

## Net-UBIEP newsletter

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## 1. General introduction to the Net-UBIEP project

Net-UBIEP is a project funded by the European Commission under the H2020 program. It started on the 3<sup>rd</sup> of July 2017 and will end the 2<sup>nd</sup> of January 2020. Net-UBIEP aims at increasing the energy performance of buildings by stimulating and increasing the use of BIM during the life cycle of a building. The use of BIM will allow simulation of energy performance of buildings using different materials and components. BIM, which stands for Building Information Modelling, is a process that lasts for all the building life cycle from the strategic design throughout the Preparation and Brief, Concept Design, Developed Design, Technical design, construction, Hand over and close out, In use, comprehensive of refurbishment and eventually the demolition of a building.

### Why Net-UBIEP

In order to decrease the environmental impact of a building it is very important to take all energy aspects into account. To achieve NET-UBIEP's main objective, it is important that, throughout the building life cycle, all professionals and technicians which participate to the building process are aware of their role of collecting, managing and storing all required information. Each technician, public officer, designer, contractor, site and supervision engineer, facility manager, supplier, etc, should understand which information they manage could potentially be used by any other actor. All the information should be available long after the moment of the process that generated it. Therefore it is important that all the different actors use the same language, dictionaries and data structures.

The Net-UBIEP project aims at reaching and stimulating all actors to implement BIM in order to improve the energy performance of buildings.

### Main activities

The partners are identifying professional profiles involved in the NZEB sector and are defining specific BIM related competences. This inventory leads to insights for finding competence gaps in the existing BIM Professional Profiles.

### Target groups

Four target groups have been selected according to their role in current building processes, namely Public Administrations, Professionals (Engineers/Architects), Technicians (Installers/Maintainers), Tenants/Owners/Building Administrator.

The partners are defining a three dimensional matrix for the identification of competences required for each target group to ensure the highest increase in energy performance using BIM in each phase of the building life cycle.

BIM Training schemes will be elaborated and validated with representatives of the different target groups in each of the seven participating countries.

The partners will propose the standardization of the BIM Qualification Models schemes through the CEN/BT/WG 215 "Building Information Modelling (BIM)", which works in close relationship with ISO/TC 59/SC 13 – Organization of information about construction works, for the recognition of the BIM Professional Profiles at international level.

## The building life cycle phases

The partners have debated on the building life cycle phases, which are different in each country. To avoid long discussion on which system should be chosen, the partners decided to keep the national systems and use the RIBA approach as common reference. In this way we will build a table where for each RIBA phase each country could add sub-phases or super-phase. Besides, the partners added another preliminary phase, which refers to the strategy that each target should establish to start the BIM process. Therefore the following are the phases consider as reference in the Net-UBIEPproject:

Preliminary BIM strategy	Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out	In use
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## 2. The national frameworks for the professional profiles in BIM

Even if the publication of the European directive on public procurements (2014/24/EU) invites the member states to use BIM, its implementation has multi-speeds within European countries. The starting point for the definition of BIM professional profiles is the harmonization of different national efforts that have already been made on BIM. This will be done by inventorying, comparing and discussing already available profiles. Within this process the EQF methodology will be used to clearly identify knowledge, skills and competencies and to create common profiles. Those have been used during the first part of the project for the identification of energy related requirements for the four target groups.

The “Harmonization of existing BIM profiles in accordance to EQF methodology” is developed in the following steps:

### 1. Inventory

Desk research and harmonization at national level. Each country has defined and harmonized its own BIM profiles. Each country has gathered information about EQF level, working fields, tasks and the necessary competencies for: BIM Manager, BIM Coordinator, BIM Expert, BIM Expert user, BIM Evaluator and BIM Facility manager. The results of this discussion are integrated in the harmonization.

### 2. Comparing

For each BIM profile (BIM Manager, BIM Coordinator, BIM Expert, BIM Expert user, BIM Evaluator and BIM Facility manager) the harmonized results of each country are compared and integrated in one sheet. The integrated results are shared among the participating countries.

