

CONSTRUCTION SKILLS ENERGY EFFICIENCY
REGULATING SUPPLY CHAINS TACKLING CLIMATE CHANGE

BIM CERT



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BIMcert Conference

22nd January 2020

***Reducing the energy footprint
in the built environment***

Elisabeth O'Brien,
RDI, Limerick Institute of Technology (LIT)



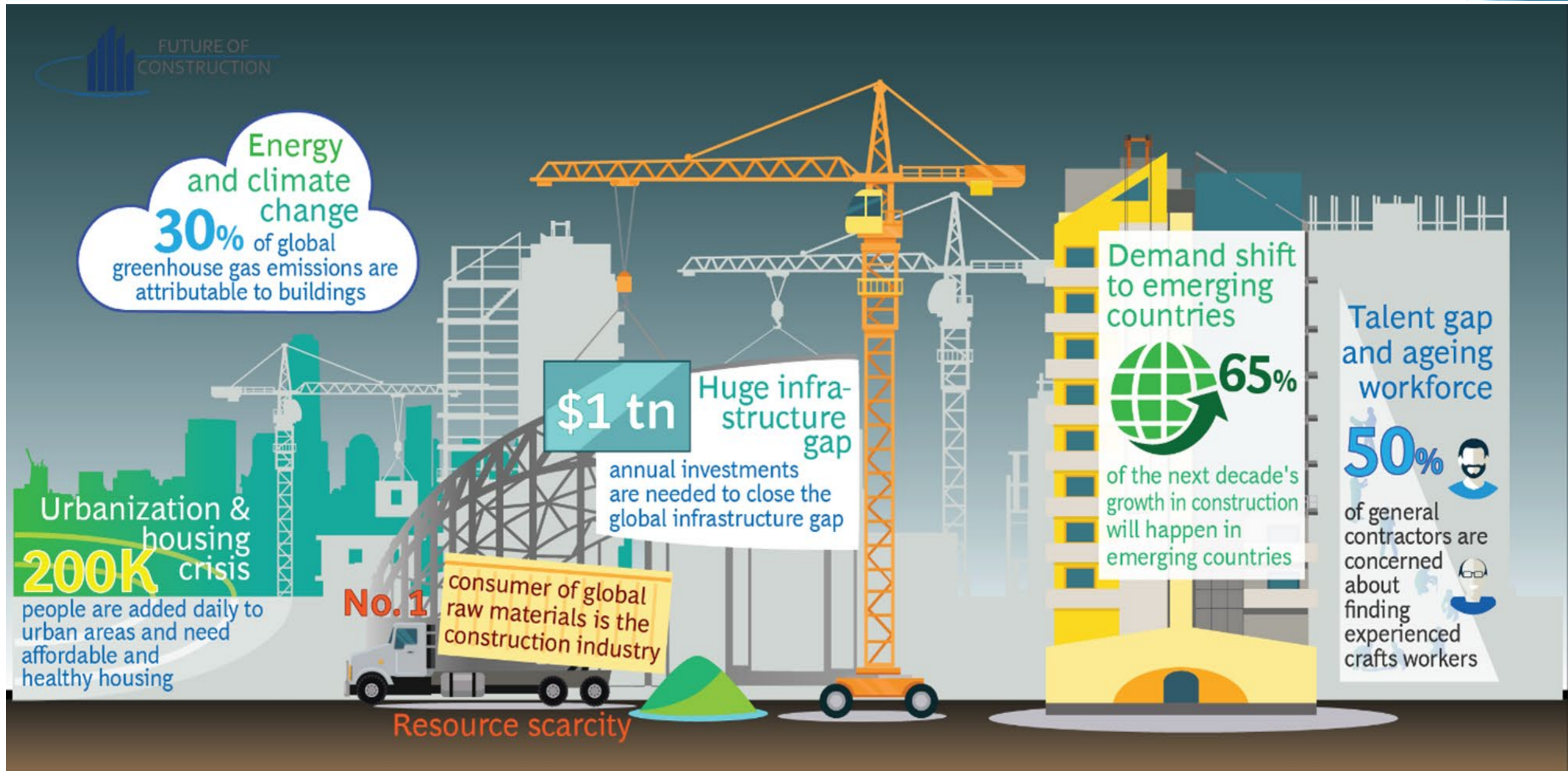
Digital Innovations Transforming the
Construction Sector

BIMcert Solution:
Eduardo Rebelo
Belfast Met



Presentation prepared by
Dr Barry McAuley,
Technological University Dublin (TU
Dublin)





