-21 JUNE 2019
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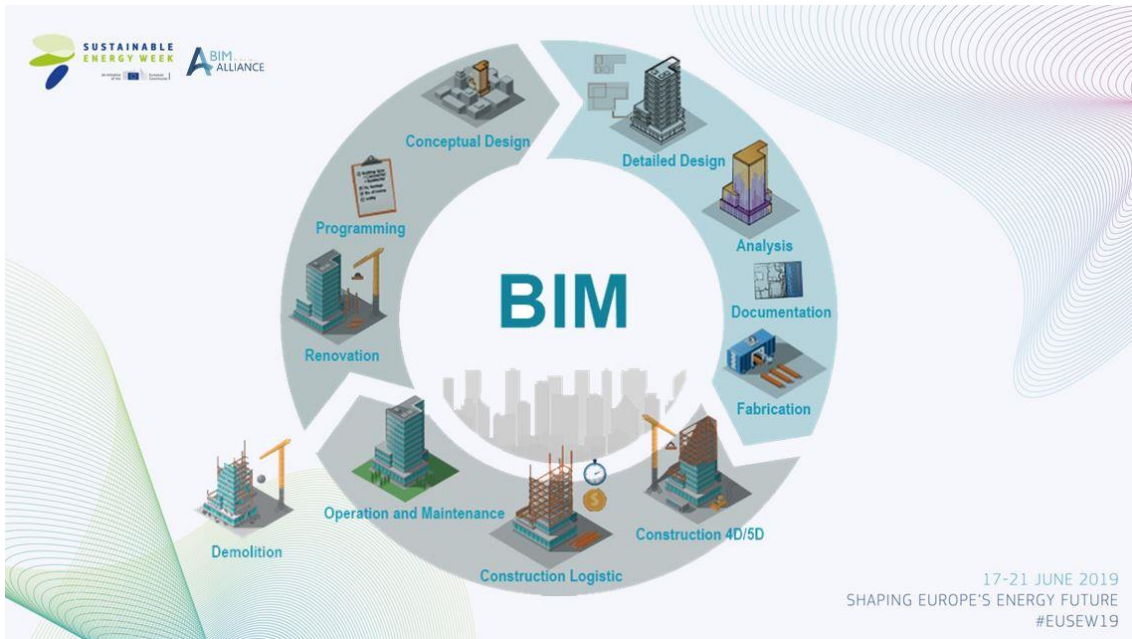
A presentation slide with a light blue background and abstract wave patterns. It includes logos for Sustainable Energy Week and BIM Alliance at the top left. The main title is "Role of BIM in Energy Roadmap 2050". Below it is a bulleted list of points. At the bottom right, it says "17-21 JUNE 2019 SHAPING EUROPE'S ENERGY FUTURE #EUSEW19".

Role of BIM in Energy Roadmap 2050

- **The EU Energy Roadmap 2050 puts rigorous demands and ambitious targets for the building sector; the EC's statements:**
 - Decarbonisation is feasible and affordable;
 - Energy savings throughout the system are crucial and responsibility for all;
 - Mobilising investments in effective retrofitting incentives;
 - Engaging and uniting wide community of professionals, policy makers, citizens, in common actions.
- **BIM is the most effective supportive technology for: sustainable energy, reducing carbon footprint and increase of energy efficiency in building sector.**
- **BIM enables application of system thinking approach in two aspects:**
 1. **Inclusion of all stakeholders (designers, construction contractors, facility managers, policy makers) in united actions to achieve and maintain energy efficiency of buildings throughout their life cycle;**
 2. **Optimization of overall energy efficiency of a building, in terms of: a) a building life cycle, b) all parts of design, c) all factors that influence energy efficiency, with particular focus on maintenance.**

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What can we do now?

- There is a need to unite construction techniques, policy formulation and policy implementation into a balanced and coherent system towards sustainability of the building sector.
- A unified program for qualifications for sustainable energy construction skills needs to be developed in order to enhance wider market recognition, more intensive demand and more stimulating support provided by policy and regulatory framework, for construction sector workforce skilled and qualified to execute works connected to achievement of sustainable energy performance of buildings.