With regard to the BIM profiles the situation differs in each country and also competencies of each BIM profile are often different. However, some profiles are similar with comparable competencies. This is especially true for the BIM manager, BIM Coordinator and BIM modeller (BIM expert). For the BIM Evaluator and BIM Facility manager, identified by the partners as important, there is much less consistent data available.

The similarities for the BIM Manager, BIM Coordinator and BIM Expert are described below:

## 1. BIM Manager

- a. leads and manages BIM (project) implementation;
- b. has an EQF 7 level obtained by education or working experience;
- c. has a background in one of the following working fields: construction management, building management, financing and procurement and architecture.

Tasks:

- Establishes organization goals related to BIM
- Establishes BIM implementation in organization
- Develops and implement BIM standards in projects and own organization
- Sets up BIM in project with other project parties.
- Is responsible for training employees
- Analyses and implements best practices related to BIM in organization and projects
- Coordinates operations among participating disciplines and establishes quality controls
- Defines the BIM Execution plan

Competencies:

- Leadership skills
- Collaboration, communication, negotiation and coordination skills
- Research skills
- Analytical skills
- Technical skills
- Risk control skills

## 2. BIM Coordinator

- a. the BIM Coordinator coordinates primarily the integration of different models;
- b. has an EQF 7 level obtained by education or working experience;
- c. has a background in one of the following working fields: construction management, architecture, building management, structural engineering, mechanical engineering, electrical engineering.

Tasks:

- Coordinates models
- Manages digital workflow
- Ensures interoperability between individual parts of the BIM model
- Advises project team in preparing development plan for using BIM in projects.
- Integrates different aspect models
- Interfaces with different stakeholders in project
- Manages quality on BIM model/ auditing
- Trains project team members

Competencies:

- Training competencies
- Leadership skills
- Communication and collaboration skills
- Technical skills and knowledge
- Quality assessment skills
- Model coordination skills
- Problem solving skills
- Leadership skills
- Collaboration, communication, negotiation and coordination skills
- Research skills
- Analytical skills
- Technical skills
- Risk control

### 3. BIM Expert (or BIM Modeller)

- a. creates models according to BIM standards;
- b. has an EQF level 5 or 6 obtained by education or working experience;
- c. has a background in one of the following working fields: architecture, structural engineering, mechanical engineering (including plumbing), electrical engineering, construction engineering.

Tasks:

- Elaborates BIM
- Develops content
- Prepares project documentation
- Ensures accuracy model
- Collaborates and coordinates with other project members/professions
- Follows BIM standards

Competencies:

- Modelling competencies
- Technical skills and knowledge
- Communication and collaborating skills
- Analytical skills

The profile of the BIM Expert user differs more than previous profiles. The common features are listed below:

### 4. BIM Expert user:

- a. Has a EQF level 6 obtained by education or working experience;
- b. Has a background in one of the following working fields: architecture, structural engineering, mechanical engineering, electrical engineering, construction management, building management.

#### Tasks:

- Manages and coordinates project deliveries. Defines tasks together with project team.
- Strives to build strong network connections with project stakeholders.
- Discusses with internal and external parties such as contractors and subcontractors
- Mediates between the different decision makers (for example, Client Project Manager, designers, production managers or worksites) and BIM Modeller (Data Configurators in the Information Model)
- Insert the disciplinary knowledge into the operational modelling and into the information management
- Creates, develops and extracts documentation from models.

#### Competencies:

- Technical skills and knowledge.
- Communication and collaboration skills.
- Capability to contribute, to produce and check a Model of current fixed assets
- Solution-oriented
- Capability to analyse a proposal of Information Management
- Knowledge of BIM standards.

### 3. Country BIM strategies

The partners have analysed the situation in the different countries when implementing the EU directive on public procurement in relation to the digitalization of the building sector.

