TITLE

ENERGY EFFICENCY

CONSTRUCTION SKILLS

BIMCERT

REGULATING SUPPLY CHAINS

TACKLING CLIMATE CHANGE

belfast met

CITB
CONSTRUCTION INDUSTRY
TRAINING BOARD NI

EIHP
Energy Institute Hrvoje Požar

T DUBLIN
OLLSCOIL TEICNEOLAÍOCHTA
BHAILE ÁTHA CLIATH
TECHNOLOGICAL
UNIVERSITY DUBLIN

TÉCNICO
LISBOA

IECE
INSTITUTE FOR
RESEARCH IN ENVIRONMENT
CIVIL ENGINEERING AND ENERGY

Future Analytics

BIMcert Conference

22nd January 2020

Reducing the energy footprint in the built environment

Barry Neilson

(Chief Executive CITB NI)

Developing a World Class Digital Construction Sector

How do we facilitate a multi-faceted sector to develop their Digital Skills from their 1st to their **Next** step

Digitising the Construction Sector

Why would the sector want to develop digital skills?

- Improving energy efficiency through better design and execution of that design?

- More sustainable and efficient management of our Built Environment over the life of a facility?

- Better communication of construction solutions throughout the design, delivery and maintenance teams?

- More efficiency and less waste in the construction process?

- Minimising costs of design, construction and maintenance?

- Improving communication of issues and benefits of a project to non-construction professionals?

Digitising the Construction Sector

Where do we find the Answers?

- What is the Construction (or Built Environment) Sector?
  - Clients
  - Designers
  - Construction Planners & Project Managers
  - Fabricators
  - Site operatives
  - Material / Component Suppliers
  - Financial Managers
- **Do they all have the same drivers for taking up the Digital Journey?**

Digitising the Construction Sector

I Suggest Not!

Digitising the Construction Sector

Different sub-sectors in different areas of the EU have different drivers.
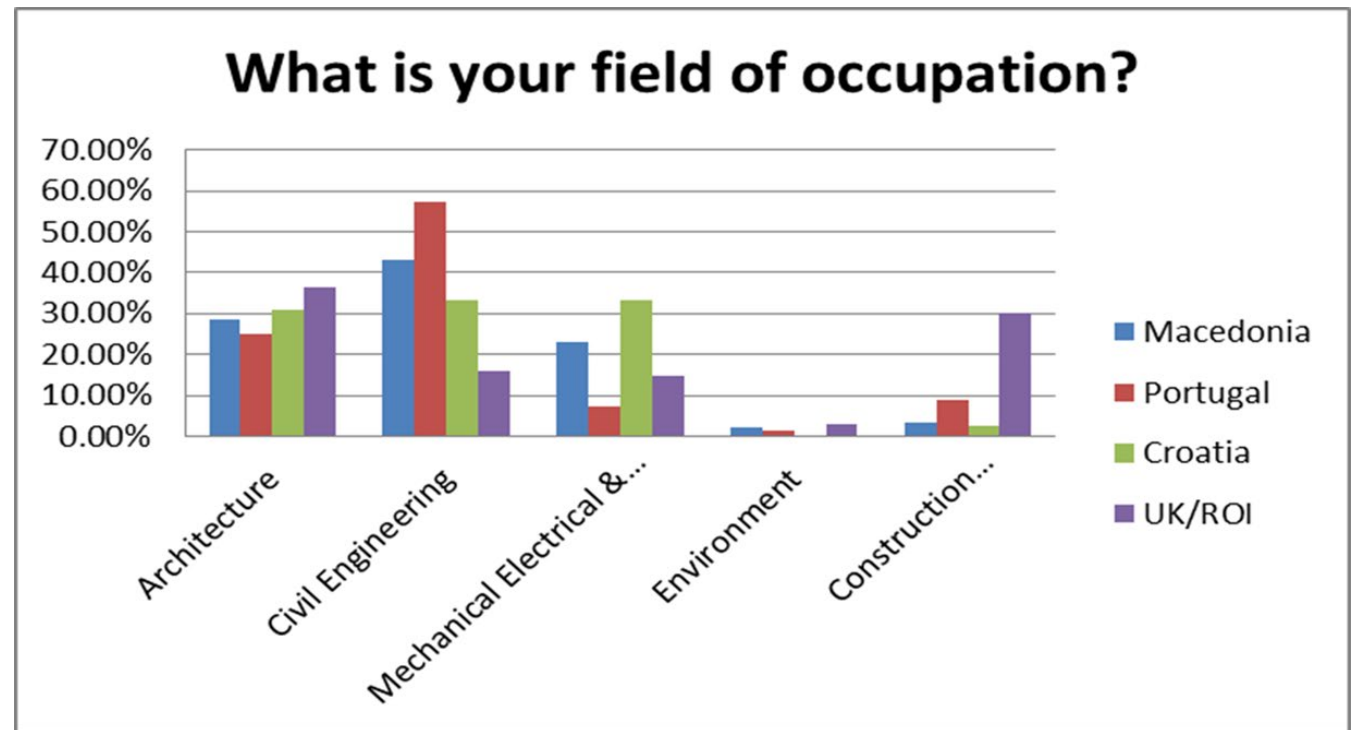
So, how do we;

