



DELIVERABLE: D26 - D4.6

**Second Seminar with Public Administration, Owners,
Tenants and Building Administrators**

**WP Leader: University of Zagreb, Faculty of Civil Engineering
Authors: University of Zagreb, Faculty of Civil Engineering**

Network for Using BIM to Increase the Energy Performance

**Grant Agreement Number: 754016
Net-UBIEP H2020**

April 2020

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A. Deliverable Details

Document Reference #:	D26 - D4.6
Title:	Second Seminar with Public Administration, Owners, Tenants and Building Administrators
Version Number:	5
Preparation Date:	
Delivery Date:	
Author(s):	University of Zagreb, Faculty of Civil Engineering
Contributors:	All the partners
Work Package	WP 4
Type of deliverable	Other
Format	Report
Dissemination Level:	Public

B. Short description

This deliverable is informative to demonstrate the activities performed in each partner's country. It shows the partner's approach to classroom courses (training methodology) and validation results per partner country for this respective course. Statistical data shown for each partner's country could be useful to understand the need of this target. The goal of this report is to provide an overview of the **Second Seminar with Public Administration, Owners, Tenants and Building Administrators**.

The main objectives that were pursued through seminars are:

1. Introduce Public Administration and Owners/Tenants/Building Administrator on the importance of having reliable information when designing and managing a building.
2. Help Public Administration and Owners/Tenants/Building Administrator to define the requirements of BIM model.
3. Develop a strategy for implementing BIM with the local stakeholders.

Validation of BIM Qualification Models and training materials was implemented in each partner country by the partners with more experience in training activities such as Universities and Training Centres. Mainly one partner per country organised and performed training, and these were as follows: ENEA (IT), FLC (ES), TUT (EE), FCE (HR), Dig.Con. (LT), ISSO (NL), ViaEU (SK).

Second Seminar with Public Administration, Owners, Tenants and Building Administrators were conducted in national languages Croatian, Dutch, Estonian, Italian, Latvian, Slovak, Spanish. Validation of training material and assessment for **Public Administration, Owners, Tenants and Building Administrators** on how to use BIM for the energy performance was conducted during classroom courses using questionnaires.

Questionnaire tailored for **training participants** were prepared (*D27-D4.7 Survey and or interview among all different Targets*) in order to validate defined competence lists for **Public Administration, Owners, Tenants and Building Administrators** as well as trainee satisfaction with course and instructor (trainer) effectiveness. **Training participants** were asked to judge on their competences **before the training as well as after the training**.

Good quality practices of education are based on these three pillars:

- clear definitions of learning outcomes,
- design and structure of the programme course,
- evaluation and monitoring of the learning outcomes

Two types of questionnaires were used to cover these three pillars of good education and to simultaneously perform a self-assessment of competences gained by the participants during the course.

The purpose of the "**Pre training questionnaire**" was to assess initial level of knowledge, experience and current practices regarding BIM. "**Post training questionnaire**" contains the same or similar questions as a "Pre training questionnaire" which serve to determine in simple ways the progress training participants have made during the courses and efficiency of the courses. Questions about the completeness or redundancy of the foreseen schemes and training courses were also included in the "Post training questionnaires". The main goal of this report is to provide information for future activities, based on the experience during the Net-UBIEP project. Therefore, this report will present the overview of the conducted classroom courses and will set guidelines for the learning outcomes (also project deliverable *D4.8 Review of the three dimensional matrix*), the evaluation of the courses, and finally will also enable experience exchange between the different training institutions.

The report does not contain sensitive information and the collected data is being treated confidentially following the rules of General Data Protection Regulation 2016/679.

1. Learning outcomes and training programme

Both learning outcomes and training programme were explored and defined in details in previous project activities. All the partners followed the learning outcomes defined in deliverables *D14 - D3.1 Three-dimensional Matrix* and *D15 - D3.2 Requirement for learning outcomes* as well as the training materials developed as deliverables *D16 - D3.3 Multimedia Handbook for Public Administration on BIM* and *D17 - D3.4 Multimedia Handbook for Owners, Tenants and Building Administrators*.

Therefore, in this chapter a summary of the main information is presented, as detailed information can be found in the respective Deliverables.

The training materials developed in WP3 were in line with defined learning outcomes, while the courses and seminars were used to transfer the body of knowledge (contained in WP3 training materials) to the trainees. The main objectives of the courses and seminars were to: 1) introduce Professionals, Public administration, Owners/Tenants/Building Administrator and Technicians with the importance of having reliable information when designing and managing a building with special focus to energy efficiency; 2) Help Professionals, Public administration and Owners/Tenants/Building Administrator to define the requirements of BIM model for energy efficiency purposes; 3) Develop a strategy for implementing BIM and energy efficiency with the local stakeholders; 4) to demonstrate the activities performed in each partner's country (show the partner's approach to classroom courses - training methodology) and validate the training materials and the trainings per partner country and for the respective course.

Statistical data shown for each partner's country and the respective group trained was useful to understand the need of each target. Due to the different BIM maturity levels (different levels of maturity with regards to the ability of the construction supply chain to operate and exchange information) in different partner countries and specific competence level of the group to be trained, partners opted for the specific course durations.

The classroom courses followed somewhat different structure in every partner country but as mentioned before have always included all the learning outcomes and training content defined in respective deliverables. Partners who are highly experienced trainers and experts in both BIM and energy efficiency (working at Universities and training institutions) concluded that the same training methodology would not have the same effect in all partner countries (different maturity levels of BIM implementation as well as energy efficiency implementation). Additionally, partners assessed their target audiences for the specific training sessions and thus tailored the training duration to the specific group. Thus in countries with higher BIM maturity level and for groups like professionals who have been working with BIM previously, in depth, hands on, practical training was organized (around the same training material) with more practical explanations was organized. On the other hand, in countries with lower BIM maturity level and for group like owners who don't have any competences on BIM and energy efficiency, more theoretical training sessions were organizing, focusing on basic explanations and showing practical examples and benefits to trainees (but again tailored around the training materials developed in WP3).

Additionally, each respective partner developed their own training aids (i.e. power point presentations, etc.) which then followed their course structure. In general, partners analysed advantages and deficiencies of different approach of others and their own experiences gained through First Seminar with Public Administration, Owners, Tenants and Building Administrators. The result was slightly evolved approach of partners for the Second Seminar with Public Administration, Owners, Tenants and Building Administrators. Partners used different systems for validation of training courses, but all using the questionnaires developed for this purpose in *D27-D4.7 Survey and or interview among all different Targets*.

Partners agreed that relative validation to previous competences was the only feasible way to perform the training material validation. Absolute validation of BIM and energy efficiency competences was not possible in this circumstances because of the different starting points for training participants in partner countries and specific groups. In the opinion of the project partners, each country and group has different starting points in both BIM and energy efficiency and also specific requirements in both topics. Thus partners organized trainings which all followed the developed training materials and had just a slightly different training methodology. Training materials developed within the WP3 aimed to reach the defined learning outcomes.

Validation questionnaires for training participants were prepared in order to validate defined competence lists for all the different targets groups as well as trainee satisfaction with course and instructor (trainer) effectiveness. Training participants, professionals and workers belonging to the different target groups were asked to judge on their competences before the training as well as after the training. The purpose of the “Pre training questionnaire” was to assess initial level of knowledge, experience and current practices regarding BIM. “Post training questionnaire” contains the same or similar questions as a “Pre training questionnaire” which serve to determine in simple ways the progress training participants have made during the courses and efficiency of the courses. Questions about the completeness or redundancy of the foreseen schemes and training courses were also included in the “Post training questionnaires”.

Some countries used GoogleForms, while other partners used free web based voting solution (VoxVote) for interactive presentations and real time feedback from the course participants, BIMSinc (CDE) platform was also used to evaluate training, while the fourth option was to use hardcopy questionnaires. The participants filled questionnaires anonymously during classroom courses in order to get their honest opinion and validation.

Table 1 Overview of Second Seminar with Public Administration, Owners, Tenants and Building Administrators duration training methodology and number of participants

Partners country	Course date	Classroom course duration	Theoretical (T) / Practical (P)	No. of participants	Voting system
Croatia	15 January 2019	8 hours	T	14	-
Estonia	23 October 2018 5&15 November 2018	8 hours	T	21+13+40=74	-
Italy	18 July 2019	4 hours	T	38	GoogleForms
Lithuania	4 April 2019	4 hours	T	38	-
Slovakia	25 April 2019	6 hours	T	13	GoogleForms
Spain	17 October 2018	6 hours	T	24	-
The Netherlands	6 November 2019	3 hours	T	10	-
			Total No. of participants	211	

2. Conducted courses

2.1 Croatia

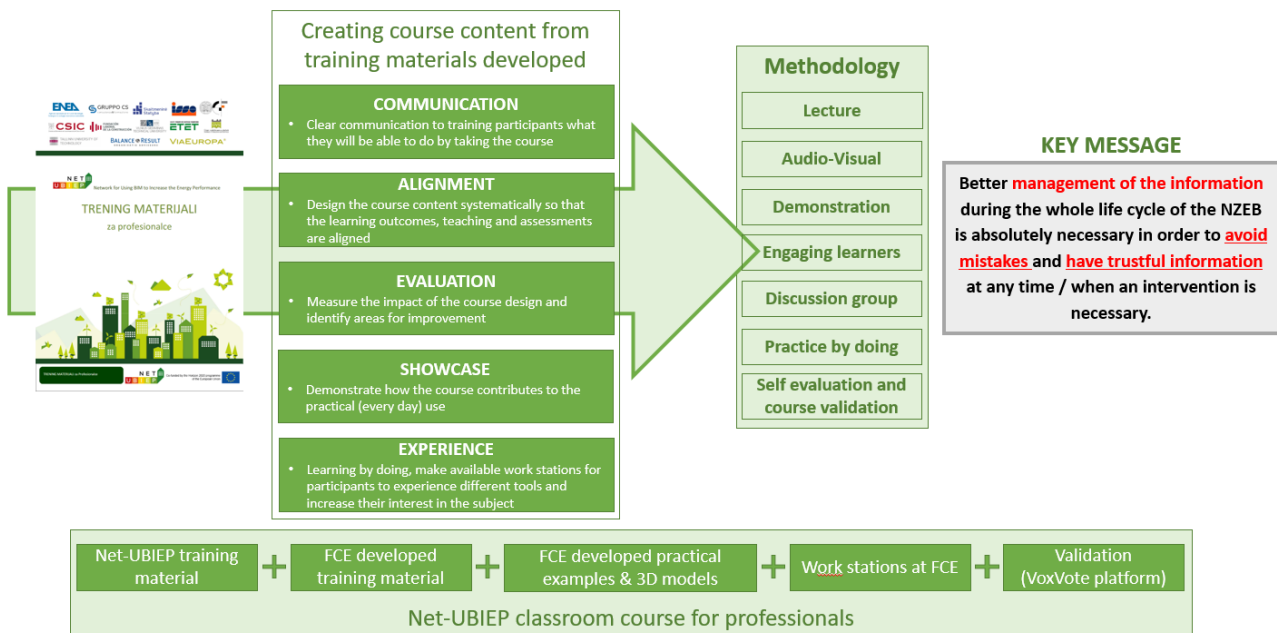
2.1.1 Course description and results

Second Seminar with Public Administration, Owners, Tenants and Building Administrators was organized on **January 15th 2019** in Zagreb, Croatia. The course was held specifically for the Croatian Ministry of Construction and Physical Planning.