#### Italian BIM Strategy implementation

The Directive 2014/24/EU on public procurement has been implemented with the national decree n.50/2016 and it foresees:

- BIM is requested on voluntary basis till the end of this year, but it will be compulsory by the first of January 2019 for works over 100 million
- Gradually all the other works will become compulsory by 2025.
- A 10.000 € voucher will be awarded to SMEs interested to implement BIM when purchasing HW/SW or training

A BIM task group was created at government level to implement the EU Directive 2014/24/EU.

A new group will be created to monitor the implementation of the Italian decree and suggest variation/actions.

In Italy, the standards for the building sector are defined by UNI (Ente Nazionale Italiano di Unificazione), which is a private no-profit association recognised by the Italian Government and the European Union which elaborates and publishes technical regulations in each industry from around 100 years. UNI represents Italy in the European Standardization Body (CEN) and Global Standardization Body (ISO).

The goals of UNI are:

- to promote and harmonize regulations concerning the Italian Single Market
- to sustain and transpose the Italian production methods with standards and specification which can increase the value of the products.

The regulation activity is made by a multilevel structure organized in 1.100 Technical Offices and by 7 independent external organizations (Federal Body) under the supervision of Central Technical Committee.

The UNI regulations for the digitalization of the construction industry at National level are:

<b>UNI 11337-1:2017</b> <ul style="list-style-type: none"> <li>• structure of information vehicles</li> <li>• information structure of processes</li> <li>• information structure of products</li> </ul>	<b>UNI 11337-2</b> <ul style="list-style-type: none"> <li>• Identification, classification and denomination of buildings and engineering works in common way</li> <li>• Identification, classification and denomination of services, supply, works in common way</li> <li>• Identification, classification and denomination of human resources, products and equipments in common way</li> </ul>	<b>UNI/TS 11337-3:2015</b> <ul style="list-style-type: none"> <li>• qualitative and measurable description of data and technical information for Technicians</li> <li>• quantitative and measurable description of data and technical information for Technicians</li> </ul>	<b>UNI 11337-4:2017</b> <ul style="list-style-type: none"> <li>• identify goals in each phase of the building life cycle</li> <li>• define a common level scale for the information development of objectives</li> <li>• define a common level scale for working stages</li> </ul>
<b>UNI 11337-5:2017</b> <ul style="list-style-type: none"> <li>• Define roles, rules and working flows for the production, management and transmission of information and their linking to Building Information Modelling</li> </ul>	<b>UNI 11337-6</b> <ul style="list-style-type: none"> <li>• Digital management of Building Information Models</li> <li>• Guidelines for the Information Specifications</li> </ul>	<b>UNI 11337-7</b> <ul style="list-style-type: none"> <li>• Requirements, knowledge, skills and competences for figures involved in Building Information Modeling (work in progress)</li> </ul>	<b>UNI 11337-8</b> <ul style="list-style-type: none"> <li>• Integrated processes of information management and decision-making (work in progress)</li> </ul>

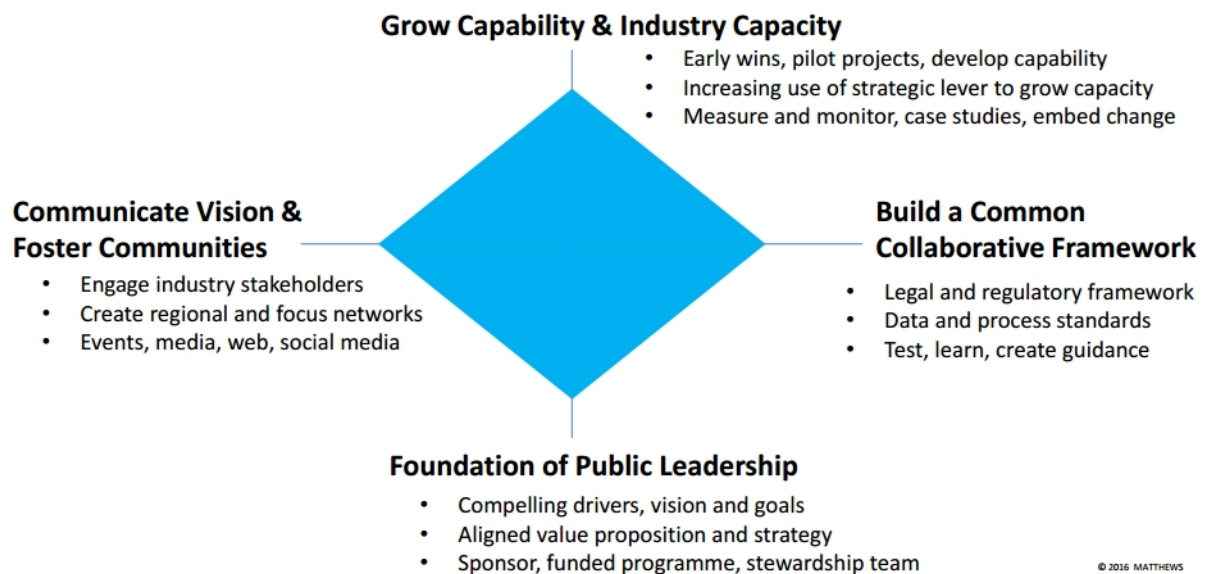
Other non-government organizations are:

- IBIMI, network of BIM professionals launched three year ago, providing assistance to contracting authority for BIM implementation and now supporting RFI (National railroad company) [www.ibimi.it](http://www.ibimi.it)
- BuildingSMART Italian chapter set up about ten year ago supported the EU directive implementation [www.buildingsmartitalia.org](http://www.buildingsmartitalia.org)
- assoBIM: an association mainly of software houses promoting their products among stakeholders.

## Slovak BIM Strategy implementation

Slovak strategy for implementing BIM follows the well established framework:

### Strategic Framework for Public Sector BIM Programs



Slovak government pursued an early partnership with the stakeholders to grow capability and capacity of the construction sector in implementing BIM. The cooperation is governed by the BIM Task Force of the Ministry of Transport, Construction and Regional Development of the Slovak Republic providing a forum for dialogue with the stakeholders such as industry associations (ZSPS - Association of Construction Entrepreneurs of Slovakia, major market players), chambers of construction professionals (civil engineers and architects), Slovak BIM Association, universities and others.

The private sector is currently a driving force in implementing BIM and ZSPS established a BIM Working Group affiliating the major companies and professionals from the private sector.

The stakeholders met in several occasions to discuss issues related with BIM implementation, while the annual BIM conference is a main forum for exchanging best practice and disseminating information on BIM and the latest progress made.

The Slovak government focused on developing a common collaborative framework for using BIM in all steps of the building life cycle and began to develop a wider understanding of the required legal and regulatory framework, new data, standard process, and industry proven guidance are all key areas of BIM implementation and exploitation. Faculty of Civil Engineering of the Slovak University of Technology provides vital expert support to the government and represents Slovakia in EU BIM task Group.

The governmental efforts are supported by Slovak Office for Standardisation, Metrology and Testing that set up in 2017 the Technical Committee No 121 on BIM. The objective of this technical working group will



be standardisation in the area of semantic information of the building life cycle. TK 121 does not plan to develop standards at national level for BIM, the aim of the standardisation office is to take over the outcomes of the standardisation activities of CEN and ISO.

The stakeholders are currently discussing how BIM can be incorporated in the Slovak legislation, including transposition of all relevant EU rules and laws.

### Spanish BIM Strategy implementation

In Spain the Ministry of Development, Public Works and Housing, has set up the Es.BIM group, which is open to all agents involved (administrators, engineers, builders, universities, professionals, etc.) whose main mission is the implementation of BIM in Spain. It is characterised by being a multidisciplinary group, organised by subjects where a chairman will act as the driving force in the works.