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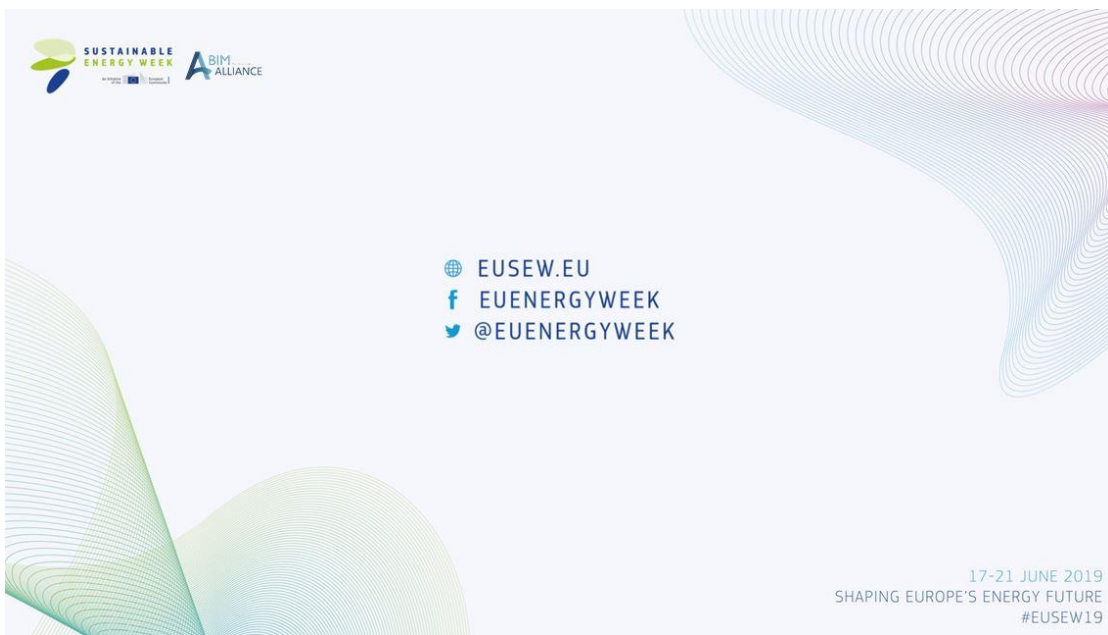


A presentation slide with a light blue background and abstract wave patterns. It features logos for Sustainable Energy Week and BIM Alliance at the top left. The main title is 'What needs to be done in the future?' in blue. Below it are three bullet points in green. At the bottom right, it says '17-21 JUNE 2019 SHAPING EUROPE'S ENERGY FUTURE #EUSEW19'.

What needs to be done in the future?

- BIM is a modern digital technology that supports sustainability trends in construction sector, particularly the increasing requirements for energy efficiency competences and applicable skills.
- Therefore, solving the problem of development of skills for sustainable energy in the building sector, and stimulating demand for sustainable construction and energy skilled workforce, is closely connected to upgrading of BIM skills of construction professionals.
- All aspects should be included in putting digital construction and EE skills in EU policy makers' agenda: Rethinking building markets, Regulatory framework arrangement, Driving changes at international level.

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A presentation slide with a light blue background and abstract wave patterns. It features logos for Sustainable Energy Week and BIM Alliance at the top left. In the center, there are social media icons and handles for EUSEW.EU, EUENERGYWEEK, and @EUENERGYWEEK. At the bottom right, it says '17-21 JUNE 2019 SHAPING EUROPE'S ENERGY FUTURE #EUSEW19'.

EUSEW.EU
EUENERGYWEEK
@EUENERGYWEEK

17-21 JUNE 2019
SHAPING EUROPE'S ENERGY FUTURE
#EUSEW19



3.3 Photos





4. Events Exploitation

In the preparation of this second event a document was produced with the contribution of the coordinators of the 4 projects.

The following document is the output of the BIM Alliance constituted by the four projects:

4.1 BIM EASME Projects

The Alliance of BIMcert, BIMplement, Net-UBIEP and BIMEET

BIMalliance

*Minimising the carbon footprint of energy use in construction –
When the whole is greater than the sum of its parts!*

4.2 Focus of Collaboration work

4.2.1 Focus of work

1. Energy targets, energy savings – Energy week presentation
2. Dissemination and communication
3. Accreditation and certification - utilise databases
4. Exploitation
5. Future Collaborative opportunities



1. Energy targets, energy savings : To determine 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, organization 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.
5. Future Collaborative opportunities
 - Developing additional modules for skills delivery.
 - Developing BIM expertise in countries where deployment is low – working with public authorities to develop national BIM development plans
 - Developing an EU BIM Centre of Excellence – virtual centre?

4.2.2 Future collaborative opportunities

Opportunity and need to develop competencies to existing profiles, in public administration in particular; for instance, Energy Auditors and Construction Inspectors, should be upskilled in using BIM models to issue construction and commissioning permissions for buildings.

1. Energy targets, energy savings : To determine 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, organization 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
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.

4.3 Project Summaries

4.3.1 BIMcert

Development of BIM training and qualification scheme for all levels of the construction sector, specifically "blue collar." BIMcert is a European wide project, funded by Horizon 2020, aimed at providing a training and qualification scheme for the skills required to support the implementation of BIM across the construction supply chain.