The course programme consisted of 8 academic hours of theoretical lectures with application examples (case studies) but with no practical tasks.

A group of **14 participants** which work in public administration (in the Ministry of Construction and Physical Planning) had undertaken the classroom course in Croatia within the framework of the Net-UBIEP project.

The overview of the content development and methodological basis of the classroom courses is shown in the figure below.



Several photos from the Second Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by the **FCE** can be found below.



Pre- and Post-training questionnaires were translated to Croatian language. The participants of the Second Seminar with Public Administration, Owners, Tenants and Building Administrators sadly did not fill any of the questionnaires prepared for them as this was the prerequisite of the Ministry of Construction and Physical Planning. Since it was deemed by the FCE that it is of higher value for the Net-UBIEP project and BIM implementation in Croatia in general to conduct the training course for the employers of the Ministry, we agreed not to pursue the questionnaires for this specific course.

For the reason of lacking post-training questionnaire results, validation of this specific classroom course cannot be completed.

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Analysis of the training results, problems and solutions together with lessons learned during the courses are as follows:

- A model of trainings for BIM has been developed, combining theoretical part with application examples (case studies) and without practical session using BIM tools.
- The duration of trainings – 8 hours. Participants of the trainings have confirmed that duration is appropriate but approximately the same number of participants asked for shorter training duration.

Comments and suggestions of the training participants could be summarised in the following few lines:

- The classroom course participants seek for more practical lessons and tasks,
- Since the group of trainees was consistent of Public administrators working in the Ministry of Construction and Physical Planning the discussion was focused around the possibility of using BIM tools for compliance checking of NZEB designs
- Training participants declared they would like to have more examples of good practice focused on e-permits and model checking.
- The ministry representatives trained liked the Net-UBIEP training materials and stated their interest for more hands on training in future
- The lack of digital competences of persons in the regional and local offices of public administration would hamper the implementation of checking NZEM compliance using BIM tools
- Widescale competence increase of all project participants crucial before public bodies prescribe the obligation of using BIM on all projects, otherwise obligatory BIM it would be interpreted as favouring several front running companies who have already implemented BIM
- Definition of BIM standards for Croatia crucial in the next steps.

The comments from the course participants were then considered and taken into account for the following courses for professionals in Croatia and the experience from Croatia was shared with other project partners in order to ensure a better system. The courses for professionals became more practical courses allowing participants to have hands on training in using BIM for energy efficiency purposes. The e-learning course was developed as an asynchronous and totally open platform (for recorded lectures not even a free login is needed) which can be accessed by a large number of people interested (technicians or other target groups) in BIM and energy efficiency at any time and at their own pace (to enable also people with lower digital competences to follow the course). These conclusions also urged FCE to create e-learning which also features recorded lectures on practical use of BIM tools for energy efficiency purposes.

2.1.2 Agenda

NET-UBIEP | Network for Use BIM to
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BIM za djelatnike javne uprave i vlasnike (upravitelje zgradama)

Besplatna radionica

Održavanje: 15.01.2019.

Mjesto održavanja: Ministarstvo graditeljstva i prostornog uređenja, Republike Austrije 14, 10000 Zagreb, Velika dvorana

Kontakt osoba:

- Mergim Gaši, Građevinski fakultet Zagreb,
- Tel: +385 1 4639 121
- mgasi@grad.hr

Prijavni obrazac: <http://www.net-ubiep.eu/hr/registracija-2/>

Sat	Tema	Predavač
9.00 – 9.30	Uvodno o projektu Net-UBIEP Zašto korištenje BIM-a može poboljšati energetske učinkovitosti u zgradarstvu	Ivana Burcar Dunović
9.30 – 9.45	Diskusija – pre-training upitnici	Ivana Burcar Dunović
09.45 – 10.30	Uvodni modul – osnovna BIM znanja i vještine <ul style="list-style-type: none"> Uvod: što je BIM? BIM Rječnik – osnovni pojmovi Prednosti i cijena korištenja BIM-a u različite svrhe Povrat na investiciju (ROI) Standardi koji podupiru BIM proces Diskusija 	Ivana Burcar Dunović
10.30 – 10.45	Pauza	
10.45 – 11.30	Modul 1 – Difuzija BIM-a <ul style="list-style-type: none"> Otvoreni BIM alati i standardni format BIM uloge i odgovornosti Dimenzije BIM-a <ul style="list-style-type: none"> 4D, 5D, 6D, 7D Diskusija 	Ivana Burcar Dunović

This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement No.754016



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11.30 – 12.15	Modul 2 – Primjena BIM-a za upravljanje podacima <ul style="list-style-type: none"> Načela upravljanja podacima u zajedničkom okruženju podataka - CDE (Okolina za razmjenu podataka) Negrafičke informacije u BIM modelu zgrade Plan održavanja zgrade i ugovaranje energetske usluge BIM Model izvedenog stanja (eng. "as built") za poboljšanje energetske učinkovitosti zgrada Diskusija 	Mergim Gaši
12.15 – 13.00	Ručak	
13.00 – 13.45	Modul 3 – Primjena BIM-a za upravljanje nabavom <ul style="list-style-type: none"> BIM i ugovaranje BIM u javnoj nabavi BEP (BIM Plan Izvršenja) Indeks zrelosti informacija Suradnja među sudionicima u gradnji Diskusija 	Ivana Burcar Dunović
13.45 – 14.45	Modul 4 – Korištenje BIM tehnologije Modul 5 – Analiza BIM modela <ul style="list-style-type: none"> Održivi građevinski sektor <ul style="list-style-type: none"> Energetska učinkovitost Zelena gradnja Automatizirana kontrola modela <ul style="list-style-type: none"> Procjena sukladnosti s propisima Otkrivanje kolizija BIM za upravljanje kvalitetom BIM za primopredaju i održavanje (as built model) Diskusija 	Marina Bagarić
14.45 – 15.00	Pauza	
15.00 – 16.00	Demonstracija rada s OpenBIM alatima: <ul style="list-style-type: none"> Rad na BIM modelima, kontrola preklapanja; BIM model tijekom korištenja zgrade (energetska učinkovitost, održavanje zgrade) Pregled i odobrenje izmjena modela od strane različitih suradnika Diskusija 	Sanjin Gumbarević
16.00 – 16.15	Diskusija – post-training upitnici - Validacija razvijenih trening materijala	Ivana Burcar Dunović

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2.2 Estonia

2.2.1 Course description and results

Estonian partners decided to organise training courses specifically aiming at different target groups, thus they organised four different events where for Public Administration they intended two seminars (**Public Administration Seminar held on 22.10.2018 and Public Administration Handbooks held on 15.03.2019**) with **43 and 52 participants respectively**. Two events which targeted Owners, Tenants and Building Administrators were held on **23.10.2018 (Tenants Seminar)** and **5.11.2018 and 15.11.2018 (Tenants Handbooks)** with **21, 13 and 40 participants respectively**.

In this report, seminars intended for Owners, Tenants and Building Administrators will be analysed. Tenants Seminar was organised on **October 23rd, 2018** (8 hours) while Tenants Handbooks events were held on **November 5th and 15th 2018** (8 hours) in Tallinn, Estonia.

The course programme consisted of 8 academic hours of theoretical lectures with application examples (case studies) but with no practical work.

The duration of 8 hours of the classroom course focused on the following topics:

- Introduction to energy efficiency
- Designed and measured energy use
- Introduction to BIM

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under grant agreement No.754016



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- BIM Strategy
- BIM and energy efficiency in design and construction procurement
- Applying BIM models for building permit and permit
- How do I check the power efficiency level based on the BIM model and energy label information?

Several images from the Tenants Handbooks course conducted by the **TUT** can be found here (5.11.2018 above, 15.11.2018 below).



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Pre- and Post-training questionnaires were translated to Estonian language but only pre-training questionnaire was filled by training participants. For the reason of lacking post-training questionnaire results validation of this specific classroom course cannot be completed.

Estonian partners did not conduct pre- and post-training questionnaires in all courses. Based on the early feedback from course participants, we recognized that participants were not willing to respond twice for the long questionnaires. Thus, Estonian partners decided to collect the information on participant's BIM related knowledge and competencies at the end of every session (of the three sessions organised) orally.

Analysis of the training results, problems and solutions together with lessons learned during the courses are as follows:

- Participants feel BIM training would be beneficial to their colleagues and that they would be willing to disseminate the BIM training courses among their contacts
- The majority of course participants agree to the statements that the course objectives were clear with organized and easy to follow content. They mainly agree that course materials were clear and well written and contain sufficient number of images and videos explaining the course content. The topics covered were deemed relevant and will be useful in their future work as they received new information on both BIM and energy efficiency.

- General opinion is that training materials are adequate, while some participants would like to have more practical examples related to best experiences and existing issues with BIM
- Regarding the duration of training, training participants were mainly satisfied with 8-hour training course

The feedback was then used to improve classroom trainings and e-learning courses for other stakeholder groups which were focused on hands on practical training in case of Professionals.

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2.2.2 Agenda

The agenda for Tenants Seminar held on 23.10.2018.