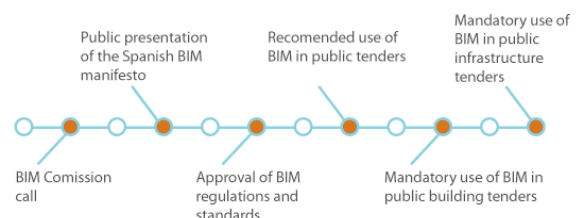
Five smaller Work Groups have been defined:

- GT1 – Strategy
- GT2 – People
- GT3 – Processes
- GT4 – Technology
- GT5 – International



The Spanish roadmap for BIM implementation is represented in the figure and it foresees first voluntary use of BIM in public tender, then mandatory use in two steps, first for public building and then for infrastructure.

#### Road map



In Spain the BuildingSMART chapter is very active and has organized, in 2017 di open BIM tour with the aim of gathering more and more interest from both the private and the public organization on the use of BIM for the building industry.

At national level, the standardization body AENOR, has an Organization of Information about Construction Works called AEN/CTN 41/SC 13 (Organización de modelos de información relativos a la edificación y la obra civil). The secretary is Mr. Arturo Alarcón and the chairperson is Mr. Pablo Callegaris.

### Dutch BIM Strategy implementation

The 2014/24/EU directive is implemented at national level; however, it is used for procurement of the national government. Meaning, other market parties are not obliged to use it. The national government of the Netherlands encourages the free market principle so no BIM related regulation is mandatory (for now). There are some guidelines, for example the national standardisation body has 4 standards, however they are not mandatory following the Building Regulation:

- NPR-ISO/TS 12911:2012 en – Framework for building modelling (BIM) guidance
- ISO 15686-4:2014 en – Gebouwen en constructies – Planning van de levensduur – Deel 2: Levensduur bepaald volgens op IFC gebaseerde Bouw Informatie Model
- NEN-ISO/IEC 15938-6:2003 en – Information technology – Multimedia content description interface – Part 6: Reference software
- ASTM E3035 – 15 en – Standard Classification for Facility Asset Component Tracking System (FACTS)

The construction companies endorse the Informatie Levering Specificatie (ILS), freely translated: Information Delivery Specification. This is a rule set of basic properties and how values of properties are used in IFC. Mainly used to exchange information with subcontractors even if a lot of information during transfers are lost. This is based on the BsDD. However, only bigger companies are using it. The Netherlands is represented in the BuildingSmart Benelux chapter.

ISSO's counterpart SBRCURnet started the BIM Academy initiative. The BIM Academy offers a place for BIM-related training.

### Croatian BIM Strategy implementation

In Croatia, there isn't a law that states BIM must be used, but there are General Guidelines for BIM Approach in Construction. It's still not common practice to use BIM and standards from other countries are used.

Probably, BIM will soon be more widespread in Croatia, but only for bigger projects (not family houses) at first.

The Croatian Net-UBIEP Team Project had BIM conference two months ago where the project was presented. The presentation of Net-UBIEP is also included in Fit-to-NZEB project.

## Estonian BIM Strategy implementation

Different to majority of other countries in EU, the Estonian strategy to invigorate the implementation and use of Building Information Modelling in the construction industry is through the facilitation of democratic developments in the supply and demand domains. To justify this claim, there are no national BIM mandates in the public procurement. On the other hand, national procurement law does not hinder the implementation of BIM in public projects. The law states that when the procurer has required the delivery of BIM models, this information exchange must be conducted in IFC format (industry foundation classes for construction). The two larger trends in our industry include the development of BIM guidelines and requirements from the perspective of building owners and managers, and the development of the supply by establishing BIM processes and infrastructure. Under the leadership of the Estonian Ministry of Economic Affairs and Communications, the largest Estonian public owners, signed a declaration of common interests in implementing the Building Information Model for procuring new projects within the next five years. From the supply end, a Estonian Digital Construction cluster was established in 2015. Cluster partners have focused on the development of digital construction environment within the whole construction value chain from design to the building operations.