The Construction Industry, including its supply chain, is a significant contributor to the European economy. However, the Built environment is recognised as one of the largest consumers of natural resources, producers of carbon emissions and source of energy wastage. To improve the sustainability of the Built Environment and energy efficiency, a more coordinated approach to enhance collaboration is required across the industry. Building Information Modelling (BIM) provides a collaborative design, build and manage processes that offers the opportunity for improved efficiencies for the Construction Industry in energy, materials and time. BIM can reduce waste, inefficiencies in the supply chain, improve coordination and management, while incorporating better, more suitable and more sustainable design choices and decision making.

This project will:

- Enable collaborative working to improve design, development and delivery of both new build and renovation construction projects, whilst supporting energy efficient near zero buildings (embedded energy)
- Achieve efficient and effective ongoing management of the building in terms of energy and fabric (operational energy).
- Utilise Building Information Modelling (BIM), and virtual construction as the enabling methodology and tool to achieve sustainable energy efficient construction

BIMCert approach

BIMcert is a project based upon 3 steps, aimed at providing a large scale training & qualification scheme providing the requisite skills for the entire construction supply chain to:

1. **Enable** collaborative working to improve access to and the transition from design to development and delivery of both new build and renovation to achieve energy efficient near zero buildings (**embedded energy**)
2. **Achieve** efficient and effective ongoing management of the building in terms of energy and fabric (**operational energy**)
3. **Utilise** Building Information Modelling (virtual construction) as the enabling methodology and tool (**sustainable energy**)

Opportunities for collaboration

The deliverables BIMcert is ready to share are:

- Pilot testing materials, learning units:
- Reports on surveyed industry needs (WP2 Reports Stage 1,2, and 3)
- BIMcert Strategy Compass

4.3.2 BIMplement

BIMplement offers the trainers and the learners a range of tools that fit the objective of developing a fully qualified and equipped workforce, capable to implement, execute and perform all the necessary labour actions. Main aim is to achieve an improved quality for NZEB construction

and renovation by setting up a large scale, training, CPD and qualification schemes, addressing the entire process phases in a cross-crafts and cross level multidisciplinary approach, strengthened with hands-on and BIM-enhanced workplace learning tools by following objectives:

1. To improve the overall quality of renovations and new constructions, based on a BIM-enabled workplace learning, addressing the entire process phases in a cross-crafts multidisciplinary approach
2. To create a new generation of professionals and craftsmen, equipped and enabled by BIM skills, to enhance the overall quality of construction and renovation across the entire process
3. To foster interactions between different trades and professions enabled by a flexible qualification, certification and accreditation methodology for implementing BIM as a workplace learning environment
4. To sustain the qualification and training schemes a replication and exploitation strategy will be developed and validated

Opportunities for collaboration

The deliverables BIMplement is ready to share are:

- D2.1: Methodology for a BIM enhanced Qualification Framework FINAL
- D2.2: Five national results of usability testing
- D2.3: Adjusted methodology for a BIM-enhanced Qualification Framework and instruction guide
- D3.4: Selected tool and learning methods implemented in the five national frameworks
- D3.5: Overview of possibilities to connect tools and learning methods to the BIM
- D4.1: List of criteria of the selected territories
- D4.2: Training content and list of tools for BIMplement coach
- D4.3: Methodology guide and tools for awareness campaign
- D4.5: Tools and learning methods and qualification schemes for BIM work place trainers
- D6.1: Dissemination and Communication Plan
- D6.2: BIMplement corporate identity
- D6.3: Production and maintenance of website and subsites
- D6.4: Brochure

4.3.3 Net-UBIEP

Net-UBIEP aims at increasing energy performance of buildings by wide spreading and strengthening the use of BIM, during the life cycle of the building. The use of BIM from the design phase through the construction, management, maintenance, demolish is investigated to identify the competences needed, in each phase, in order to decrease the environmental impact of the building during its life cycle.

To achieve this objective it is important that all the professionals and technicians who work in the building supply chain are aware of their role into collecting, managing and storing all the information required during construction, management, maintenance and decommissioning of a building.

Each technician, public officer, designer, constructor, facility manager, supplier, etc, will have to understand which information they manage could be used by any other individual during the life time of a building that goes far behind the duration of the computer who has generated the information. Therefore it is important that all the different targets use the same language, the same dictionary and the same data structure. Net-UBIEP promote the use of “openBIM”.

BIM Qualification Models proposed by the net-UBIEP partners tackle the problem of energy competences gap in the existing buildings sector as a whole.

The information materials produced for the four targets may be used for developing the module for the training necessary to have a qualification. At the same time the learning outcome, may be used as base for the qualification schema to be agreed among all the partners

Net-UBIEP Project aims at increasing energy performance of buildings by wide spreading and strengthening the use of BIM, during the life cycle of the building. The use of BIM will allow simulation of building energy performance using different materials and components, both to be used in the building design and/or in building design refurbishment.