Ensuring the energy performance of buildings by
using BIM- training for local governments, subscribers
and owners, property custodians and managers

Date: 23. 10 2018, 10:00 - 17:30

Location: Tallinn University of Technology, Ehitajate tee 5, U05 409

Time schedule

Time	Lecturer	Title
10:00-10:45	Targo Kalamees	Introduction to energy performance of buildings <ul style="list-style-type: none"> • H / A, ETA, KEK • What does the future hold? • Energy efficiency assessment at the stage of applying for a building permit and a permit for use • Energy efficiency planning in building design • Impact of construction design and construction quality on energy efficiency
10:45-11:30	Anti Hamburg	Designed and measured energy consumption <ul style="list-style-type: none"> • How to read the label? • New buildings • Renovation of buildings
11:30-11:45		Pause
11:45-13:15	Raido Puust	Introduction to BIM <ul style="list-style-type: none"> • Terms, principles, process description • BIM versus CAD • Different stages and details of the models • BIM versus traditional design
13:15-14:15		Lunch

14:15-15:45	Ergo Pikas	BIM Strategy: <ul style="list-style-type: none"> • Objectives and uses of the BIM design, • Implementation of BIM in the design and organization, • Principles of open BIM interoperability, • BIM standards and guidelines • BIM requirements and practice at different stages: <ul style="list-style-type: none"> o Pre-design activities (eg architectural competitions, initial sketches, description of needs, concept development, etc.) o Design, Construction, Supervision o Use, o Demolition o Examples of best / worst theory and best / worst practice
	Ergo Pikas Targo Kalamees	BIM and energy performance in design and construction procurement <ul style="list-style-type: none"> • Requirements for procurement modeling, final result • Requirements for competent persons (invitations) • Model inspection and delivery
15:45 – 16:00		Pause
16:00-16:45	Raido Puust	Application of BIM models in issuing building permits and permits for use: <ul style="list-style-type: none"> • Software, file formats, transfer of information from one BIM to another • Working with models, • Navigating models, • Reading model construction information and deriving new construction information from the model (areas, • Window area, area of fencing structures • Properties of building parts: thermal permeability, thicknesses of material layers, material properties
16:45-17:30	Anti Hamburg	How to check the order of magnitude of energy performance based on BIM model and energy label information? <ul style="list-style-type: none"> • Heat losses ~ ratio of heating energy consumption • Thermal permeability (thermally homogeneous, thermally homogeneous) • Renewable energy production (slope, orientation, shadows) • Transfer of information from BIM to energy efficiency software
17:30-17:40		Test

The agenda for the Tenants Handbooks held on 5.11.2018.



Eesti taasiseseisvumise 27. aastapäeva ja timmitud ehituse kontseptsiooni esitlemisest 25 aastat. Kui lugeda ühe inimpõlve kestuseks 25 aastat, siis kujundlikult on ehituses algamas uue generatsiooni aeg. Seetõttu on paras aeg teha tagasivaade sellele, milline oli ehitussektor taasiseseisvumise algusaegadel, milline on see käesoleval hetkel ja mida oodata järgmiselt 25. aastalt. Sajandivanusteks on saanud ka meie konverentside suursponsorid TTÜ ja TTK.

Erinevalt eelmistest aastatest oleme Kaasaegse Ehituse Meetodid X juubelaasta puhul konverentsi kestuseks plaaninud kaks päeva. Esimene päev on praktiline – sellele on kavandatud kolm teemat, mille käigus õpetatakse osalejatele praktilisi oskusi ja teadmisi timmitud ehituse, BIM ja jätkusuutlikkuse teemadel. Teine päev on tavapärast konverentsi vormis, kus arutleme ehitussektori arengute teemadel. Oleme kutsunud esinejaid kaasa mõtlema Eestist, UK-st, USA-st, Taanist ja Soomest. Kutsume ka teid kaasa mõtlema MTÜ ETET künnendal juubelikonverentsil. Peatse kohtumisenil!

Töötod

Version: 25.09.2018

Üldinformatsioon

Kuupäev ja aeg: 5. november 2018 kella 9:00-st 16:30-ni

Asukoht: TalTech

Päevakava

Aeg	Timmitud Ehitus	BIM	BIM ja energiatõhusus
9:00-10:30	Ergo Pikas: Timmitud projektijuhtimine	Bhargav Dave: Visilean rakendus ehitusjuhtimiseks	Raido Puust: BIM ja energiatõhusus
Paus 15 minutit			
10:45-12:15	Ergo Pikas: Timmitud projektijuhtimine	Bhargav Dave: Visilean rakendus ehitusjuhtimiseks	Raido Puust: BIM ja energiatõhusus
Lõuna 60 minutit			
13:15-14:45	Viimase plaanija süsteem	Arucad Süsteemid: Parameetiline BIM modelleerimine: Revit ja Dynamo	Raido Puust: BIM ja energiatõhusus
Paus 15 minutit			
15:00-16:30	Viimase plaanija süsteem	Arucad Süsteemid: Parameetiline BIM modelleerimine: Revit ja Dynamo	Raido Puust: BIM ja energiatõhusus

Osavõtutasu 60€

Tudengitele erandeid ei tehta
Kohtade arv on piiratud
Sisaldab tootlustamist

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The agenda for the Tenants Handbooks held on 15.11.2018.



TALTECHI ÕPPETUNNID ÜHISELAMU RENOVEERIMISEL LIGINULLENERGIA HOONEKS

Üldinformatsioon

Kuupäev ja aeg: 15. november 2018 kell 10:00 - 16:00

Asukoht: Tallinna Tehnikaülikool, renoveerimislahenduste showruum, Akadeemia tee 5A, ruum U05 409

Päevakava

Aeg	Koolitaja	Teema
10:00-11:00	Martin Thalfeldt	Hoonete kavandamine energiasimulatsioonide abil: Tänapäevase hoonete projekteerimisprotsessi lahutamatu osa on ka dünaamiliste energiasimulatsioonide koostamine ning nende tulemuste tõlgendamine. Martin Thalfeldt on olnud TalTechis selle valdkonna suurim eestvedaja ning koolitusel on ta valmis oma kogemusi ka teistega jagama.
11:00-12:00	Anti Hamburg	Projekteeritud ja mõõdetud energia kulu: Kas projekteeritud ning reaalselt mõõdetud energiakulud ühtivad? Anti Hamburg, kes on selle temaatikaga aastaid tegelenud, annab sellele küsimusele vastuse.
12:00-13:00	Alo Mikola	Ventilatsiooni renoveerimine korterimajades: Vanade hoonete puhul tähendab ventilatsioonisteede renoveerimine üldjuhul uue kaasega süsteemi ehitamist. TalTech hoonete sisekliima ja veetehnika programmi juht Alo Mikola annab koolitusel ülevaate oma nägemuse sellest protsessist.
13:15-14:15		Lõuna 1 tund
14:00-15:00	Alo Mikola ja Kalle Kuusk	Ekskursioon Akadeemia tee 2 ühiselamus, kus näidatakse liginullenergia tehnosüsteeme ja antakse ülevaade lokaalse taastuvenergia tootmisest. Lisaks räägitakse lahti TalTech Akadeemia tee 5a liginullenergia ühiselamu renoveerimise protsess ja selle teostumine.



K Date: 15. 11 2018, 10:00 - 16:00

Location: Tallinn University of Technology, Akadeemia tee 5A, U05 409

Time schedule

Time	Lecturer	Title
10:00-11:00	Martin Thalfeldt	Design of buildings using energy simulations & BIM
11:00-12:00	Anti Hamburg	Designed and measured energy consumption
12:00-13:00	Alo Mikola	Renovation of ventilation in apartment buildings:
13:15-14:15		Lõuna 1 tund
14:00-15:00	Alo Mikola ja Kalle Kuusk	Excursion in Akadeemia tee 5a dormitory



2.3 Italy

2.3.1 Course description and results

Second Seminar with Public Administration, Owners, Tenants and Building Administrators was organized on **July 18th 2019** in Messina, Italy.

The course programme consisted of 4 academic hours of theoretical lectures.

A group of **38 participants** in Messina which work in public administration, public officers, had undertaken the classroom course in Italy within the framework of the Net-UBIEP project.

The overview of lectures held at the 2nd classroom course is shown below.

- Building information modelling as a tool for the sustainability of our cities.
- The Data Sharing Environment (ACDat) for managing the information flow of the BIM process
- Application of BIM in energy performance and property management contracts to reduce consumption and produce energy from renewable sources integrated in the building.
- Focus on the training the public administration as foreseen by the ministerial decree with in order to adopting the BIM method for the management of public tenders.
- Good practices of using BIM in local municipalities.

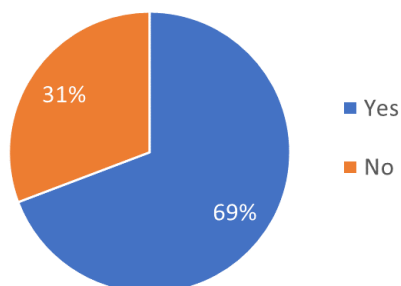
Several photos from the Second Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by **ENEA** can be found below.



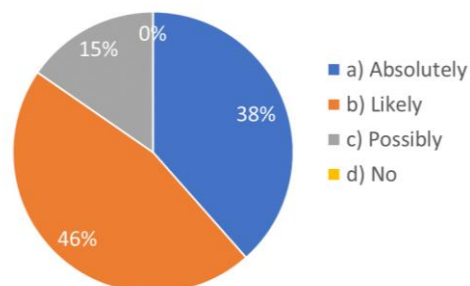
Pre- and Post-training questionnaires were translated to Italian language and filled by training participants, using the google form app created in order to facilitate the filling.

Few general conclusions of the classroom course validation from the participants in Italy is given below, while the entire questionnaire analysis is performed in deliverable *D27-D4.7 Survey and or interview among all different Targets*. Due to the fact that validation was performed in partners' native language, the analysis below has both English questions and the same questions in native language.

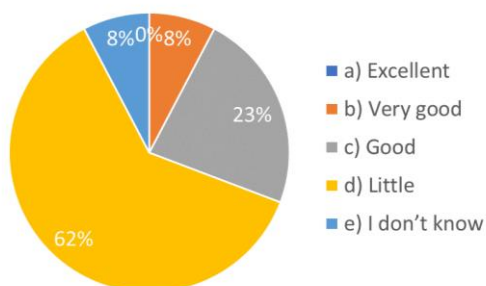
1. Do You or Your company/organization currently use BIM, or is it intending to use BIM in the near future?