In the recent years, BIM adoption in construction has increased. In addition to design enterprises also construction companies started to implement BIM technology. For example, the largest general contracting companies such as Merko and Nordecon have developed new capabilities, which have given them the competitive advantage on the market

<http://merko.ee/en/about-merko/business-segments/bim-building-information-modelling/>

<http://www.ehitusuudised.ee/uudised/2017/02/01/no-title>

<http://www.nordecon.com/company-info/Innovative-attitude/building-information-modelling>

Unfortunately, the quality is still low and the overall BIM implementation requires improvements. Additionally, companies providing facilities management services have yet to discover the potential applications of BIM technology.

The poor quality or poor adoption in the Estonia construction industry depends not on the software and hardware, but rather, on the overall lack of awareness of BIM benefits and low competencies. For example, clients and construction companies are not able to tell exactly what content, detail and information should be in the model so that it would be useful for later application in construction engineering and management as well as in the management of buildings.

Estonian Group of Lean Construction (ETET / EGLC), which was established in 2009, has, since the beginning, focused on promoting the development of new BIM and lean practices. For that purpose, Estonian Group for Lean construction has cooperated with organizations nationally and internationally. ETET / EGLC supports education and research in universities and the implementation of new methods in companies. Estonian Group of Lean Construction organizes annual seminars on using BIM and lean in construction sector.

<https://www.youtube.com/user/MTUETET>

However, the need to implement BIM has grown because of the Estonian Real Estate Agency who mandates on their projects the usage of BIM. Therefore, companies typically taking part of their projects have developed routine capabilities to implement BIM.

<http://www.rkas.ee/bim>

BIM Academy:

<https://www.ttu.ee/en?id=26999&koolitus=5058>

The aim of the course is to provide a comprehensive view of various aspects of using models in design. The training course has been developed based on the Finish Common BIM Requirements guidelines, which were adapted to Estonian construction industry in 2012.

Guidelines have been made freely available through several organizations, including the Estonian Centre for Construction Information

<http://ehituskeskus.ee/kasulikku/bim/>

and the Estonian Centre for Standardization

<https://www.evs.ee/Tootedjateenused/Tasutajuhendmaterjalid/tabid/380/Default.aspx>

Different Estonian universities, including the Tallinn University of Technology, Tallinn University of Applied Sciences, Estonian Academy of Arts and Tartu TTÜ College have developed basic BIM courses in the building domain. These courses have been introduced during various times but more systematic teaching of BIM started in 2012.

### Lithuanian BIM Strategy implementation

The digitization processes of construction in Lithuania are coordinated by one institution (Public Institution "Digital Construction"). This ensures the creation of a unified BIM methodology and the balanced management of BIM development processes. Public institution "Digital construction" (established by 13 construction sector associations) mainly developing and promoting BIM methodology in Lithuania, was official established in 2014 ([www.digitalconstruction.lt](http://www.digitalconstruction.lt); [www.skaitmeninestatyba.lt](http://www.skaitmeninestatyba.lt) ).

Main activities:

- ✓ From 2012 organizing annual international conferences.
- ✓ From 2016 – organizing best Lithuanian BIM project contest.
- ✓ BIM methodology guides and templates are under development.
- ✓ From 2017, together with Lithuanian Builders association started BIM competences development model and started BIM trainings for construction and design companies.
- ✓ Digital Construction is preparing to carry out the assessment of BIM specialists' competences in Lithuania. The aim is to ensure that the certificates of competences issued by Digital Construction are recognized in other countries as well.
- ✓ At the end of 2017, 3 BIM related competences profiles were developed and presented.
- ✓ Participants in the construction sector (companies, associations) are benevolent and active in the implementation of Digital Construction in Lithuania.
- ✓ Lithuania represented by public organization "Digital construction" from 2015 is an associated member of BuildingSmart Nordic (together with Denmark, Sweden, Finland). Lithuania and Estonia are associate members. In December 2017 Lithuania presented request to become official chapter member of BuildingSmart Nordic chapter.
- ✓ Lithuanian Builders Association implements the project (STATREG) to launch national Construction Workers Competencies Digital Register aimed at collecting and providing

information regarding the qualifications and skills, trainings, qualifications development opportunities, and the certification process for workers. Register will include employee's Digital CV's.