- motivate them
- Incentivise them
- Engage them
- **Provide an accessible mechanism for them all to start (or continue) their digital journey**

Digitising the Construction Sector

What have we learned from BIMcert research?

Who Participated in the research?

What does this tell us about the people who are engaging?

What is your field of occupation?

Legend: Macedonia, Portugal, Croatia, UK/ROI

Categories: Architecture, Civil Engineering, Mechanical Electrical &..., Environment, Construction...
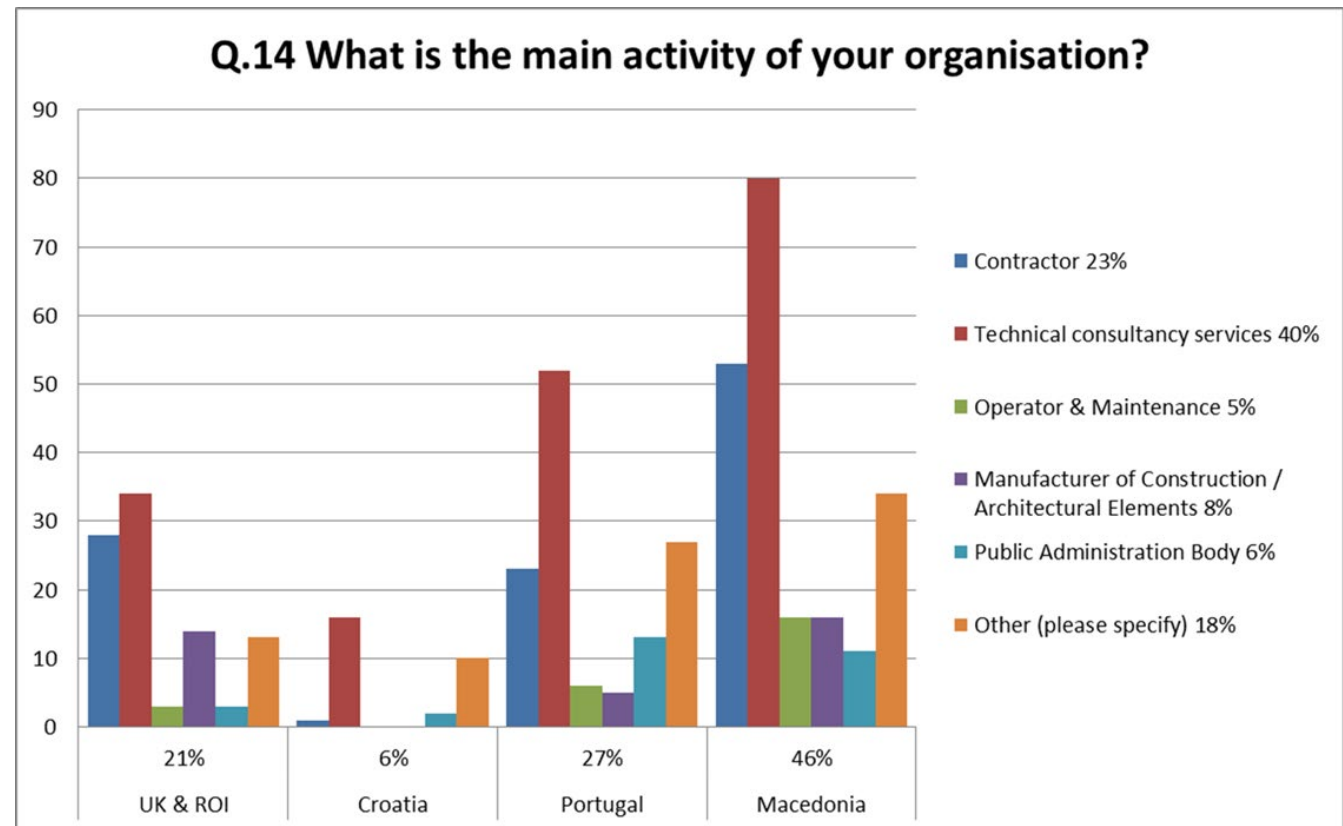
Digitising the Construction Sector