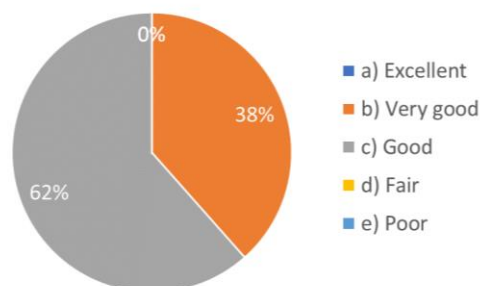
15. Would BIM certification, support or training, benefit Your colleagues?



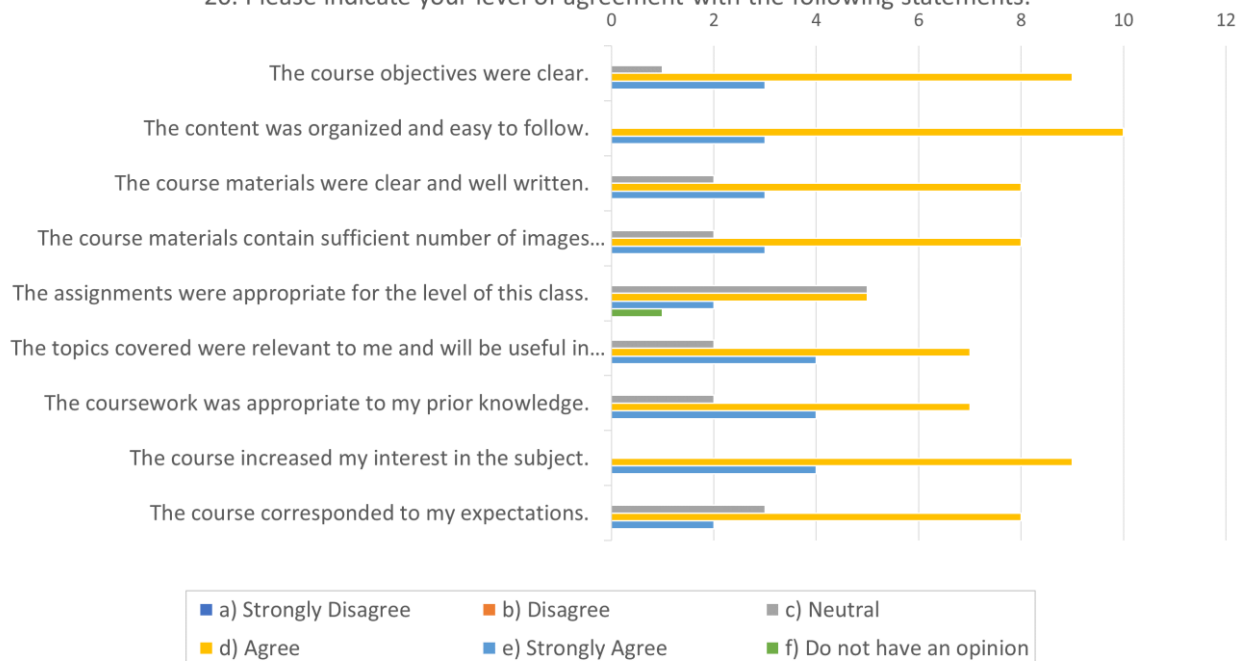
18. In retrospective, how do You rate Your competences (knowledge, skills, responsibility and autonomy) before this BIM course?



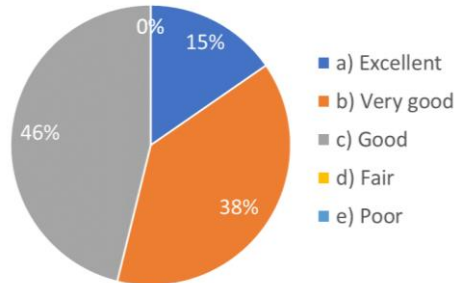
19. What overall rating would You give the course?



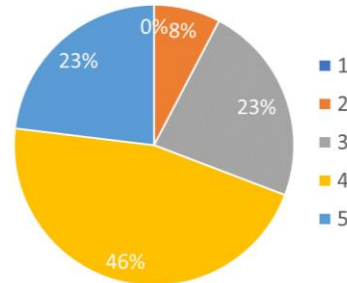
20. Please indicate your level of agreement with the following statements.



21. What overall rating would you give the trainer(s)?

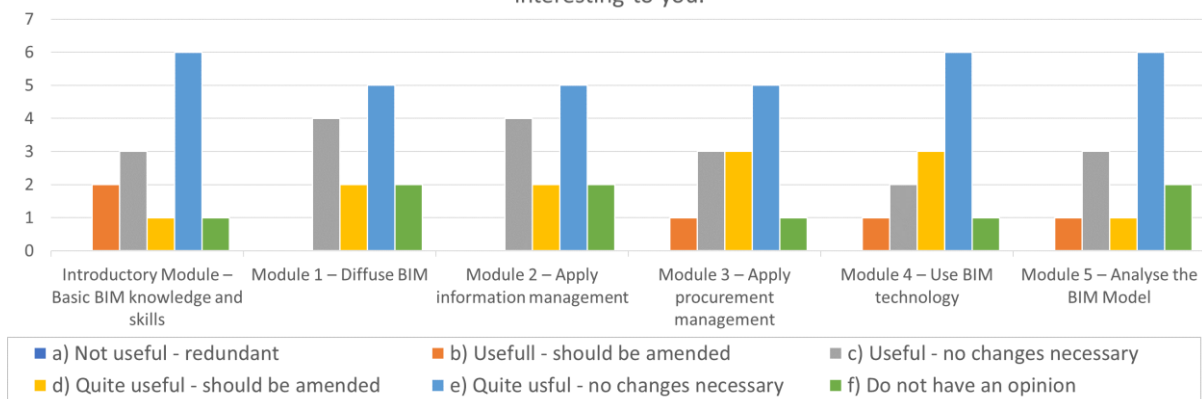


23. How much new information did you receive in the training course?

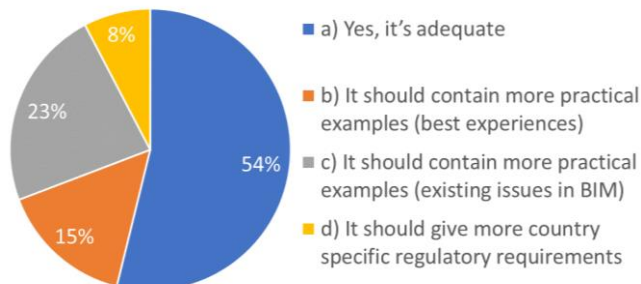


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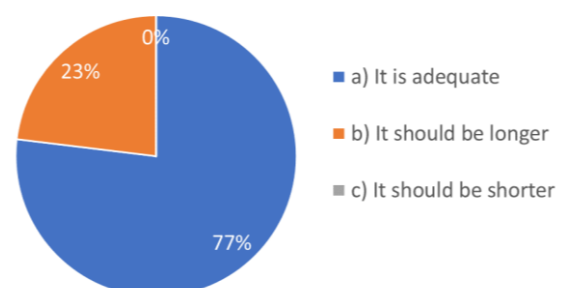
25. Please rate the following BIM course modules based on how they are useful and interesting to you.



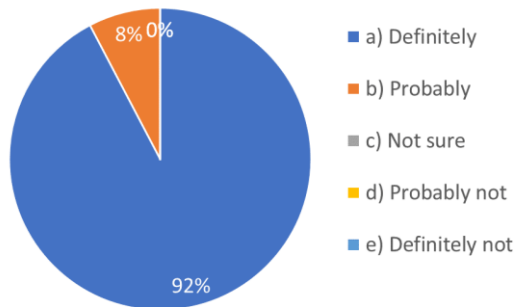
26. What do You feel, is the training material comprehensive enough?



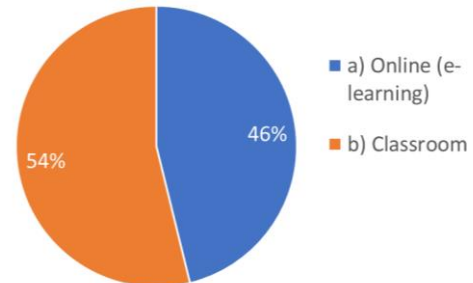
27. What do You feel about the duration of the training?



28. Would You be willing to disseminate the BIM training courses among Your contacts and associates?
Without any obligation to do so!



29. Would you prefer to take this course online or in the classroom?



It is evident from the training validation results that 84 % of participants feel BIM certification, support or training would absolutely (38 %) or likely (46 %) be beneficial to their colleagues which is a good indication of their view about the necessity of certification courses. Additionally, after the course, training participants were asked to evaluate their competences prior to the classroom course on BIM. The intention was to get the information what is their initial knowledge on BIM as well as to see whether the course was an “eye opener” and comprehensive enough. The participants replied that they feel they had little (62 %) or good (23 %) and very good (8 %) competences. Since 69 % of course participants are already using BIM (or intends to use it in near future) the overall rating of the course as good (62 %), very good (38 %) is very encouraging and positive for the developed training materials and courses held in Italy. Trainers received overall rating of good (46 %), very good (38 %) and excellent (15 %) which, it has to be said should be improved in future, since on other comparable courses, more participants deemed the trainers as very good or excellent.

The majority of course participants agree to the statements that the course objectives were clear with organized and easy to follow content. They mainly agree that course materials were clear and well written and contain sufficient number of images and videos explaining the course content. There were no practical assignments so there is a significant number of participants who are neutral with the claim that assignments were appropriate for the level of this class while the coursework was appropriate to their prior knowledge and the topics covered were relevant and will be useful in their future work as they received new information (69 % of participants feel they got significant amount of new information). The course also increased their interest in the subject and corresponded to their expectations.

When getting more in depth and looking for their opinion on each of the training modules, participants feel that Introductory module and modules 1 - 5 are useful and requires no changes. Specifically, the general opinion is that training materials are adequate, but some participants (38 %) said it should contain more practical examples (best experiences and existing issues in BIM). Regarding the length of training, 77 % of training participants said that 4-hour training course is adequate, while 23 % think it should be shorter. It has to be enhanced that 54 % of course participants prefer to take this course in the classroom while 46 % of people would prefer to take it on-line which is the highest ratio of people in all countries and all training courses.