- ✓ On September 28, 2015 The Government of the Republic of Lithuania officially recognized the initiative for the digitization of the Lithuanian construction sector.
- ✓ On November 3, 2015 Lithuanian Ministry of Environment approved a working group for the implementation of the Lithuanian construction sector digitization initiative. The main result of the activities of working group "Feasibility study of Lithuanian construction sector digitalization possibilities" were developed by the Public Institution "Digital construction" during 2016-2017. Based on the study results, government working group prepared a plan for Lithuanian construction sector digitalization for 2017-2021.
- ✓ In Lithuania, there are still no legal requirements for BIM processes and BIM competencies. No law for mandatory BIM use in Lithuania. However, some public organizations starting use BIM requirements in their projects. As example, Lithuanian Real state bank started use BIM requirements in their modernization projects; Universities and hospitals also started use BIM requirements within some construction related projects;
- ✓ So far, only two ISO standards have been adapted in Lithuania: LST ISO 29481-2:2017 "Building information models – Information delivery manual – Part 2: Interaction framework" and LST ISO/TS 12911:2015 "Framework for building information modelling (BIM) guidance".
- ✓ EU public procurement directive is implemented, but article related with BIM is implemented just as recommendation.
- ✓ In Lithuania construction digitization takes place mainly at the expense of private initiatives. Although, even as "digital construction" is included in the list of priority research and innovation areas called "Smart Specialization" as a strategy for state support to research and innovation, there is no significant support from the state. Since the preparation of the strategy in 2012, the institution coordinating the digitization of construction in Lithuania did not receive support to BIM related research from the national funds.
- ✓ the first formal Education (Master's Degree) study program "Building Information Modelling" was developed and implemented in Vilnius Gediminas Technical University in 2015.

#### 4. BuildingSMART activities on professional profiles

The content of this newsletter has been produced taking information from the following link:

<https://www.buildingsmart.org/compliance/professional-certification/>

With the launch of the Professional Certification program buildingSMART provides a global benchmark for openBIM competency assessment. This international initiative is being developed and adopted in Europe, Asia and the Americas.

For BIM adoption to be successful, we need:

- Consensus in the use of standardised terminology and processes
- Benchmarking mechanism against which the competence of individuals can be measured.

The buildingSMART Professional Certification program enables learning organisations to educate and certify individuals according to a recognised global learning framework. This is a quality assurance for compliance with established openBIM standards. It will help to bring clarity and consistency to the education of individual in this field.

The program is a proof of competence for professionals working with Building Information Modelling. Qualified and Certified professionals can demonstrate that their knowledge is consistent with international standards and best practices.

#### Program Scope

buildingSMART International will not be delivering trainings itself, but will support training organisations through its global learning framework, online certification platform and resource material.

The program has the following goals:

- To standardise and promote openBIM training content
- To support and accredit training organisations
- To testing and certifying individuals

Individual Qualification, or knowledge-based learning (launched as Phase 1) is designed to introduce the basic concepts and principles of openBIM. This focuses on theory-based learning that does not include software training or hands-on practice.

The Individual Qualification is built around a single Basic module that can be delivered in a 2-day course. Professional Certification, or applied learning (to be launched at Phase 2), addresses the application of openBIM principles in the project environment. It is a practice-driven, comprehensive training comprised of specific role based modules such as:

- Manager
- Coordinator
- Consultant
- Contractor
- Owner
- Facility Manager
- Manufacturer

The Basic module is the prerequisite for all further modules.

#### Learning Outcome Framework – Individual Qualification

Each training module is based on a Learning Outcome Framework (LOF); essentially a list of learning objectives. The LOF's are the basis from which develop course content. They are also the foundation for the assessment and qualification process. The official buildingSMART international LOF is in working progress and will be published timely within the launch of the program.

#### Assessment and Qualification – Individual Qualification

Assessment and qualification is managed via an online assessment platform. For each module there is a separate assessment derived from a database of questions. The questions correlate to the individual learning objectives defined in the learning outcome framework.