Why BIM



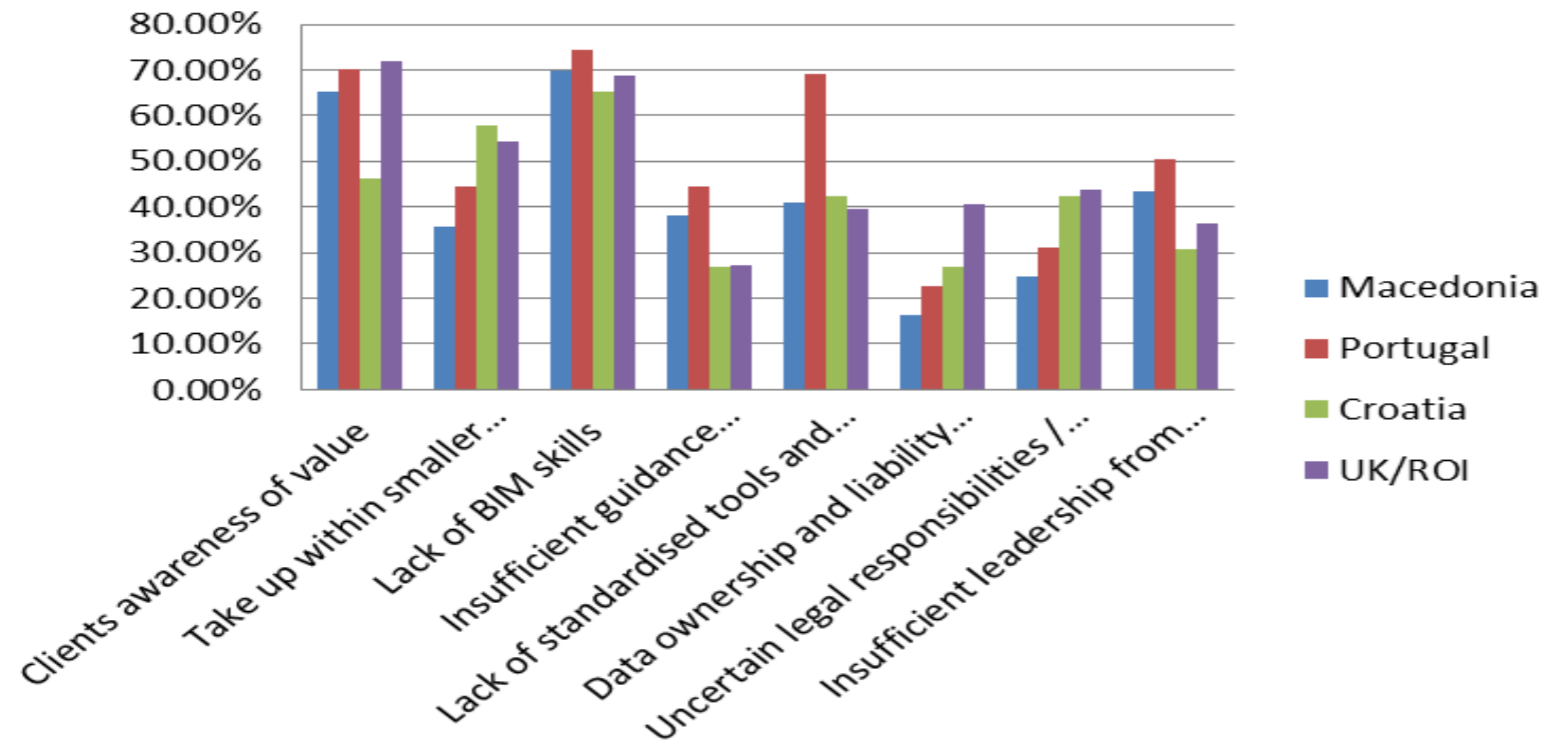
BIM based energy modelling provides several benefits including more accurate and complete energy performance analysis in early design stages, improved lifecycle cost analysis, and more opportunities for monitoring actual building performance during the operation phase