What have we learned from BIMcert research?

Who Participated in the research?

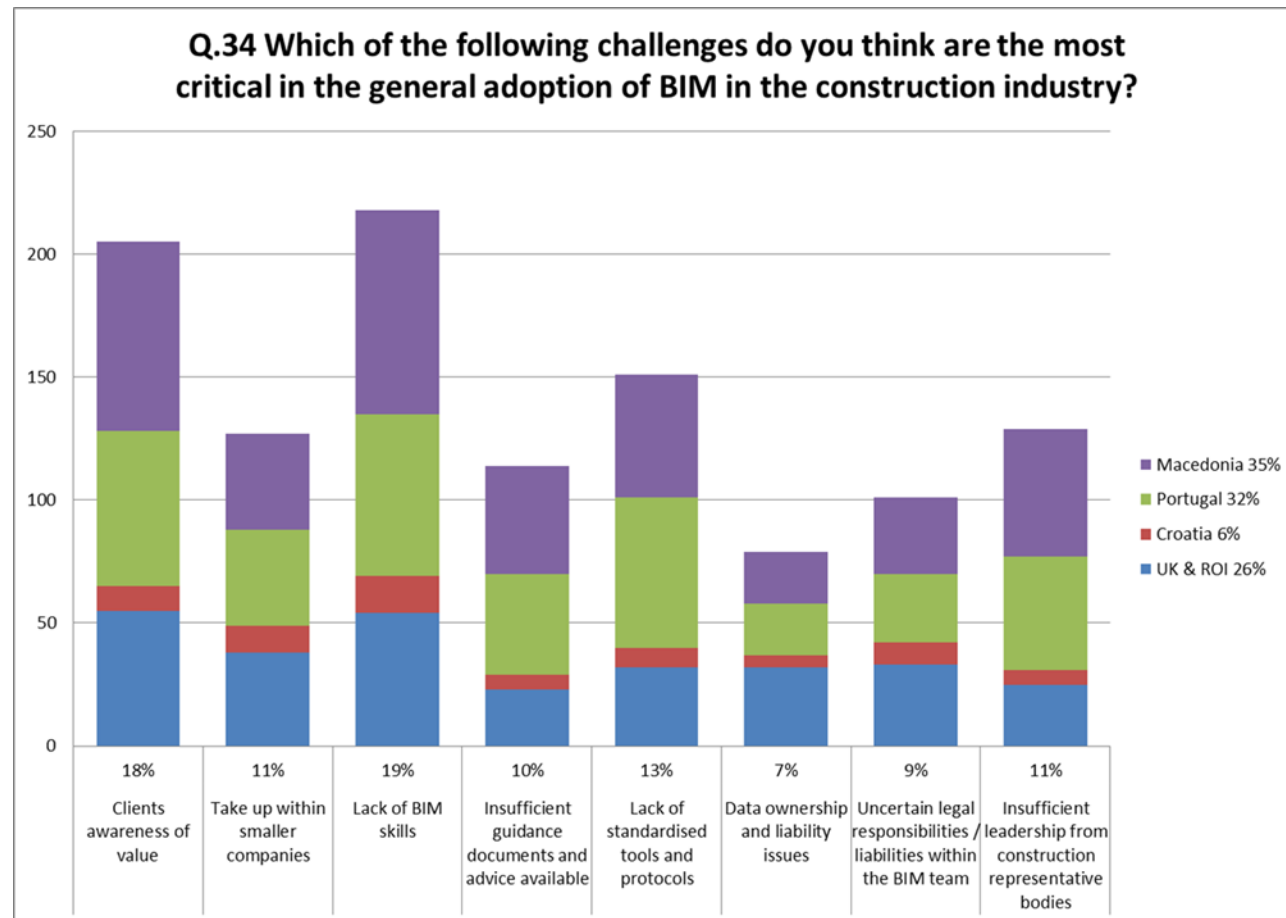**What does this tell us about the organisations that are engaging?**