#### Professional Certification Committee

The program is being developed and coordinated by the buildingSMART Professional Certification Committee. This is a team of specialists representing eight buildingSMART chapters; Switzerland, Norway, German Speaking, Canada, UKI, Spain, Korea and Japan.

## 5. Key messages for the main targets

Net-UBIEP is interested in establishing a dialogue and extensive collaboration with professionals, technicians and construction companies in order to create a national network of associated partners with whom to share the qualification and training needs and pick up the challenge of the digitalization of the building industry.

### Public administration

PA needs to be ready to the digitalization of building processes including the energy performance improvement because it brings an economical advantage and the improvement of the welfare of citizens. Net-UBIEP will organize workshops, focus groups and interviews in the beginning of 2018

Public administration officers working in different authorization offices, will be involved in the definition of requirements for managing authorization processes of digital design for both public and private buildings

The public administration, which will join to Net-UBIEP as associated partner, will be invited to the workshops free of charge.

### Engineers and architects

There is the need for engineers and architects to be ready to increase their capability to simulate, through BIM, the use of new technologies and materials to improve the energy performance of buildings and satisfy the needs of their customers with better quality at reduced costs.

BIM is diffused into construction industry and new digital technologies allow competitors from other countries to enter any markets. The first professional who will be able to respond to this challenge will gain important advantage in the building market.

Net-UBIEP will develop training section to improve BIM competences for increased energy performance of existing as well as new buildings.

Professionals, who will join Net-UBIEP, as associated partners, can be involved in the pilot actions.

Moreover, they will be involved in the definition of requirements to improve the data exchange along the life cycle of a building useful to increase energy performance of buildings.

### Technicians and producers

There is a need to be ready to manage the digital model of a real building when installing or maintaining plants as well as structures because the market will require more efficient maintenance services and the use of digital information will allow better services at lower prices.



Net-UBIEP will organize workshops, to better promote knowledge of the energy efficiency management through BIM. E-learning courses will be developed to spread the knowledge of the use of BIM model for better design of automation systems and better maintenance services. The installer and producer associations will be involved in the definition of requirements that technicians should possess in order to professionally use the BIM technology.

The technicians will improve their performance by lowering the costs for the customers and increasing their income. The producers of new technologies will be ready to integrate their product into the BIM model, realized by the designers, as “BIM objects”.

The main objective will be to teach how to use the BIM to view the plants and facilities, maintain them by updating the model with all the information required for any future use during the entire life of a building.

Installers associations and producers of materials and components for the building industry are invited to become associated partners of the Net-UBIEP project to contribute to the definition of a professional qualification as “BIM user” and to participate to the workshops organized for the project.

### Owner, tenants and facilities managers

There is a need, for this target group, to understand the usefulness and economic benefits of using BIM. BIM helps to decrease the costs for the management and the maintenance of buildings, but only if owners, tenants and facility managers are ready to invest on the realization of a 3D-model of the building populated with all the information necessary to optimize the building management.

The accessibility to all the information related to installations of the plant will reduce the time of maintenance and, as a consequence, the costs.

Net-UBIEP partners will organize, at national levels workshops, focus groups and interviews in order to define the requirements from the user perspective. The representatives of public and private buildings associations are invited to express their interest to an active participation, by becoming an associated partner of Net-UBIEP.

These workshops aim to provide evidence on the return of investment by comparing the existing management and maintenance costs to cost reduction with the help of BIM.

### Financial Institutions and ESCOs

Financial Institutions and ESCOs are not among the Net-UBIEP main targets but we believe that it is important for them to understand that, to be sure of the return on investment for energy refurbishment, they need to employ professionals and builders producing the 3D-model of the building populated with all the information needed to optimize the building management and drastically reduce maintenance costs.

Interviews will be organized with this target group and questionnaires will be provided to understand all the benefits of this building industry revolution. In addition to the obligations arising from the new public procurement law, in fact, BIM can help to reduce management and maintenance costs and reduce the return of investments as well as the business risk. BIM modelling, if properly done, allows evaluating the timing and the cost of the interventions.