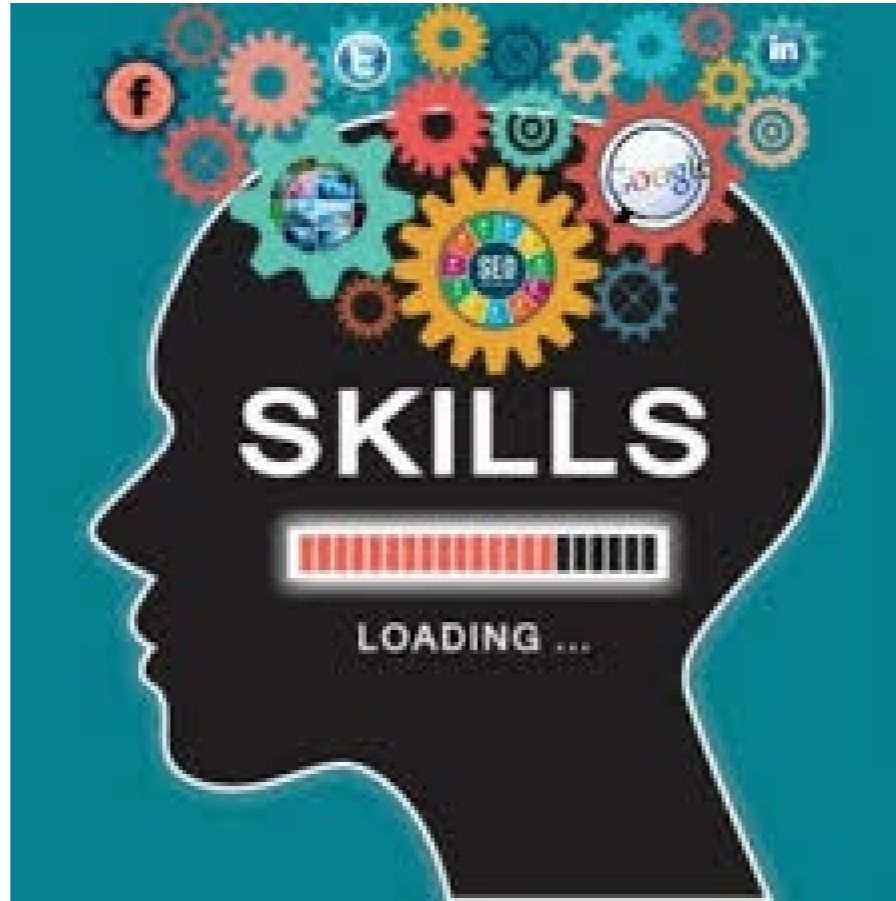
02

How has BIMcert responded through digital innovations in providing training towards a EU strategy

Which of the following challenges do you think are the most critical in the general adoption of BIM in the construction industry?



The BIMcert team have established the key gaps!