Q.14 What is the main activity of your organisation?

- Contractor 23%
- Technical consultancy services 40%
- Operator & Maintenance 5%
- Manufacturer of Construction / Architectural Elements 8%
- Public Administration Body 6%
- Other (please specify) 18%

| 21% | 6% | 27% | 46% |
| UK & ROI | Croatia | Portugal | Macedonia |

Digitising the Construction Sector

What have we learned from BIMcert research?

What did respondents see as the major structural challenges?
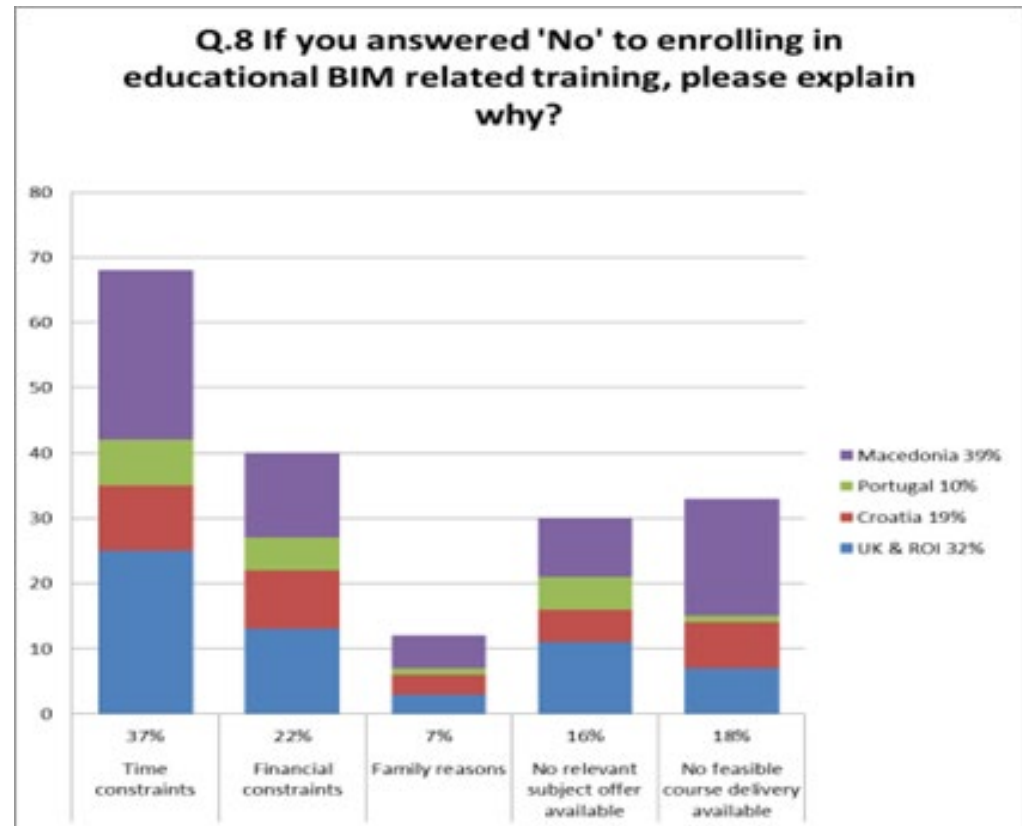
Where are the issues that need to be addressed?

Q.34 Which of the following challenges do you think are the most critical in the general adoption of BIM in the construction industry?