The quality of the course is best rated if training participants disseminated and recommend the course to their colleagues, friends and associates, and in the case of Italian Second Seminars with Public Administration, Owners, Tenants and Building Administrators, participants declared they would definitely (92 %) and probably (8 %) be willing to disseminate the BIM training courses among their contacts.

Comments and suggestions of the training participants could be summarised in the following few lines:

- Some participants declared they would like to have application practice section and the use of software
- Some participants declared they would like to have more practical case studies, major best practices, examples of procurement using the BIM

2.3.2 Agenda

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Agenda for the Seminar with Public Administration, Owners, Tenants and Building Administrators held on **July 18th 2019** in Messina, Italy

Il seminario ha l'obiettivo di presentare la metodologia del Building Information Modelling (BIM) fornendo ai partecipanti una conoscenza di base.

A seguito del nuovo DM 560/17 (Decreto BIM) e della pubblicazione delle norme UNI 11337 (2017) risulta importante conoscere il BIM e la sua applicazione e diffusione a livello nazionale ed internazionale.

Verrà presentato il progetto NET-UBIEP che ha l'obiettivo di aumentare le prestazioni energetiche degli edifici stimolando e promuovendo l'uso del BIM durante il ciclo di vita di un edificio: dalla fase di progettazione alla costruzione, gestione, manutenzione, ristrutturazione, per arrivare, infine, alla demolizione.

Per trarre tutti i benefici introdotti dal BIM occorre che tutti i tecnici della filiera delle costruzioni siano pronti ad acquisire nuove competenze che siano integrate anche con l'obbligatorietà dell'introduzione dei criteri di performance energetica degli edifici per una migliore qualità del progetto e per un costo di manutenzione e gestione inferiore.

L'uso del BIM è già un obbligo di legge così come è obbligo, per la pubblica amministrazione, fare formazione e dotarsi di hardware e software adeguati. Al di là dell'obbligo è bene sapere che il BIM si sta diffondendo sempre più in tutti i paesi del mondo, proprio per i vantaggi che ne derivano per la sostenibilità del nostro ambiente costruito e la pubblica amministrazione ha un ruolo fondamentale nel dotarsi di strumenti per gestire un progetto digitale che può essere realizzato e condiviso con piattaforme informatiche.

NET-UBIEP promuove anche la collaborazione in tutta la filiera perché è importante che tutti i professionisti e i tecnici, che partecipano alle diverse fasi della progettazione e della realizzazione, abbiano uno specifico ruolo di raccolta, gestione e memorizzazione di tutte le informazioni necessarie, durante l'intero il ciclo di vita dell'edificio. Ogni tecnico, dipendente pubblico, progettista, costruttore, gestore di strutture o fornitore, deve dunque conoscere quali informazioni possano essere utilizzate potenzialmente da qualsiasi altro attore. Tutte le informazioni dovranno essere disponibili per tutta la vita dell'edificio anche quando il processo che l'ha generato è terminato. È quindi essenziale che tutti i diversi attori utilizzino lo stesso linguaggio, gli stessi dizionari e la stessa struttura dei dati... ecco perché la formazione è così importante!!

A cura di:

ENEA
Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

Comune di Messina

Anna Moreno
Coordinatore Net-UBIEP
Tel. +39 06 3048 6474
anna.moreno@enea.it

Segreteria Organizzativa
Comune di Messina
Segreteria Generale

NET-UBIEP
Network for Using BIM
to Increase the Energy Performance

www.net-ubiep.eu

Building Information Modeling: Innovazione e nuove frontiere per infrastrutture e città sostenibili - progetto NET UBIEP

18 Luglio 2019
Sala delle bandiere
Palazzo Zanca
Messina

L'ENEA in collaborazione con il Comune di Messina propone un seminario tecnico sul tema: l'importanza della formazione sul Building Information Modeling per costruire città sostenibili

Somministrazione questionario iniziale da compilare on line www.net-ubiep.eu/it/self-assessments-3

Programma della Giornata

Ore 9:00 Inizio lavori

Saluti istituzionali
Assessore all'Energia
Dott. Arch. Ing. Salvatore Mondello

Introduzione al Workshop
Francesco Cappello – ENEA - Dipartimento E.E. -SIST-SUD

1. Il building information building come strumento per la sostenibilità delle nostre città
Il BIM non è più uno strumento per la sola progettazione di edifici, ma è il nuovo strumento per progettare, realizzare, gestire e mantenere meglio edifici e infrastrutture di superficie e del sottosuolo. In tale contesto l'uso dell'openBIM, che favorisce l'interoperabilità digitale, diventa essenziale per assicurare la gestione delle informazioni in qualsiasi ambito settoriale, geografico e temporale.
Anna Moreno, Ensa

2. L'Ambiente della Condivisione dei Dati (ACDat) per la gestione del flusso informativo del processo BIM
L'Ambiente di Condivisione dei Dati favorisce il dialogo tra tutti gli attori senza perdita d'informazioni ma anche senza ridondanze e evitando incomprensioni: **NORMATIVA E CASO STUDIO**
Interoperabilità e metodi di comunicazione in ACDat tra Cantiere e Ufficio di Progettazione nelle fasi di digitalizzazione As-Built
Andrea Ferrara – MUSA Progetti.

3. Applicazione del BIM nei contratti di rendimento energetico e gestione degli immobili per ridurre i consumi e produrre energia da fonti rinnovabili integrate nell'edificio.
La modellazione BIM permette di avere uno strumento utile per valutare l'opportunità di una riqualificazione più o meno profonda di un edificio riuscendo a calcolare i tempi di ritorno con certezza dei risultati utilizzando gli incentivi fiscali oggi disponibili: Eco bonus e Sisma bonus.
Guido Di Rosa Global Power Service

4. Progettare gli impianti per il miglioramento della performance energetica utilizzando il BIM:
Un'applicazione alla scuola delle energie dell'ENEA.
Per progettare e riqualificare un edificio esistente, il BIM può essere utilizzato per visualizzare i diversi interventi e scegliere quello ottimale. Il BIM, in questo caso, non solo permette di simulare le diverse soluzioni calcolando i tempi di ritorno dell'investimento, ma serve anche come strumento di comunicazione con i clienti finali essendo la visualizzazione dei modelli BIM molto più "friendly" di qualsiasi relazione tecnica.
Anna Moreno, Enea

5. Esperienze BIM sul territorio siciliano
Recupero e riqualificazione edificio Ex-Albergo Scuola di Siracusa
Diagnosi energetica BIM (Municipio di Mineo (CT))
Andrea Ferrara – MUSA Progetti

6. Gli oggetti BIM e i voucher per la costruzione di "cataloghi regionali"
Per una progettazione con criteri ambientali minimi è opportuno avere cataloghi BIM dei prodotti locali in modo che progettisti e costruttori possano progettare e realizzare edifici con prodotti a Km zero e i proprietari possano più facilmente provvedere alla gestione e alla manutenzione degli impianti degli edifici accedendo alle informazioni con l'uso di un tablet e qualche click. Anna Moreno ENEA

Ore 12:30
Somministrazione questionario finale da compilare on line www.net-ubiep.eu/it/assessments-5

Dibattito Finale

Nota bene
Per poter usufruire del corso net-UBIEP bisogna partecipare al sondaggio che si trova al seguente link:
<http://www.net-ubiep.eu/it/users-classes-5/>
e iscriversi al sito www.net-ubiep.eu

Nello stesso sito è possibile scaricare gratuitamente il materiale informativo per le pubbliche amministrazioni ed altri target.
Si prega la più ampia diffusione.

A stylized illustration of a modern building with solar panels on its roof, surrounded by green trees and a clear sky.

2.4 Lithuania

2.4.1 Course description and results

Second Seminar with Public Administration, Owners, Tenants and Building Administrators was organized on **April 4th 2019** in Klaipėda, Lithuania.

The course programme consisted of 4 academic hours combining theoretical part with application examples (case studies) and practical tasks.

A group of **38 participants** which work in public administration are building owners, tenants or building administrators had undertaken the classroom course in Lithuania within the framework of the Net-UBIEP project.

The overview of the partners and methodological basis of the classroom courses is shown in the figure below.



Prepared by: Doc. Dr. Vaidotas Šarka (VŠĮ „Skaitmeninė statyba“); Doc. Dr. Tatjana Vilutienė (Vilnius Gediminas Technical University)

Several photos from the Second Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by the **Dig.Con.** can be found bellow.



Pre- and Post-training questionnaires were translated to Lithuanian language but only pre-training questionnaire was filled by training participants. For the reason of lacking post-training questionnaire results validation of this specific classroom course cannot be completed.

Analysis of the training results, problems and solutions together with lessons learned during the courses are as follows:

- The duration of seminars – 4 hours. Participants of the seminars have confirmed that duration is appropriate.
- 8 lecturers made presentations at the seminars.
- Theory was combined with application examples (case studies): 50 % – theory, 50 % – real cases.

- It was the problem to fill the questionnaires during the short time of seminar. It was quite difficult to attract the participants to “future” construction related topics. Seminars were attended by representatives of more than 40 organizations (including municipalities).
- In seminars participated about 30 percent less than registered. To attract the required number of participants it is necessary to register about 30% more potential participants.

2.4.2 Agenda

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Seminaras „Kaip efektyviai projektuoti ir statyti bei naudoti energijos beveik nenaudojančius (angl. NZEB) tvarius pastatus, taikant statinių informacinio modeliavimo (BIM) metodiką“

Seminar “How to efficiently design, build and use energy-efficient (NZEB) sustainable buildings using building information modeling (BIM) methodology”

Net-UBIEP 2-asis seminaras viešojo sektoriaus organizacijoms, užsakovams, pastatų naudotojams, pastatų priežiūros organizacijoms (WP4) / Net-UBIEP 2nd seminar for public sector organizations, clients, building users, building maintenance organizations (WP4)

Data / Date: 2019-04-04 (ketvirtadienis), 13:00-17:30 val. (registracija nuo 12:30)

Vieta / Place: Klaipėda,

Klaipėdos Švyturio arena, Dubysos g. 10, 2-oje seminarų salėje. Parodų „Energetika 2019“ ir „Statyba 2019“ metu.