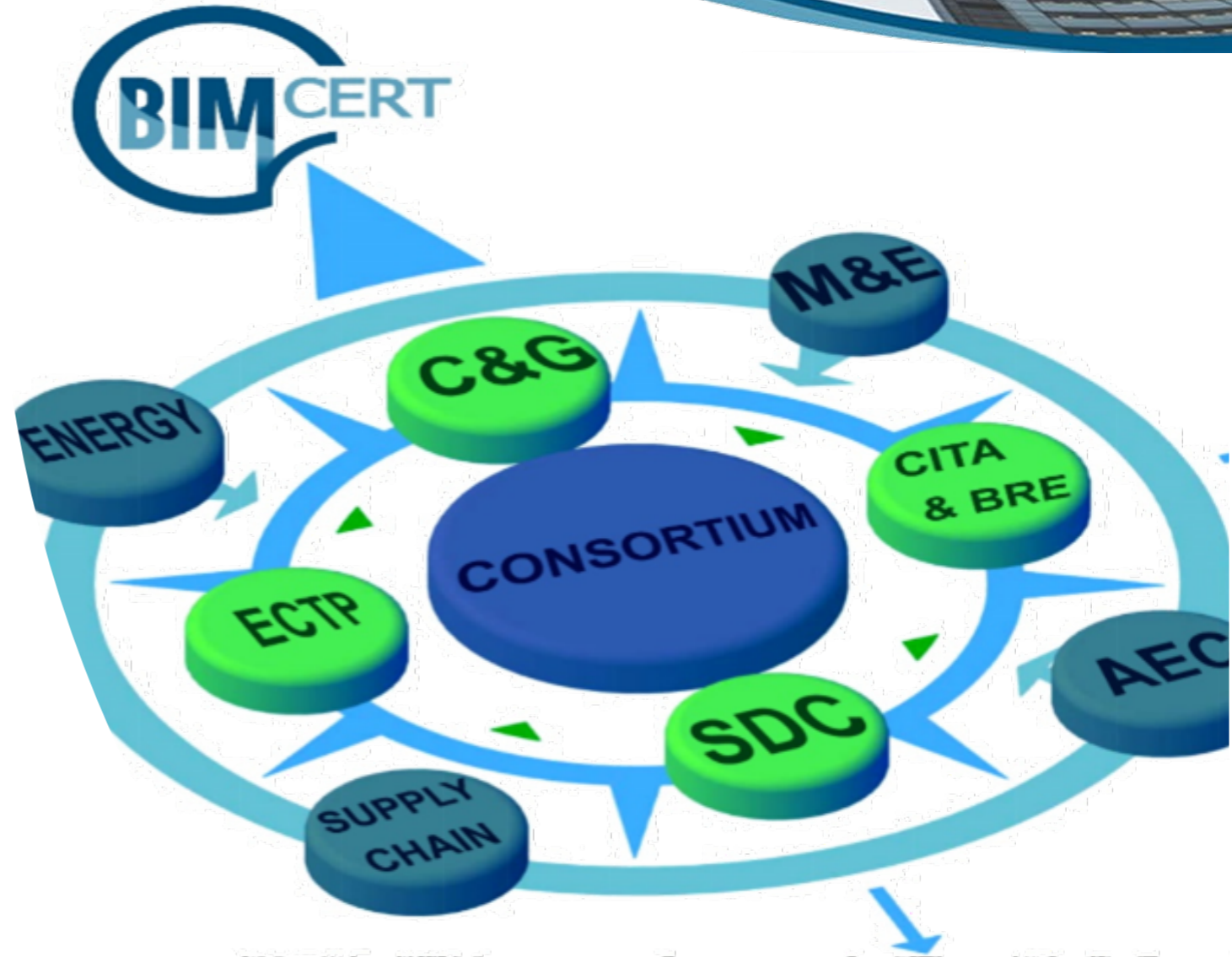


Bite Size Training

What does the industry want?

BIMcert's Digital Skills Gap Solution

- Engaging the entire construction sector supply chain via BIM within new build and retrofit.
- Creating clear pathways of development for individuals and SMEs to upskill.
- Establishing BIM skills to manage overall project energy consumption.



Key Training Methodologies established for delivery of BIM!

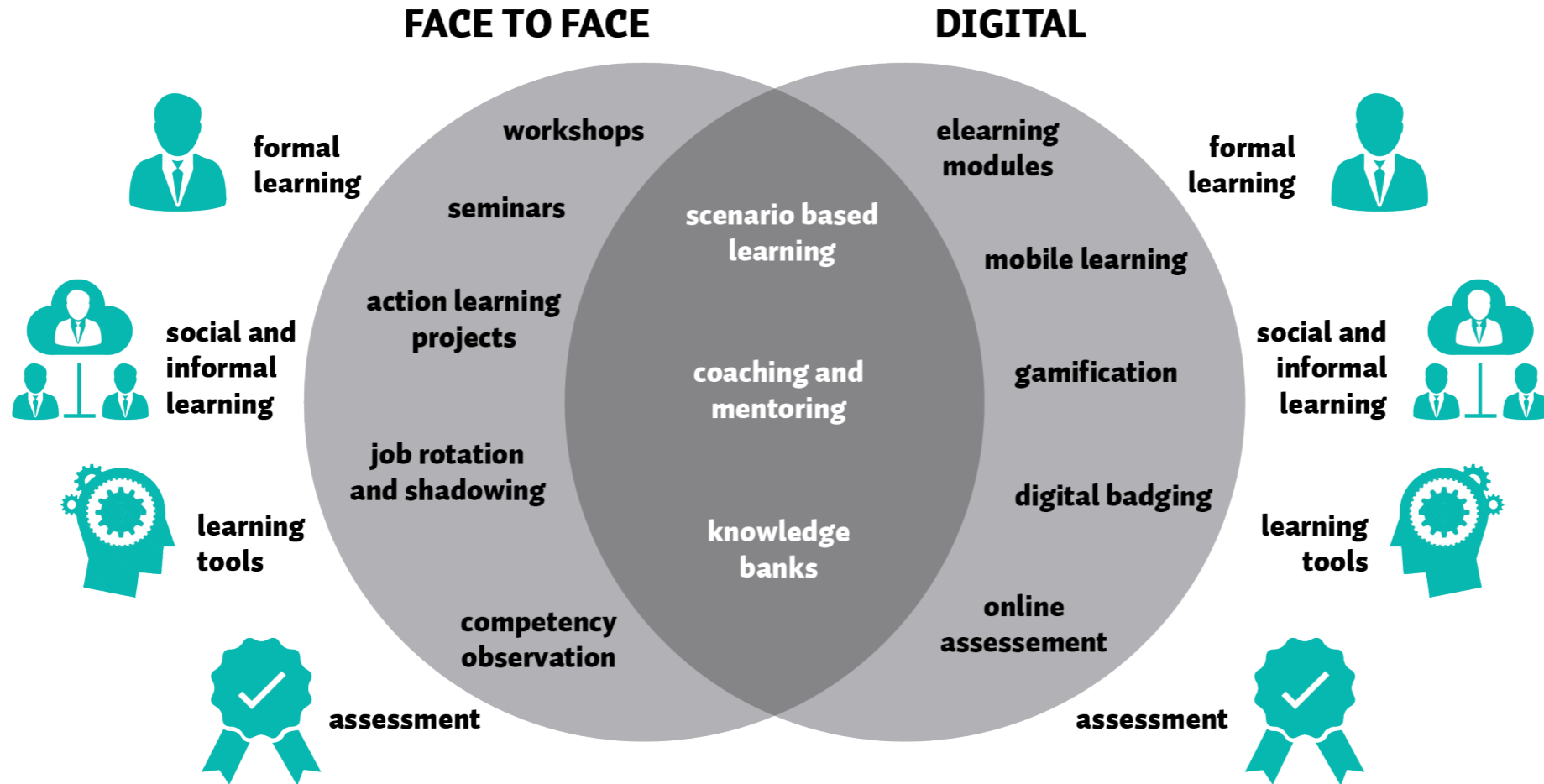
Problem / Project Based Learning (PBL)	BC	PBL											
Narrative videos (NV)	BC		NV										
Guided Self-Study (GSL)	BC	BC		GSL									
Web-Based Lectures / Tutorials (WBL)	BC		BC		WBL								
Design for Disassembly (DFD)				BC		DFD							
Mastery Learning (ML)	BC		BC		BC		ML						
Scaffolding (S)	BC		BC	BC	BC			S					
Case Studies (CS)	BC		BC	BC	BC	BC	BC		CS				
Instructor-led tutoring (ILT)	BC		BC	BC	BC		BC	BC		ILT			
Active Learning (AL)	BC		BC	BC	BC		BC	BC	BC		AL		
Flipped Classroom (FC)	BC		BC	BC	BC				BC	BC		FC	
Role Play (RP)													RP