Legend:
- Macedonia 35%
- Portugal 32%
- Croatia 6%
- UK & ROI 26%

| 18% Clients awareness of value | 11% Take up within smaller companies | 19% Lack of BIM skills | 10% Insufficient guidance documents and advice available | 13% Lack of standardised tools and protocols | 7% Data ownership and liability issues | 9% Uncertain legal responsibilities / liabilities within the BIM team | 11% Insufficient leadership from construction representative bodies |

Digitising the Construction Sector

What have we learned from BIMcert research?

What did respondents see as the major personal Barriers?

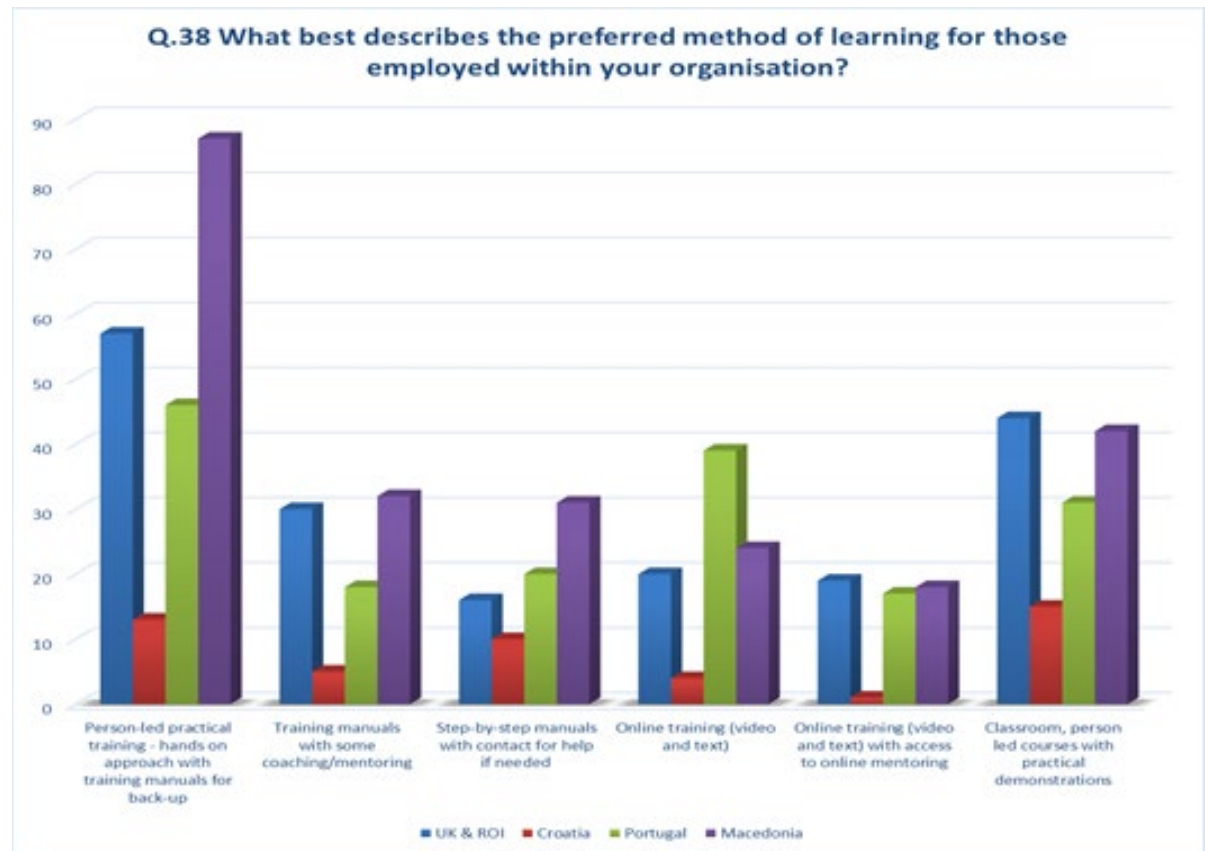**Where are the issues that need to be addressed?**

Q.8 If you answered 'No' to enrolling in educational BIM related training, please explain why?

Legend:
- Macedonia 39%
- Portugal 10%
- Croatia 19%
- UK & ROI 32%

Categories: 37% Time constraints, 22% Financial constraints, 7% Family reasons, 16% No relevant subject offer available, 18% No feasible course delivery available

Digitising the Construction Sector

What have we learned from BIMcert research?