SEMINARO PROGRAMA / PROGRAM OF THE SEMINAR		
Laikas / Time	Tema / Topic	Pranešėjas / Presenter
12:30-13:00	Registracija / Registration	
13:00-13:10	Sveikinimo žodis, seminaro tikslai / Welcome word, goals of seminar	Dalius Gedvilas (Vš) „Skaitmeninė statyba“
13:10-13:30	Kas yra BIM ir kodėl BIM? Vertė tvarumo ir energinio efektyvumo užtikrinimui. Jūsų vaidmuo BIM projektuose / What is BIM and why BIM? Value for sustainability and energy efficiency. Your role in BIM projects.	Edita Šarkienė (Vilniaus Gedimino technikos universitetas)
13:30-13:50	BIM projekto planavimas ir valdymas energinio efektyvumo didinimui. Kas yra EIR ir BEP? Kodėl svarbu parengti racionalų EIR? / BIM project planning and management to increase energy efficiency. What are EIR and BEP? Why is it important to develop a rational EIR?	Arvydas Kiaulakis (Vš) „Skaitmeninė statyba“
13:50-14:10	BIM įrankiai ir formatai. Open BIM. Duomenų mainų ir bendradarbiavimo aplinka (CDE) / BIM tools and formats. Open BIM. Data Exchange and Collaboration Environment (CDE)	Vaidotas Šarka (Vš) „Skaitmeninė statyba“
14:10-14:30	BIM taikymo efektyvumo matavimai statinio gyvavimo cikle / BIM application efficiency in the building life cycle	Tatjana Vilutienė (Vilniaus Gedimino technikos universitetas)
14:30-14:50	Kaip esame pasirengę energijos beveik nenaudojančių pastatų statybai (NZEB) projektavimui ir statybai? Kokie racionalūs NZEB parametrai? / How are we prepared to design and build low energy buildings (NZEB)? What are the rational parameters of NZEB?	Prof. Vytautas Martinaitis (Vilniaus Gedimino technikos universitetas)
14:50-15:10	Kavos pertraukėlė / Komunikavimas / Coffee Break / Communication	
15:10-15:30	Valstybės turto valdymo lūkesčiai ir tendencijos. Didžiausio šalies užsakovo tikslai ir veikų optimizavimo planai, taikant skaitmenines priemones / State Property Management expectations and trends. Objectives of the largest client in the country and activity optimization plans using digital tools	Audrius Tamoliš (Vš) „Turto bankas“
15:30-15:50	Projektavimo naujos galimybės ir iššūkiai taikant BIM energinio efektyvumo kontekste / New design opportunities and challenges in the context of BIM energy efficiency	Dainius Gudavičius (Projektavimo įmonių asociacija)
15:50-16:10	Energinis efektyvumas ir BIM. Iššūkiai ir galimybės. Praktika / Energy efficiency and BIM. Challenges and opportunities. Practical experience	Remigijus Simanavičius (Pasiųvų namų asociacija)
16:10-16:30	BIM - naujos energinio efektyvumo didinimo galimybės. Praktika / BIM - new opportunities to increase energy efficiency. Practice	Audrius Leonavičius (UAB YIT Lietuva)
16:30-17:00	Klausimai / Diskusija / Questions / Discussion	
17:00	Renginio pabaiga / Event Closure	

Net-UBIEP: D4.6-D26 LT Second Seminar with Public Administration and Owners, Tenants and Building Administrators. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754016. This deliverable reflects only the author's view. The Agency is not responsible for any use that may be made of the information it contains.

Daugiau informacijos / More information:

1. Apie net-UBIEP projektą / About Net-UBIEP project: <http://www.net-ubiep.eu/lt/home-lt/>
2. Apie BIM metodikos taikymą / About BIM methodology application: www.skaitmeninestatyba.lt
3. Apie statybų sektoriaus e-kompetencijų registrą / About the register of e-competencies in the construction sector: www.statreg.lt
4. Apie A, A+, A++ ir NZEB pastatų statybos technologijas / About A, A+, A++ and NZEB building construction technologies: www.statybosistaisykles.lt statybos taisyklių ir ENERGOTRAIN skiltis / building regulations and ENERGOTRAIN section

Renginio organizatoriai / Organizers of the event:



Renginio partneriai / Partners of the event:



Net-UBIEP: D4.6-D26 LT Second Seminar with Public Administration and Owners, Tenants and Building Administrators. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754016. This deliverable reflects only the author's view. The Agency is not responsible for any use that may be made of the information it contains.

2.5 Slovakia

2.5.1 Course description and results

On **25 April 2019**, the second Net-UBIEP seminar for public administration, owners, tenants and building managers took place in Bratislava, Slovakia.



Slovak partners have set up the Net-UBIEP School of BIM in Slovakia. The training provided by the school is modular and open to further new modules. At present they have established 7 modules:

- MU1 - Basic module for public authorities;
- MU2 - basic module for owners of buildings;
- MU3 - basic module for facility managers;
- MP1 - basic module for professionals;
- MP2 - working with the software for BIM (for professionals);
- MP3 - planning fire protection in BIM (for professionals);
- MT1 - module for technicians and craftsmen;
- Certification module – under development - will be clarified as we have more details of using bSI platform.

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During the classroom courses, Slovak partners were testing these modules:

- 1st seminar for PA, owners and facility managers (25 October 2018) and in second seminar for PA, owners and facility managers (25 April 2019);
- 1st and 2nd training sessions for professionals (1 - 2 April 2019);
- third training session for professionals (23-24 May 2019);
- in-class training for technicians (28 March 2019) - they had to organise the training for technicians in-class, as reading the information material using e-learning would be not enough for them and Slovak partners were delivering through this session practical demonstrations for augmented reality using phones, tablets and 3D-glasses; and they could personally test working with 3D-glasses (this exercise was prepared by a company affiliated to the school).

The Net-UBIEP School of BIM is supported by affiliates that include: construction association, Chamber of Architects, training institute, providers of software (for the moment only Revit, but others are interested to come), many technical companies that are providing BIM related services (mostly SMEs) for integrated planning, construction and facility management (still we have to cover liquidation and recycling), architect studios.

These affiliates provide input to the training, provide speakers, equipment for practical demonstrations and exercises (Slovak partners have established a rule that they are neutral in respect of brand - so no company presentations allowed) etc. The network is growing.

Certainly, this school will continue to work beyond expiry of the project and they already have many plans with their affiliates.

The course programme for public administration, owners, tenants and building managers consisted of 6 academic hours combining theoretical part with application examples (case studies).

A group of **13 participants** specialising in architecture and engineering had undertaken the classroom course in Slovakia within the framework of the Net-UBIEP project.

Main objectives of the seminar:

- Present the most important elements of the BIM system and the benefits of this way of visualisation for public administrations, landlords, tenants and building managers;
- Explain how the use of BIM can contribute to efforts to improve the energy performance of buildings, during procurement, the authorization process and in particular during in-service management;

- Discuss the necessary education and innovation activities to support the implementation of BIM in the construction sector.

Individual objectives of the seminar:

- Dialogue between the state administration, public administration and the main stakeholders in the construction sector on the implementation of BIM in Slovakia;
- Presentation of past achievements in implementation and main objectives in the medium term;
- Agreement on further cooperation in activities supporting BIM implementation in Slovakia.

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Main topics, focus which were discussed in more detail:

- Government strategy and objectives in the medium term in the implementation of BIM;
- Construction sector strategy and objectives in the medium term in the implementation of BIM;
- BIM implementation working groups and their achievements to date;
- Challenges of BIM implementation in Slovakia and cooperation on their management.

Learning outcomes from the 3D Net-UBIEP competence model

- PA.LO1. Identifying the benefits of using BIM during the building life cycle;
- PA.LO2. Model quality assurance through the use of building model control software;
- PA.LO3. Setting requirements for the management, coordination and storage of energy performance data in CDE;
- PA.LO4. Use of free apps and technologies to control model quality

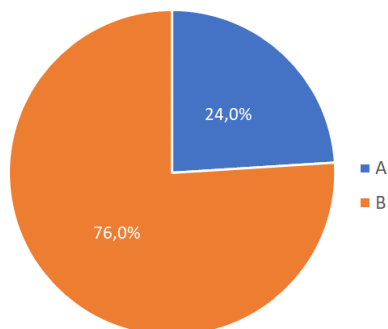
Several photos from the First Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by the **ViaEuropa Competence Centre and UVS** can be found below.



Pre- and Post-training questionnaires were translated to Slovak language and filled by training participants. Few general conclusions from the classroom course validation from the participants in Slovakia is given below, while the entire questionnaire analysis is performed in deliverable *D27-D4.7 Survey and or interview among all different Targets*. Due to the fact that validation was performed in partners' native language, the analysis below has both English questions and the same questions in native language.

1. Do You or Your company/organization currently use BIM, or is it intending to use BIM in the near future?

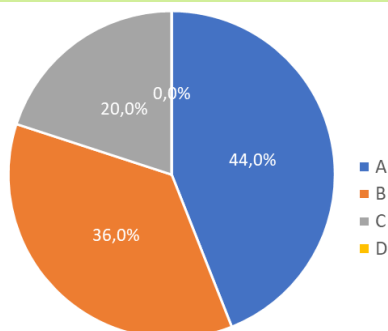
- a) Yes
- b) No



23

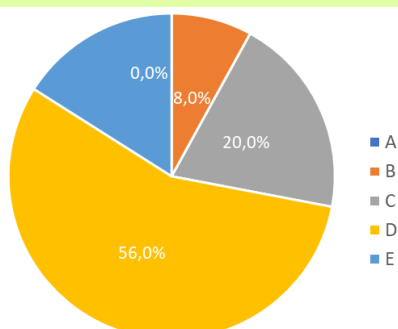
15. Would BIM certification, support or training, benefit Your colleagues?

- a) Absolutely
- b) Likely
- c) Possibly
- d) No



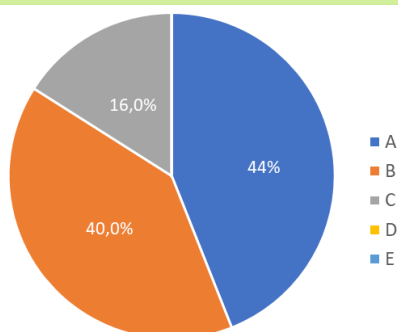
18. In retrospective, how do You rate Your competences (knowledge, skills, responsibility and autonomy) before this BIM course?