Green - Compatible methodologies
 Yellow- Not Compatible
 Green (BC) – Option for the BIMCert Platform (Based on Survey findings)

A SCAFFOLDED learning environment guided by a series of INSTRUCTOR LED LIVE LECTURES. This could be complimented through PBL, DFD and self-guided learning which would create the ACTIVE LEARNING environment suggested in the results?

The inclusion of NARRATIVE VIDEOS and LIVE LECTURES with a focus on student doing SELF-GUIDED LEARNING through PBL before they advance.

How?



Beyond Blended Approach

BIMcert Trailed and Tested Curriculum

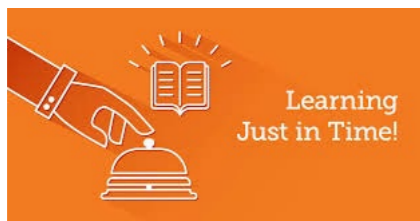
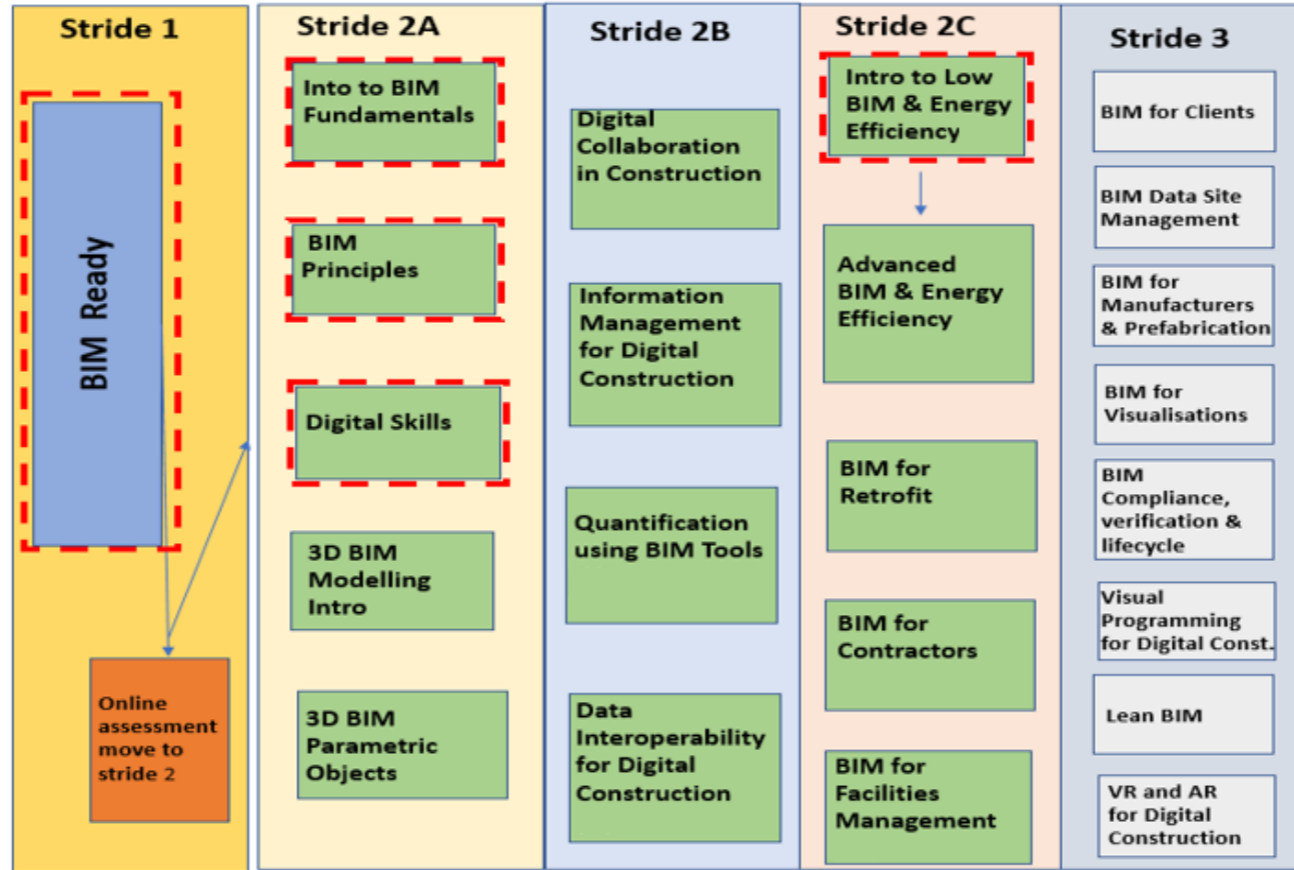
BIMcert Overview