How do people want to learn?

Is there a "preferred" method?
Is there only one route to developing people?

Q.38 What best describes the preferred method of learning for those employed within your organisation?

Digitising the Construction Sector

The Real Challenge?

- What are the "real" barriers to adopting digital construction methods?

    - Fear of breaking something?

    - Not understanding

    - Not having the time to learn?

Digitising the Construction Sector

The Real Challenge?

- What are the "real" barriers to adopting digital construction methods?

    - It's for others not me

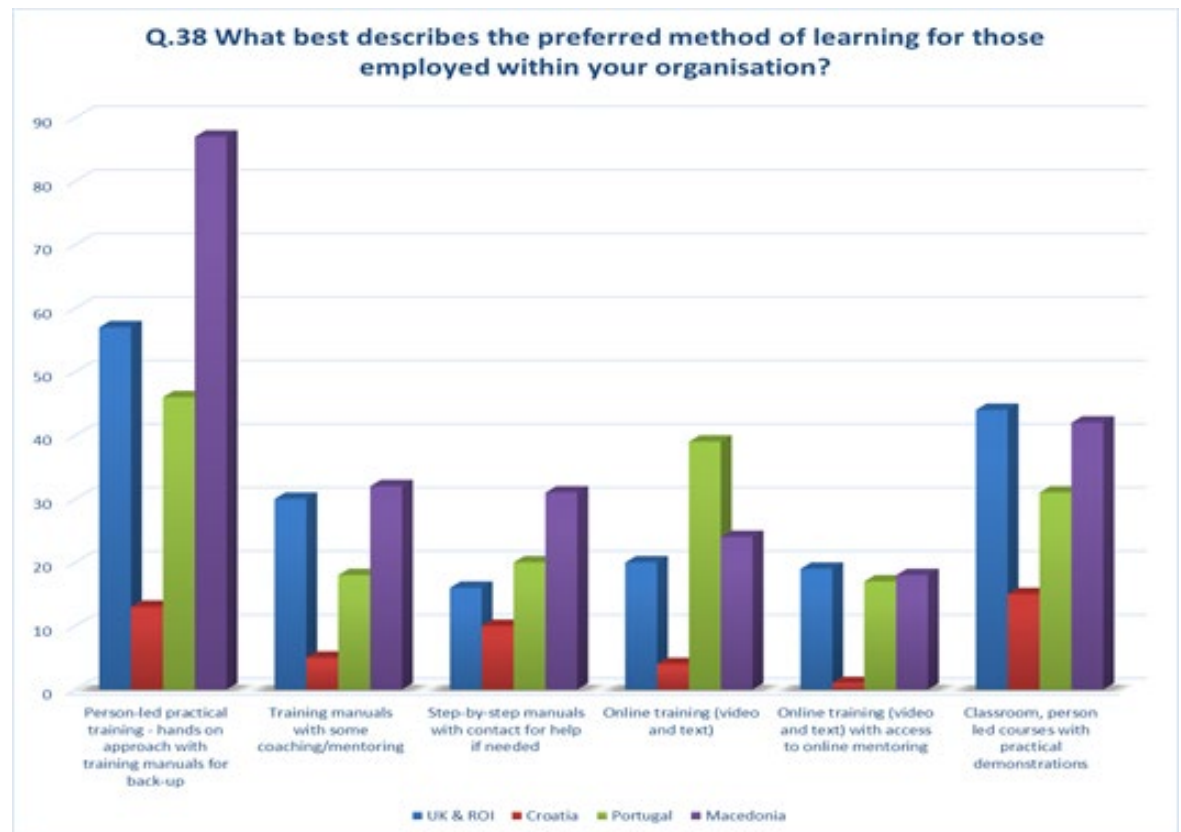   - Logistics – I don't know where I will be!

    - **Why should I develop – What's in it for me?**

Digitising the Construction Sector

How do we address personal challenges to development?

We need to find a way to:

- Support individuals
- Provide practical tools
- Provide a safe and supportive environment to learn and practice

Q.38 What best describes the preferred method of learning for those employed within your organisation?