- a) Excellent
- b) Very good
- c) Good
- d) Little
- e) I don't know



19. What overall rating would You give the course?

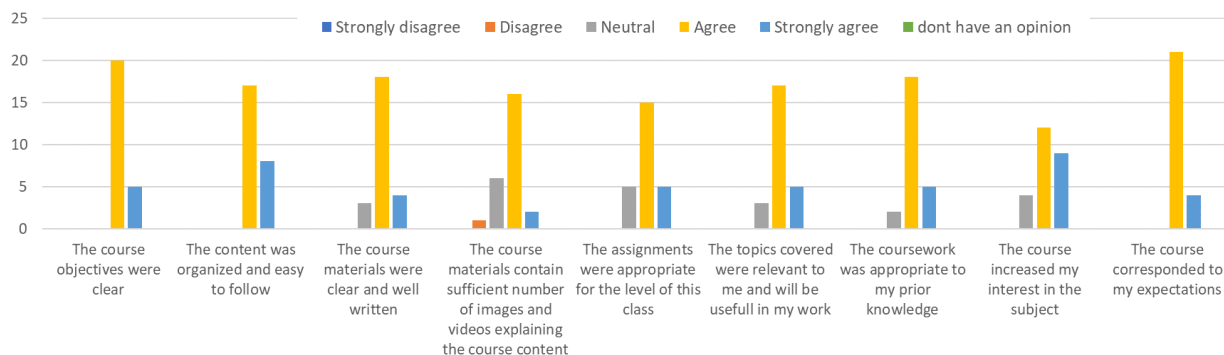
- a) Excellent
- b) Very good
- c) Good
- d) Fair
- e) Poor



24

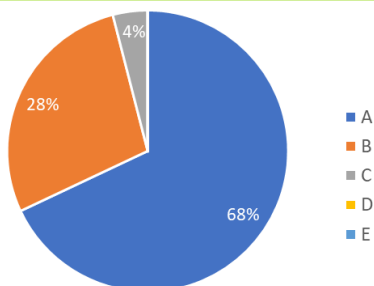
20. Please indicate your level of agreement with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	do not have opinion
The course objectives were clear.						
The content was organized and easy to follow.						
The course materials were clear and well written.						
The course materials contain sufficient number of images and videos explaining the course content.						
The assignments were appropriate for the level of this class.						
The topics covered were relevant to me and will be useful in my work.						
The coursework was appropriate to my prior knowledge.						
The course increased my interest in the subject.						
The course corresponded to my expectations.						



21. What overall rating would you give the trainer(s)?

- a) Excellent
- b) Very good
- c) Good
- d) Fair
- e) Poor

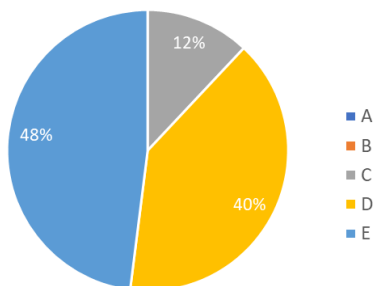


25

23. How much new information did you receive in the training course?

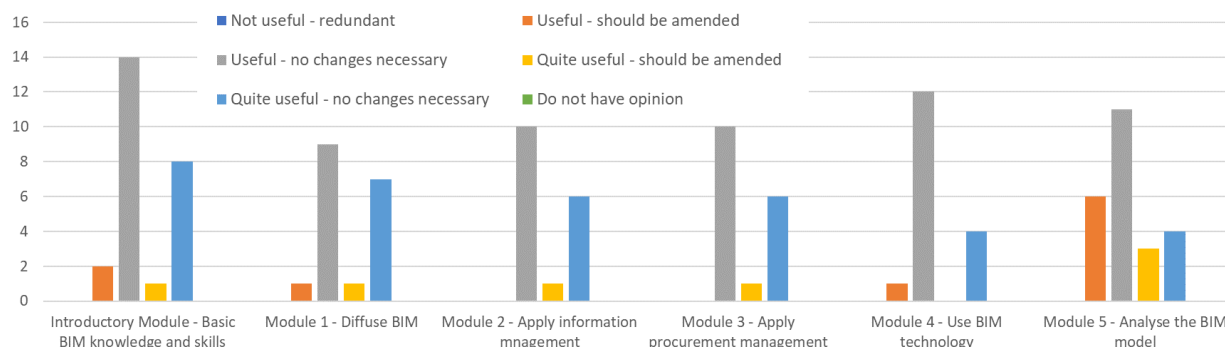
Rate on the scale from: 1 (none) to 5 (a lot of new information)

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5



25. Please rate the following BIM course modules based on how they are useful and interesting to You.

	Not useful - redundant	Useful – should be amended	Useful – no changes necessary	Quite useful – should be amended	Quite useful – no changes necessary	Do not have opinion
Introductory Module – Basic BIM knowledge and skills						
Module 1 – Diffuse BIM						
Module 2 – Apply information management						
Module 3 – Apply procurement management						
Module 4 – Use BIM technology						
Module 5 – Analyse the BIM Model						

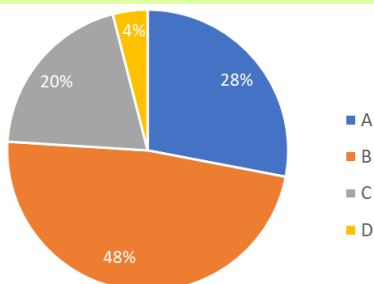


26

26. What do You feel, is the training material comprehensive enough?

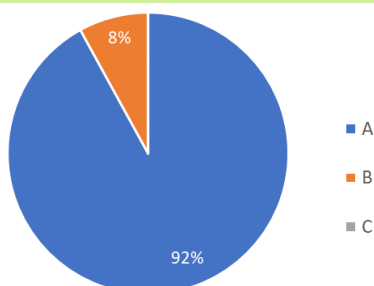
(Please mark all that apply)

- a) Yes, it's adequate
- b) It should contain more practical examples (best experiences)
- c) It should contain more practical examples (existing issues in BIM)
- d) It should give more country specific regulatory requirements



27. What do You feel about the duration of the training?

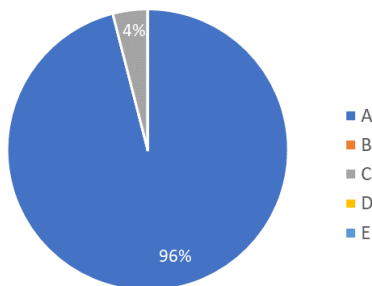
- a) It is adequate
- b) It should be longer
- c) It should be shorter



28. Would You be willing to disseminate the BIM training courses among Your contacts and associates?

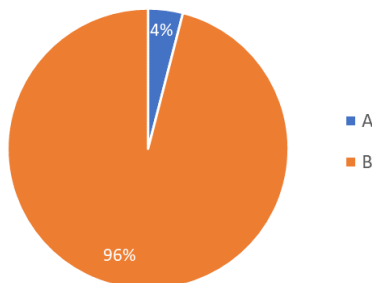
Without any obligation to do so!

- a) Definitely
- b) Probably
- c) Not sure
- d) Probably not
- e) Definitely not



29. Would you prefer to take this course online or in the classroom?

a) Online (e-learning)
b) Classroom



It is evident from the training validation results that 80 % of participants feel BIM certification, support or training would absolutely (44 %) or likely (36 %) be beneficial to their colleagues which is a good indication of their view about the necessity of certification courses. Additionally, after the course, training participants were asked to evaluate their competences prior to the classroom course on BIM. The intention was to get the information what is their initial knowledge on BIM as well as to see whether the course was an “eye opener” and comprehensive enough. The participants replied that they feel they had little (56 %) or good (20 %) and very good (8 %) competences while 16 % don’t know what are their competences. Since 76.0 % of course participants are not using BIM this was to be expected for the case of Slovakia. The overall rating of the course as good (16 %), very good (40 %) and excellent (44 %) is very encouraging and positive for the developed training materials and courses held in Slovakia. Trainers received positive overall rating of very good (28 %) and excellent (68 %).

The majority of course participants agree to the statements that the course objectives were clear, with organized and easy to follow content. They mainly agree that course materials were clear and well written and contain sufficient number of images and videos explaining the course content. The positive validation of the Slovak course is also evident from the fact that the majority of participants agree that assignments were appropriate for the level of this class (appropriate to their prior knowledge) and the topics covered are relevant and will be useful in their future work as they received new information (88 % of participants feel they got significant amount of new information). The course also increased their interest in the subject and corresponded to their expectations.

When getting more in depth and looking for their opinion on each of the training modules, participants feel that Introductory module, Module 1 -5 are useful or quite useful and no changes are necessary even though there are some participants that feel Module 5 should be amended. On the other hand, significant number of course participants declared more practical examples are needed (best experiences and existing issues in BIM), 48 % and 20 % respectively, while only 28 % declared that existing training materials are adequate.

Regarding the duration of training, 92 % of training participants said that 6-hour training course is adequate, while 8 % think it should be longer. It has to be enhanced that 96 % of the course participants prefer to take this course in the classroom while only 4 % would prefer to take it on-line.

The quality of the course is best rated if training participants disseminated and recommend the course to their colleagues, friends and associates, and in the case of Slovak classroom course for public administration, owners, tenants and building managers, 96 % of participants declared they would be definitely willing to disseminate the BIM training courses among their contacts.

2.5.2 Agenda

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4. Program

DOPOLUŇAJŠÍ PROGRAM		
Čas	Téma a prednášajúci	Forma a metódy
	Úvod	
10:00	Úvod do Net-UBIEP projektu <i>RNDr. Ing. František Doktor, ViaEuropa Competence Centre</i>	Powerpoint prezentácia
10:30	BIM pre verejnú správu • Územné plánovanie • Povoľovanie stavieb • Správa verejných budov <i>Ing. Marta Minarovičová, UVS</i>	Powerpoint prezentácia
11:15	Net-UBIEP BIM akadémia <i>RNDr. Ing. František Doktor, ViaEuropa Competence Centre</i>	Posterová prezentácia
	Prvá časť: Stratégia stakeholderov pre implementáciu BIM	
11:45	Stratégia štátnej správy a ciele v strednodobom horizonte pri implementácii BIM <i>Ing. Ján Černák, CSc, Ministerstvo dopravy a výstavby SR</i> Stratégia stavebného sektora a ciele v strednodobom horizonte pri implementácii BIM <i>Ing. Marek Malina, PhD, ZSPS</i>	Powerpoint prezentácia
12:30	Prestávka na občerstvenie	
	Druhá časť: Stav implementácie BIM na Slovensku	
13:00	• Skúsenosti BIM asociácie; • Výsledky prieskumu o využití BIM na Slovensku; • Možnosti spolupráce. <i>doc. Ing. Ján Erdélyi, Svf STU Bratislava</i>	Powerpoint prezentácia
	Tretia časť: Spolupráca na implementácii	
13:45	Diskusia	
15:00	Záverečné zhnutie. <i>Ing. Marta Minarovičová, UVS</i>	

2.6 Spain

2.6.1 Course description and results

First Seminar with Public Administration, Owners, Tenants and Building Administrators was organized on **October 17th 2018** in Madrid, Spain.