- Learner accesses the BIMCert portal.
 - Stride 1: option A:** Learner takes BIM Ready plus online assessment; successful entry grants access to Stride 2.
 - Stride 1 Option B:** Learner directly takes online assessment; successful entry automatically grants entry to Stride 2.
- Final Unit of BIM Ready assists the learner in the selection of the next module. Appropriate to their needs / roles.

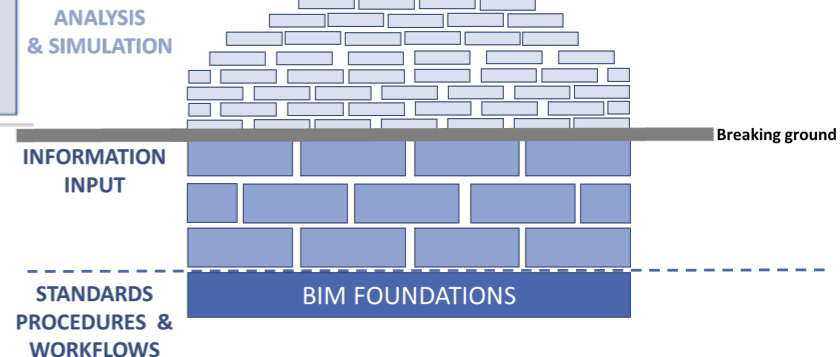


- Stride 2A:** Learner selects a stand alone Unit aimed at BIM novices.
- Stride 2B:** Learner selects a stand alone Unit aimed at those professionals with a deeper BIM knowledge.
- Stride 2C:** Learner selects a course (c) which contains a number of units. Successful completion of relevant units will enable learners access to advanced modules.
- Stride 3:** Specialist modules to be developed

BIMcert Curriculum



Bite Size Training





Extensive Testing of all proposed learnings



Select a specific module that meets your needs

Grid of 10 module cards:

- Training 4 Trainers
- BIM ready
- What is BIM & digital construction?
- BIM Terms & Definitions
- What are BIM (Maturity) Levels?
- BIM Dimensions** (circled)



BIM Dimensions

What are BIM Dimensions? You probably already heard about BIM levels or stages, but what about these Dimensions? Learn how many are there, what do they mean and how they apply into your role and workflow. From 2D to 7D, we will cover them all.

XP 0, Star 0, Medal 0

LEARN MORE

Learn More before you enrol

BIM Dimensions

What are BIM Dimensions? You probably already heard about BIM levels or stages, but what about these Dimensions? Learn how many are there, what do they mean and how they apply into your role and workflow. From 2D to 7D, we will cover them all.

