

BIMCert – Construction skills, Energy efficiency, Regulating supply chain and Tackling climate change

Summary

BIMCERT (Figure 1) is the development of a series of training interventions using digital technology and improved blended learning techniques to support, enhance and maximise the impact of energy efficient skills at all operational levels within the modern construction industry. BIMCERT provides an easily accessible portal for training the vast middle tier of construction industry supply chain workers.

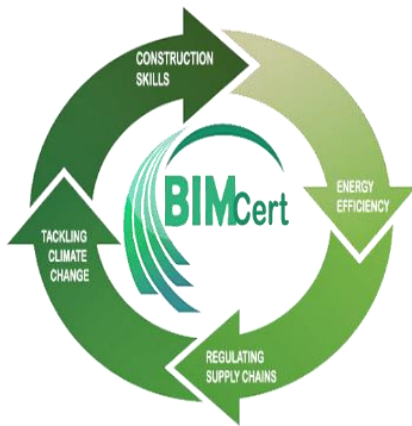


Figure 1. BIMcert Project.

The framework and materials supporting the portal will improve workers BIM skills, thus leading to better collaborative working that guarantees energy efficient, sustainable buildings and increased quality throughout the entire construction supply chain. BIMCERT thus ensures that this construction industry tier has access to an innovative skills training platform that enables them to exceed their current non-integrated 2D and 3D functionality to an optimised skill level enabling the sector to achieve energy efficiencies and carbon reduction. In addition to the middle tier construction workforce, the solutions provided by BIMCERT are also targeted for use by a wide range of end-users and workers in the construction and building industry, as well as other associated industries. The development, testing, demonstration and validation activities that support BIMCERT tools and methodologies will focus on the multidisciplinary approaches and concepts (especially in relation to the social and human considerations of collaboration) required for successful uptake in operational environments. Validation will be achieved through active participation of relevant industry and academic stakeholders at all stages of the tool development. BIMCERT will also consider relevant policies in all jurisdictions and will engage and support decision-makers to facilitate implementation.

BIMCERT Overall Concept

In response to the specifics of the Call, BIMCERT will develop efficient and relevant training programme materials to integrate concepts of sustainability and optimised construction together with practical applications of BIM technologies and methods, based on real life industry needs and situations.

BIM is a set of tools and workflows that enables construction and long-term management of the built environment to be carried out in a sustainable, cost-effective and timely manner to the benefit of end users (typically owners of buildings or infrastructure, their facilities managers, their employees, and their clients), the entire construction sector, and society at large.

These workflows are based on standards and technologies that currently have many different origins, e.g. national standard or software-based developments. BIMCERT will utilise the common ground of international standards and interoperable BIM software and OpenBIM formats to upskill workers across the sector in a "common language" of BIM and energy-efficient construction. This language will include reference to off-site fabrication and retrofitting of existing building stock (70% of existing building stock will still be in use in 2050 and needs to be renovated to standards compatible with the requirements of the EU Buildings Directive).

Construction experiences peaks and troughs of activity in different locations and it is essential that the sector has a mobile workforce who can operate in different jurisdictions through a common language; in this case BIM. BIMCERT will create a BIMCERT passport which will map an individual's competencies against national and international accreditation (including EFQ) and which will enable individual mobility and rapid redeployment / employment of staff by SMEs and larger companies in response to project-based requirements.

The BIMCERT consortium is highly connected to industry and to academic, and the network of partners, advisory partners, and technical advisors will ensure that during the project and after its completion the training method and accreditation system will have a significant positive impact upon the achievement of the EU's goals for sustainability in the built environment through the upskilling of construction workers across all levels within the sector.

Informed by the BIM STRATEGIC COMPASS (Figure 2), BIMCERT will develop training modules for construction skills based BIM and utilising prototype building examples. A simulated live building project will be selected/developed. At



Project Reference

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Leading Institution

Belfast Met – Belfast Metropolitan College (United Kingdom)

Partners

IST – Instituto Superior Técnico (Portugal), IECE – Institute for Research in Environment, Civil Engineering and Energy (North Macedonia), EIHP – Energetski Institut Hrvoje Pozar (Croatia), Future Analytics Consulting Limited (Ireland), CITB – Construction Industry Training Board (United Kingdom), TU Dublin – Technological University Dublin (Ireland)

CERIS Principal Investigator

António Aguiar Costa
(aguiar.costa@tecnico.ulisboa.pt)

CERIS Research Team

Amílcar Arantes

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Total

1 242 137.75€

CERIS

156 193.75€

Project Website

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least two design and construction options (based in prefabrication/retrofitting), linked to two industry manufacturers, will be tested in the building(s) in order to try to achieve a nearly zero energy / or passive house certification criteria parameters in the most efficient and cost-effective way. BIM and other technologies will be used to integrate and coordinate several disciplines, and to measure energy efficiency, cost and green credentials.

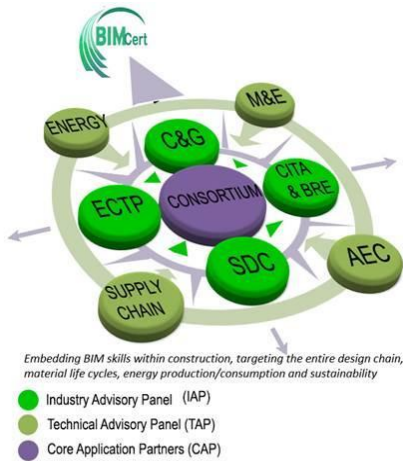


Figure 2. BIMcert Compass.

The training modules will be contained in a platform and will be developed fully in accordance with relevant European regulations and technical codes related to energy efficiency in buildings, as well as European Qualification Framework, which will provide for its wide geographical range of applicability and a long-term actuality and sustainability. The initial

level of skills as well as the level of skills acquired during the training program will be determined in compliance with the EQF ranking scale, for different sections of participants / program modules. In order to ensure the quality and recognition, the training program will be accredited by an international accreditation association. The training program will be tailor-made, according to the surveyed needs of workers and employers in the building sector. In addition, specially designed learning environment will meet the needs of learners with initial high professional knowledge, providing flexibility and innovative approaches of delivery of the program. The training program will be organized using blended learning concept – a combination of traditional and e-learning concepts – and learners will be actively engaged through utilisation of verified gamification techniques.

Taking in consideration the variety of profiles, professional occupations and competences of participants in the construction sector, the BIMCERT training will comprise several modules including the following initial suggestions. The modules will be based upon the development of a number of prototype build case studies where:

A potential live site for building development is selected.

At least two different design and building/construction proposals/ approaches will be developed, based on prefabrication methods, as per partner's expertise and field.