Mobilising the construction sector by inspiring demand for sustainable energy skills

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CITA WEBINAR

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https://energybimcert.eu

BIMcert - Construction skills - Energy efficiency - Regulating supply chain - Tackling climate change
Nearly 90% of global business leaders recognize the critical importance of adopting intelligent automation.  
70% of construction companies believe that those who do not adopt digital tools will go out of business.

The challenge is to mobilise the workforce to address digital transition and empower the sector.

1. To transition to this 'digital workforce.'
2. To optimize the opportunities presenting themselves
3. To deploying the digital workforce at scale.
4. To overcome ‘digital dissonance’

This situation has been further exacerbated by the COVID-19 pandemic
Environmental

Buildings account for 17.7% of the global Green House Gas emissions globally

- Residential 10.9%
- Commercial 6.6%

8.74 billion tonnes of CO₂ equivalents (CO₂e).

Source: Climate Watch and the World Resources Institute 2016
when total emissions reached 49.4 billion tonnes of CO₂ equivalents (CO₂e).
# Agenda

1. **Construction Industry Challenges**
2. **BIMcert**
   - How we developed delivered modules
   - Out bite sized learning non linear pathways
   - Material from Barry – TU Dublin
3. **BIM Energy Performance Alliance BIM-EPA**
   - harnessing the EU projects
   - Sharing the modules
4. **ARISE**
   - monetizing the skills and learning exchange
   - System based on skills recognition rather than accreditation
5. **digiCONEX**
   - aims and objectives
Construction Industry Task

Most of the issues related to low demand for skilled workforce are due to:

1. lack of a widely recognized and accepted international scheme of certified qualifications for sustainable construction and sustainable energy skills;
2. lack of awareness and uptake by the industry of new methods and digitalisation;
3. lack of mandate or incentive by public authorities for the use of such skills.

The formerly called “brick and mortar” industry has entered the digital age.

Use the twin ecological and digital transitions opportunities as the catalyst for sector growth
Digitalisation

The fact that digital transformation is taking place at a slow pace in the European construction industry means a huge gap between theoretical digital opportunities and the realities of on-site construction.

This gap can be addressed by mobilising the construction sector by inspiring demand for sustainable energy skills through

- Digital skills
- Digital workflows
- Digital delivery
Construction Energy Challenges

• Governments, particularly in the EU, are increasing their CO₂ and energy efficiency regulations and raising their targets,
• EU strategies and policies for decarbonization of the construction sector and approaching NZEBs are being established

• Digitalisation goes hand in hand with energy skills
  • provides a great opportunity to reduce the environmental impact of construction projects.
  • Makes energy skills of construction workforce more effective, easier to improve and provides confirmable effects in rational and smart use of materials and energy.
BIMcert aims to prepare the architecture, engineering and construction (AEC) sector for the double challenge of energy efficiency and digitalization.

Its e-learning platform puts the spotlight on building information modelling (BIM) as an enabling tool to support the decarbonisation of buildings across their whole life-cycle.
Learner Driven

Modules are adaptable to each learners needs and career pathways
Leaners can pick the micro accreditations that suit them

Allow learner to gain skills required for their own professional needs, combine them to obtain either pre-established qualification or an unique “BIM Passport” skillset recognised via BIMcert

Several micro accreditations (covering specific knowledge and skills)

Flexibility to build your own personalised skillset

Not a linear progression
Bite sized micro accreditation

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SMALL STEPS
MICRO
MODULES
Suitability for different profiles and “real time” skill needs

- What is BIM & digital construction?
- BIM Terms & Definitions
- What are BIM (Maturity) Levels?
- BIM Dimensions

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Non prescriptive

- **Stride 2A**: Learner selects a stand alone Unit aimed at BIM novices.
- **Stride 2B**: Learner selects a stand alone Unit aimed at those professionals with a deeper BIM knowledge.
- **Stride 2C**: Learner selects a course (c) which contains a number of units. Successful completion of relevant units will enable learners access to advanced modules.