1 hours
30 minutes

Objective: An essential tool to understand the output and essence of BIM. Learners will be able to:

- Understand and appreciate BIM Dimensions. Understand relation between these and BIM levels. Identify benefits they bring to AEC roles to improve workflow and outputs.

GO TO COURSE

Understand how this module will help you!



BIM Dimensions

Home / Courses / BIM Dimensions

Announcements

Your progress

- Guidance to complete module/training
- Intro & Description
- What are BIM Dimensions?
- Self Assessment Review
- Application of BIM Dimension into Workflows
- Bibliography & useful external links and resources- for further self learning
- Module Final Assessment

Select a bit size module

All Modules are linked to a Training Plan!

COURSE LIST - TRAINING PLANS

Sort by name Sort by date Search here SEARCH

Training 4 Trainers

2 modules

“Become a BIMcert trainer” guide. For trainers and ABC Professional involved in BIM, Digital construction, Energy Efficiency and construction upskilling and those providing training in their company, needing to upskill workers efficiently and/or expand reach and audience, wanting blended methods of delivery.

XP 0 Star 0 Lock 0

SEE OVERVIEW

Training 4 Trainees - BIMcert's Trials Samples

12 modules

FREE sample training plan for Trainees registered in BIMcert's Trials. Learn about BIMcert's curriculum meeting AEC needs, navigating the platform and training materials, the different blended methods of teaching and assessment. Access FREE sample preview modules!

XP 0 Star 0 Lock 0

SEE OVERVIEW

BIM to achieve Low Energy Buildings- Introduction

9 modules

Introductory micro training plan providing basic understanding of Sustainable and Energy Efficient Design & Construction principles and on using BIM tools to help achieve it.

XP 0 Star 0 Lock 0

SEE OVERVIEW

BIM Principles

13 modules

The micro training plan enables learners to develop a fundamental understanding of Building Information Modeling (BIM) and associated workflows.

XP 90 Star 0 Lock 0

SEE OVERVIEW

Digital Skills

9 modules

The micro training plan enables learners to develop a fundamental understanding digital skill and know how to use of digital devices for sites in the new context of Digital construction

XP 210 Star 0 Lock 0

SEE OVERVIEW

Select Training Plan

Training plan: Digital Skills

The micro training plan enables learners to develop a fundamental understanding digital skill and know how to use of digital devices for sites in the new context of Digital construction

45 minutes

Objective

Learning objectives of this plan are:

1. Understand the use of Digital Skills, including devices, in the construction context.
2. Understand the use of Digital Skills and devices to access information.
3. Understand how to implement BIM across the supply chain.
4. Understand the use of digital tools to perform design reviews and assess construction feasibility.

ENROLL ON TRAINING PLAN

As the digital revolution of the AEC industry continues, workers need to become digital savvy. Join the revolution! Increase your digital skills

based work with essential IT skills, use of digital devices and practical knowledge and a series of new digital workflows to improve efficiency on site and allow a more streamlined approach. Learners will gain:

- required skills to ensure you will remain relevant and skilled to continue your role as construction industry embraces the digital future by knowing how to use digital tools and devices.
- an overview of BIM and digital tools that can improve your role in the (and off) site-based work too.
- an overview of BIM workflows that can be used to implement or improve BIM processes within your organization or business while performing or preparing site-related work.

This micro training plan covers 2 main learning outcomes, objectives, which will be addressed and addressed in pairs, via the more detailed modules of training.

1. Understand the use of Digital Skills, including devices, in the construction context, which includes: Demonstration of the use of digital skills and devices to improve construction project management and delivery. Demonstration of structured file management. Summary of health & safety guide using digital devices on site.
2. Understand the use of Digital Skills and devices to access information, which includes: Demonstration of ICT file management using cloud based storage and portable devices to access and exchange information.
3. Understand how to implement BIM across the supply chain, which includes the use of BIM and digital skills to improve coordination across the construction supply chain and for construction project management.
4. Understand the use of digital tools to perform design reviews and assess construction feasibility, which includes: Demonstration of digital design review tools to access and evaluate a BIM model.

For further details and to find out how the micro training plan leads towards more complex micro training plans, please see further documentation.

Modules Included:

Digital Skills- Basic File Management

There is an increase demand of AEC professionals to access and share information digitally. This learning course basic simple ICT skills required principles of using digital skills and devices to access digital information, especially focusing in the management aspect.

Digital skills & collaboration III-review BIM models

No traditional project information becomes embedded into BIM models and digitalised, it becomes a fundamental skill to know how to use digital tools to perform a design review and evaluate a BIM model. Learn how!