A group of **24 participants** which work in public administration are building owners, tenants or building administrators had undertaken the classroom course in Spain within the framework of the Net-UBIEP project.

Several photos from the Second Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by the **FLC** can be found bellow.

29



Pre- and Post-training questionnaires were translated to Spanish language but only pre-training questionnaire was filled by training participants. Since Spanish partners agreed that the post – training questionnaires were quite similar, training participants did not provide any answer to them.

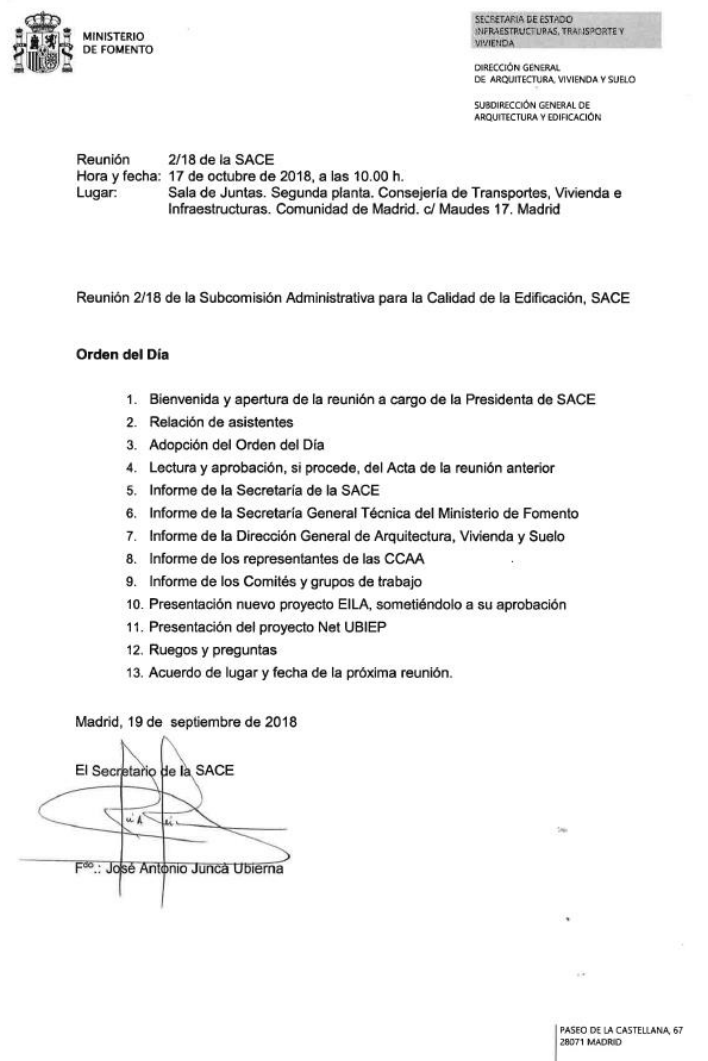
For the reason of lacking post-training questionnaire results validation of classroom courses held in Spain cannot be completed.

Never the less, the stakeholder feedback was collected by project partners orally during round table and small group discussions.

Analysis of the training results, problems and solutions together with lessons learned during the courses are as follows:

- The training of decision makers in public administrations and among owner/tenant associations is most important as these targets, can “impose” the employment of qualified professionals and workers or provide incentives to use qualified BIM experts.
- The attendees discussed how the preliminary use of engineering analysis can produce information that is the basis of what will be transmitted to the operator and / or owner, to use the building's energy systems.
- It was discussed how practical training is possible and how BIM tools could be used in training while not promoting any of the software.

2.1.2 Agenda



2.7 The Netherlands

2.7.1 Course description and results

First Seminar with Public Administration, Owners, Tenants and Building Administrators was organized on **November 6th 2019** in Almelo, The Netherlands.

The course programme consisted of 3 academic hours of theoretical lectures.

A group of **10 participants** which work in public administration are building owners, tenants or building administrators had undertaken the classroom course in The Netherlands within the framework of the Net-UBIEP project.

The Dutch partners provided an explanation why there were only several participants for the professional trainings. Dutch partners are trying to get more people interested in the professional training via the professional networks of ISSO, B&R, TVVL, the NetUBIEP website, LinkedIn and BIMloket, but so far, we had little success.

The reasons for this are:

- A large part of the Dutch construction sector has already some professional education or knowledge on BIM. Also, professionals are already trained in some degree on nZEB in the last years. Added value of Net-UBIEP project is to create a link between these subjects. However, it is very difficult to convey possible participants of this added value.
- Lack of time: the Dutch construction sector is at its peak. Moreover, employees are scarce at the moment. Therefore, the existing workforce is very busy with their construction projects instead of educating themselves. To solve this, we are building an e-learning module for professionals so people can follow the course at their convenience.
- Legislation (NTA8800/BENG) in The Netherlands about nZEB is changing in 2018 and 2019 and is not yet final. A lot of the workforce is waiting with training until there is more clarity about the legislation. After this we expect things will go faster.

In other words, things are going slower than expected. However, Dutch partners are trying to disseminate the results and the education material with professional educators who expressed interest. So, they think the results and materials will be used by these professional educators, but this is a slow process.

A photo from the Second Seminar with Public Administration, Owners, Tenants and Building Administrators conducted by **ISSO** can be found below.



Pre- and Post-training questionnaires were translated to Dutch language in order to be filled easier by training participants. Dutch partners used Googleforms version of questionnaires for the course validation which was sent to training participants.

Sadly, no answers were collected for the post-training questionnaire since training participants did not fill the questionnaires. Possible reasons for these could be that the questionnaire is comprehensive and they estimated it would take a significant time to fill it. The other reason could be that the participants of the seminar were representatives of public administration and they are handling topics related to BIM and energy efficiency in their respective institutions and companies, while the questionnaire which is asking about their competences could be counterproductive and the results could be that people handling these important issues do not have adequate competences. The third reason could be that they (training participants) do not want to state the opinion which is not an official one regarding the implementation of BIM into energy efficiency projects.

Never the less, the stakeholder feedback was collected by project partners orally during round table as the small group enabled a fruitful discussion.

Analysis of the training results, problems and solutions together with lessons learned during the courses are as follows:

- Various municipalities were interested in collaborative methods of working in BIM.
- BIM could be used as a means to stimulate the innovative capacity of municipalities and for setting up partnerships between municipalities and market parties.
- There was an opinion that the Net-UBIEP project results should be offered to existing professional educators in BIM and NZEB which could then use them to improve their existing courses.
- Net-UBIEP project could be carried out in conjunction with 'Routekaart BIM voor gemeenten' and both projects could use each other's input and output to achieve the project results.

2.7.2 Agenda



Regionaal ICT Beraad regio 7
woensdag 6 november 2019

Locatie: Gemeentehuis Almelo,
Haven Zuidzijde 30, 7607 EW Almelo

Agenda:

- | | |
|---------------|---|
| 9.30 – 10.00 | Inloop en koffie |
| 10.00 – 10.10 | Welkom en mededelingen |
| 10.10 – 12.00 | 1e Themadeel: Routekaart BIM voor gemeenten.

Een presentatie over BIM - het Bouwwerk Informatie Model – vanuit het Europese kennisproject Net-UBIEP

In een BIM, een digitaal bouwwerkinformatiemodel, worden alle gegevens over een bouwwerk geïntegreerd opgeslagen en verwerkbaar gemaakt. Aan een BIM en zijn componenten kunnen andere informatieobjecten gekoppeld worden zoals GIS-bestanden, specificaties en contracten. De mogelijkheden rondom BIM zijn via een pilotstarter 'Routekaart BIM voor gemeenten', door de VNG onderzocht.

2e Themadeel: 'bijpraten' over de Wet open overheid.

Naar verwachting zal dit najaar de Wijzigingswet open overheid door de tweede kamer worden besproken. De kern van de wet is dat overheidsorganisaties verplicht zijn om meer categorieën documenten actief openbaar te maken.
Waar moeten we aan denken bij deze nieuwe wet? In dit themadeel wordt ingegaan op verschillende aspecten van de WOO, zoals: <ul style="list-style-type: none">• Actieve openbaarmaking• Aansluiten bij Platform Openbare Overheidsinformatie (PLOOI) van het Kennis- en Exploitatiecentrum voor Officiële Overheidspublicaties (KOOP)• Vervroegde overbrenging in de praktijk• Inpassen applicaties openbaarmaking binnen de gemeentelijke architectuur• Duurzame toegankelijkheid en openbaarheid met 'archiving/open by design'• Informatiehuishouding op orde |

Tussendoor koffie/thee pauze

- | | |
|---------------|--|
| 12.00 – 12.15 | Terugkoppeling/bespreking Landelijk ICT Beraad
- input ophalen voor komende vergadering Landelijk ICT beraad

Mededelingen van Centric en Pink Roccade LG

Rondvraag en thema / locatie volgend overleg |
| 12:15 - 13.00 | Lunchpauze |
| Vanaf 13.00 | VNG-programma |



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 754016.

This deliverable reflects only the author's view. The Agency is not responsible for any use that may be made of the information it contains.

The present deliverable will be update during the project in order to align the outcome to the market needs as well as to other BIM related projects realized within Horizon 2020 program.

The updated version of the deliverable will be only available in the website of the project www.net-ubiep.eu.

Some deliverables could also be translated in partners national languages and could be find in the respective national web pages. Click on the flags to open the correspondence pages:



International web page



Italian web page



Croatian web page



Slovak web page



Spanish web page



Dutch web page



Estonian web page



Lithuanian web page