<table>
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<tr>
<th>Stride 2A</th>
<th>Stride 2B</th>
<th>Stride 2C</th>
<th>Stride 3</th>
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<tr>
<td>Into to BIM Fundamentals (u)</td>
<td>Digital Collaboration in Construction (U)</td>
<td>Advanced BIM &amp; Energy Efficiency (C)</td>
<td>BIM for Clients</td>
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<td>BIM Principles (u)</td>
<td>Information Management for Digital Construction (U)</td>
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<td>BIM Data Site Management</td>
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<td>Digital Skills (u)</td>
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<td>BIM for Manufacturers &amp; Prefabrication</td>
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<td>3D BIM Modelling Intro (U)</td>
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<td>BIM for Visualisations</td>
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<td>3D BIM Parametric Objects (U)</td>
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<td>BIM Compliance, verification &amp; lifecycle</td>
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<td>Visual Programming for Digital Const.</td>
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<td>Lean BIM</td>
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<td>VR and AR for Digital Construction</td>
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Benefit flow

BIMcert Training

Enabling more efficient Project Management via BIM & Digitalisation

Less waste and reduced Co2 emissions

Reduction in design/performance gaps

More energy efficiency
Industry informed

- Seven Core Application Partners (CAP),
- Industry Advisory Partnership (IAP) led by O’Hare & McGovern
- Technical Advisory Partnership (TAP) led by Dr James Harty in the Copenhagen School of Design & Technology
- Wider support network encompassing many public bodies and authorities across Europe including Invest NI, Enterprise Ireland and the EASME.

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BIM-EPA
BIM Energy Performance Alliance

- BIMcert
- Net UBIEP
- BIMeet
- BIMplement
- BIMzeED

- Digitalisation – a vital enabler of Net Zero Construction
- Alliance of 100 partners across 24 EU countries
- Shared resources
- Digital library of tools, modules and blended materials
- Supporting digital transformation in the built environment.
- Stimulating the demand for sustainable energy skills
- Providing clear upskilling transactions and recognition of upskilling performed

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BIM-EPA focus

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

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BIM-EPA Objectives

• There is a need to unite construction techniques, policy formulation and policy implementation into a balanced and coherent system towards sustainability of the building sector.

• A unified program for qualifications for sustainable energy construction skills needs to be developed in order to enhance wider market recognition, more intensive demand and more stimulating support provided by policy and regulatory framework, for construction sector workforce skilled and qualified to execute works connected to achievement of sustainable energy performance of buildings.
BIM- EPA Journey

- Status Quo Analysis
- National Qualifications Platforms
- National Roadmaps
- Qualification & Training Schemes; European framework of BIM and sustainable energy qualifications

Stimulate demand

BUILD UP 2011 -

BUILD UP 2019 – 2022 IDSES
BIM-EPA focus

Focus of work
• Energy targets, energy savings
• Dissemination and communication
• Accreditation and certification
• Exploitation
• Future Collaborative opportunities
• A BIM skills individual learning account (ILA) for workers
The 5A STAR stimulus approach to increasing demand for sustainable energy skills in the construction sector will be achieved by:

Awakening,
Relevant,
Innovative,
Scalable,
Equitable
Inspiring the Demand

- ARISE will revolutionise the learning process by monetizing the skills and learning exchange with a system based on skills recognition rather than accreditation.
- ARISE is developing a European-wide distinguishable recognition scheme of digital energy efficient BIM construction skills linked with a maturity-based digital ranking system for accounting CPD learning transactions.
- The open competency based qualification scheme based on maturity levels that empower micro-learning will be the basis for making learning transactions count.
- Develop a CPD recognition pathway for the whole supply chain to access and utilise.
- CERTcoin – the innovative currency of skills and learning of the construction sector embracing today’s digital transformation benefits.
- This reward based on skills and time credits will be stored in an Individual learning Account.
- ARISE will complement and integrate with other existing projects, instruments and initiatives to deliver increased levels of sustainable energy skills across the entire supply chain of the construction sector.
• The journey itself is quite different from usual training schemes. A first innovation lies in personalisation: the system systematically taps into the experience of learning professionals to get them familiar with new digital technology. Comparisons are then provided, emphasizing the benefits of digitalization at individual and industry level.
<table>
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<th>Accreditation → Recognition</th>
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<tr>
<td><strong>Awarding body (OCN NI)</strong>- Qualifications approved into National Framework</td>
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<td>Combination of mirroring L0 and recognition of Bespoke accreditation- Micro accreditation</td>
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<td><strong>Engaged other accreditation entities for other routes.</strong> E.g. BRE partnership</td>
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<td><strong>Digital badging support</strong></td>
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<td>Consortium Partner Institutes, provide further status at initial stage of dissemination of BIMcert</td>
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<td><strong>Engagement with Building Smart</strong></td>
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<td>Mapping to energy qualification via BIMcert participation within BIMAlliance</td>
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<td><strong>CPD Engagement</strong></td>
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<td>Additional route for recognition of BIMcert as a continuous professional development tool and to strength reach and status of BIMcert as a “skills Passport”</td>
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UPSKILLING BARRIERS

Suitability for different profiles and “real time” skill needs
Centre of Excellence for Digital Construction

- Promote and enhance the use of digital skills in the construction sector
- Share knowledge, best practice, inspire collaboration and showcase new opportunities in digitalisation of construction.
- Support Smart Construction i.e. Offsite Manufacturing, Digital Technologies and High Performance Buildings.
- Establish a Skills Hub which will explore the future of skills in the built environment and the ways in which we can encourage new entrants into the industry.
- Deliver BIM training, accreditation, digital certification of skills and deliver our innovative EU wide Digital Transformation ILA
- Become the key to transforming and changing the face of our industry.
- Assist industry to reduce the carbon footprint of the construction sector
Centre of Excellence in Digital Construction core ‘foundation’ group

- **Industry Champion**
  Martin Lennon O’Hare & McGovern (OHMG)
- **Industry Representation**
  Alan Hore Technological University Dublin (TU Dublin)
  Suzanne Purcell Construction Industry Alliance (CITA)
- **ROI Academia**
  Avril Behan Technological University Dublin (TU Dublin)
  Alan Hore Technological University Dublin (TU Dublin)
  Elisabeth O’Brien Limerick Institute of Technology (LIT)
- **NI Academia**
  Neil Hewitt Ulster University (UU)
  Gervase Cunningham Ulster University (UU)
  Paul McCormack Belfast Metropolitan College (BMC)
- **International Representatives**
  James Harty Copenhagen School of Design & Architecture (KEA)
  Dijana Likar IECE Macedonia
  BIMalliance representative
Mapping of Digital Online Courses.

Breakdown
46 online BIM modules from 7 projects
BIMzeED – 12 modules
BIMCert – 8 modules
BIMEET – 1 module
BIMPlement – 13 modules
Building Smart - 5 modules
NetUBIEP – 6 modules
ZEBRA – 1 module

Target groups - 60% White Collar, 40% Blue Collar
These cover the following:
Professionals (60%), Technicians (20%), Specialists (30%), Site Supervisors (20%), Trades and Workers (30%)

Delivery Mode and Duration:
Blended and online - where 80% are 1-2 days contact and 20% are micro units of 1-2hrs. All in English and also other languages.
Types of tools used for assessment– quizzes and gamification, BIM/digital tutorials and practicals, written work, poster presentations, group work, group discussions.

EQF vs CPD/Credits
BIMzeED - EQF 5-7 – contact 8-10hrs, online self study 24-10hrs
BIMCert – CPD/Credits – contact 1-2 hrs online
BIMEET – CPD/Credits – contact 1hr online, 2 days in class
BIMPlement – CPD/Credits – contact 1hr on-site
Building Smart – CPD/Credits – contacts 6-14hrs online
NetUBIEP – CPD/Credits – contact 16-24hrs blended

88% using assessments only
12% with assessment and exams.
Access Training Modules
BIMcert website

https://energybimcert.eu/

BIMcert Animation