Digital skills & collaboration II-Access BIM models

No traditional project information becomes embedded into BIM models and digitalised, it becomes a fundamental skill to know how to use digital tools to access BIM models and the data they contain. Learn how!

BIM & Digitalisation Benefits-for supply chain Coordination

As BIM and digitalisation is changing the AEC industry's workflow, methods, processes and tools, BIM is often in the center of this. But who exactly are the benefits of BIM implementation to the industry? This learning will focus specifically on the benefits of BIM related to improvements to the supply chain.

Digital Skills- Accessing information through the cloud

Learn how digital skills related to understand what Cloud and Cloud based storage are cloud solutions and using digital devices to access digital information via Cloud, improving AEC collaboration.

Digital Skills & Collaboration I-CDE & File Structure

Training for AEC professionals to understand principles of using digital skills and devices to access digital information in a Common Data Environment (CDE) the place where information is stored in BIM projects.

Digital Skills- H&S for BIM users I- Site Based

No digital devices become an integral tool of work on site. In the context of the basic health & safety considerations to be in mind and implement, with these digital devices on site.

See the modules required to complete the plan



BIM to achieve Low Energy Buildings- Introduction

Introductory micro training plan providing basic understanding of Sustainable and Energy Efficient Design & Construction principles and on using BIM tools to help achieve it.



[SEE OVERVIEW](#)

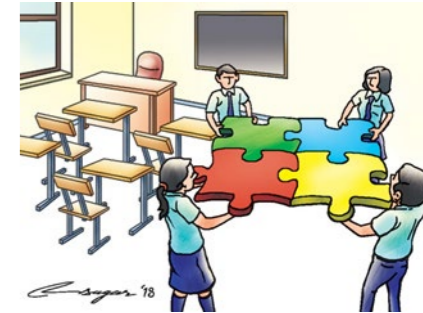
	BIM tools for Low Energy Building Construction <small>Learn how BIM tools, methods and models can be used to assist and enable AEC professional on their role contribute towards reducing waste, carbon emissions and produce more energy efficient building stock.</small>
	Energy system thinking key principles <small>An understanding of an overall approach and essential key principles of low energy building construction, such as system thinking, is required to use of BIM as an enabling tool to help AEC industry achieve a better energy efficient building stock.</small>
	Concept & Definitions of Energy Use in buildings <small>Micro training to supply an overview of the main concepts related to the use of energy in building</small>
	Key terms of Energy Use in building <small>COMING SOON Under Construction</small>
	Overview of climate change and EU Policy. <small>COMING SOON Under Construction</small>
	Energy usage and wastage in construction and operation of buildings <small>COMING SOON Under Construction</small>
	Building Fabric & Energy <small>Micro training to show how a building's fabric can generate or save high levels of energy output and the impact of different materials on energy performance.</small>
	Heating & ventilation systems vs Energy Consumption <small>Training showing how building's heating & ventilation system can either consume or save high levels of energy.</small>
	BIM & Digitalisation Benefits- Sustainability & Energy efficiency <small>Digitalisation, with BIM it is core to changing the AEC industry's workflow, methods, processes and tools. Unlocking new potentially improved (digital) construction skills, to help achieve a more energy efficient building stock. BIM can be an enabling tool for this. Find out how in this short training overview, focused directly in BIM benefits towards energy efficiency and sustainability.</small>

Specific Low Energy Building Construction Training Plans and Modules

Interactive Content, Assessment and Gamification



QUIZ!



Problem / Project Based Learning



Narrative videos



Guided Self-study



- BIM Maturity Levels
- Participants
- Badges
- Competencies
- Grades
- General
- Guidance to complete module/training
- Intro & Description
- What are BIM Maturity Levels/ Stages?
- Self Assessment Review**
- Bibliography & useful external links and resources for further

BIM Maturity Levels

Home / Courses / BIM Maturity Levels / Self Assessment Review / BIM Maturity Levels/Stages - Illustrated Game Puzzle Self-Assessment / Preview

Question 1
Not yet answered
Marked out of 100.00
Flag question
Edit question

The following image is an outline of the BIM maturity levels diagram by Mark Bew and Mervyn Richards, presented in PAS 1192-2: 2013.
Align levels with their correct method for drawing creation.

Quiz navigation

1

Finish attempt ...

Time left 0:12:01

Start a new preview



Success of BIMcert to date!

Workshop findings have established that BIMcert is seen as a positive and viable enabler/facilitator of BIM upskilling.

It was found that the BIMcert models and tools were impressive and useful.

Majority of participants would like to engage with the training curriculum and have registered on the platform.



Q&A

Have
questions?

Ask.