To reach this aim Net-UBIEP Project has:

1. Identify professional profiles involved in NZEB building sector with specific BIM related competences . Four target groups have been selected according to the role they play in building processes, namely Public Administrations, Professionals (Engineers / Architects), Technicians (Installers / Maintainers), Tenants/Owners/Building Administrator.
2. Elaborated a three dimensional matrix for the identification of competences required to each of above target group while working in buildings applying BIM to ensure the highest energy performance. The matrix indicates competences needed in each construction phase: strategic definition, preparation and brief, concept design, development design, technical design, handover and close out, in use refurbishment and eventual demolish.
3. Develop BIM Qualification Models composed by a BIM Training Scheme and a BIM Qualification and Certification Scheme
4. Standardize at European level the schemes for BIM Qualification Models

Opportunities for collaboration

The deliverables net-UBIEP is ready to share are:

- [Report on existing BIM professional profiles](#)
- [Report on Roles of Target Groups in the Building Life Cycle and their role in NZEB implementation](#)
- [Maps on NZEB and BIM competences for target groups](#)
- [First report on CEN existing standards](#)
- [Report on CEN existing standards and standardization landscape](#)
- [Draft for the standardization of training scheme](#)
- [Information Materials for Public Administration](#)
- [Information materials for technicians](#)
- [Information materials for owners](#)
- [Information materials for professionals](#)

4.3.4 BIMEET

The European Construction sector is facing unprecedented challenges to achieve ambitious energy efficiency objectives, in a context dominated by reduced investments, search for cost effectiveness and high productivity. Moreover the industry is experiencing its digital revolution, with Building Information Modeling (BIM) approach gaining significant interest across Europe. Member states implement very different approaches through regulations and maturity targets, which always face the traditional low-tech and informal practices of construction businesses (a sector dominated by SMEs).

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. This project is built around a strong consortium relying on educational and research & technology expertise, robust experience of accrediting bodies, training supply chain and a wide engagement of industry led best practice.

Through its actions the project will (a) pave the way to a fundamental step change in delivering systematic, measurable and effective energy efficient buildings through BIM training; (b) promote a well-trained world leading generation of decision makers, practitioners, and blue collars; (c) establish a world-leading platform for training. Its principal outputs are 1) a skills matrix related to BIM and energy efficiency, harmonized thanks to EQF standard, and 2) a training platform contributing to disseminate the results.

Opportunities for collaboration

The deliverables BIMEET is ready to share are:

- BIM for energy efficiency requirements capture
- BIM for Energy Efficiency required roles and skills
- Definition of responsibilities and roles for BIM & Energy Efficiency
- Definition of learning outcomes in the European level
- BIMEET Training Repository platform
- BIMEET training platform for the design and recommendation of BIM/EE courses

BIMEET platform aims to comprise a representative (if not exhaustive) set of training modules across EU which focus on BIM integrated with EE topics. Therefore, we would be very happy to liaise with databases implemented in the other projects in order to integrate such initiatives in BIMEET's repository thus demonstrating the EU-wide potential in terms of training available.

BIMEET strongly focus on the calculation of Energy Performance Certificates from BIM, and will implement it for our 5 partners countries LU, FR, UK, GR, FI. The team is very open to share the methodology with other interested countries. Specific training (including online) is expected.

4.4 General comments

The use of BIM to establish minimum environmental criteria for new buildings and deep renovation of existing building could be also investigated. Green procurement foresees the use of green products. The use of BIM to investigate new environmentally friendly materials or to use materials produced locally (Km 0) for the future built environment could be investigated as BIM is more and more integrated with GIS and IoT.

We could prepare a survey with google drive to start sharing the net-UBIEP matrix of competences among the partners of all the four projects to agree on the main competences for each target. We should do that before the Dusseldorf meeting in order to be ready to propose a solution that suites all.

I also have a personal view that I would like to share: in many cases we are dealing with new competences and not with new profiles. This means that, for instance, the officers in the public administrations need to learn how to manage digital projects and to establish what this means when evaluating a refurbishment project in BIM. Therefore the market more than requiring new professional profiles requires new competences for existing profiles.

The competences could be certified in different way depending if the person is in charge of the development of the BIM model or in checking the BIM model against predetermined rules/values.



The use of bSI qualification system would imply the agreement on the followings items:

- a) Develop transversal learning outcomes valid for any target starting with the 3D matrix developed by net-UBIEP and others (BIMEET)
- b) Develop, if required, specific learning outcome for the different targets
- c) Develop the training materials for each target and for each phase of the building lifecycle starting with the information material produced by net-UBIEP and/or others
- d) Develop the qualification schemes based on the learning outcomes identified in the points a and b.
- e) Ask bSI the procedures to add this additional module to the existing bSI individual qualification

4.5 Future Collaborative Plan and Timescale

Work in progress.