Legend: UK & ROI, Croatia, Portugal, Macedonia

Digitising the Construction Sector

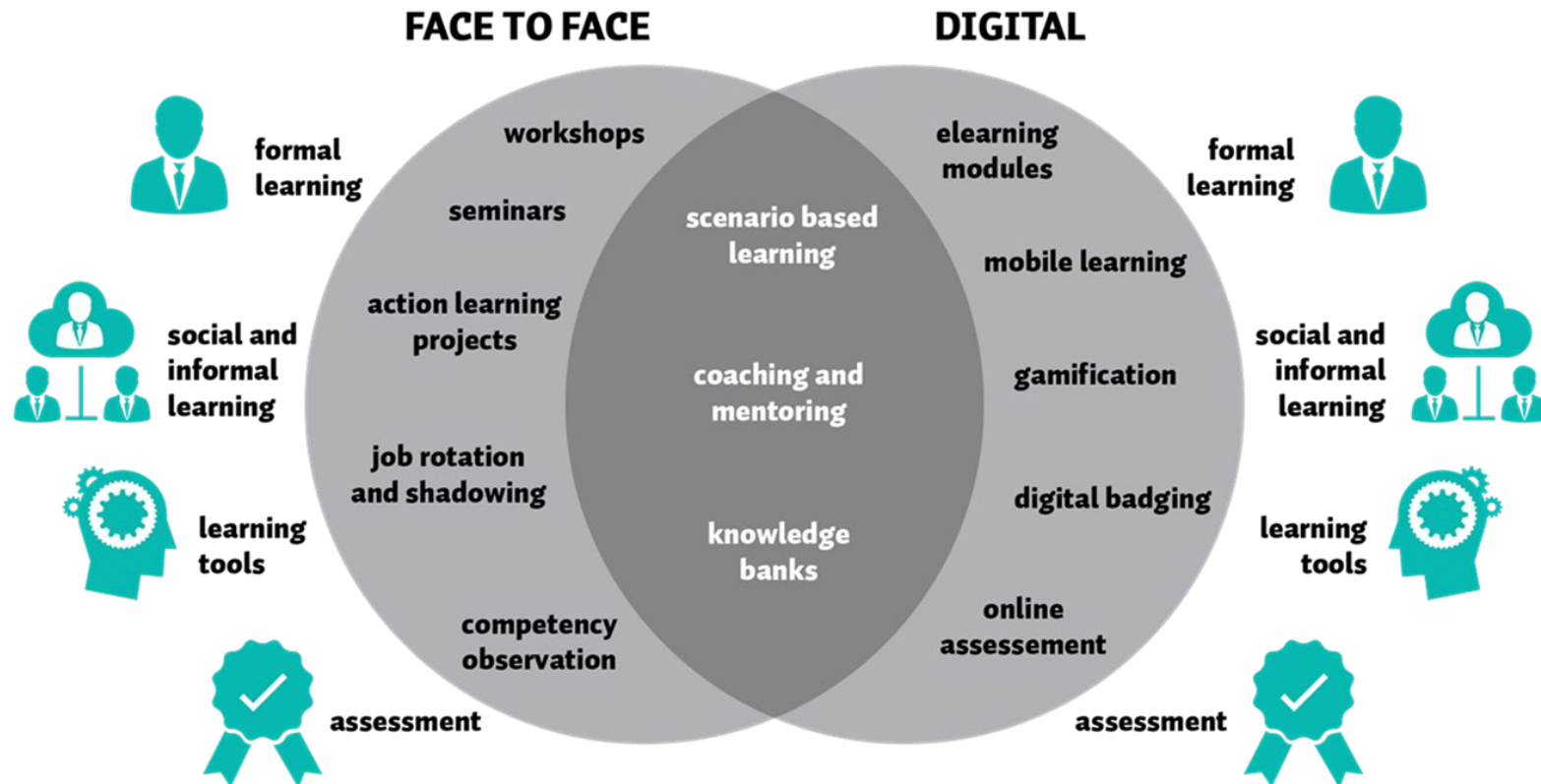What is our sector telling us about developing our people?

- There is no single method of delivery that meets everyone's needs.

- An individuals learning style can develop in relation to where they are in their learning cycle.

We need a learning environment that blends different learning styles to allow the individual to develop the way they need to be taught.

Digitising the Construction Sector
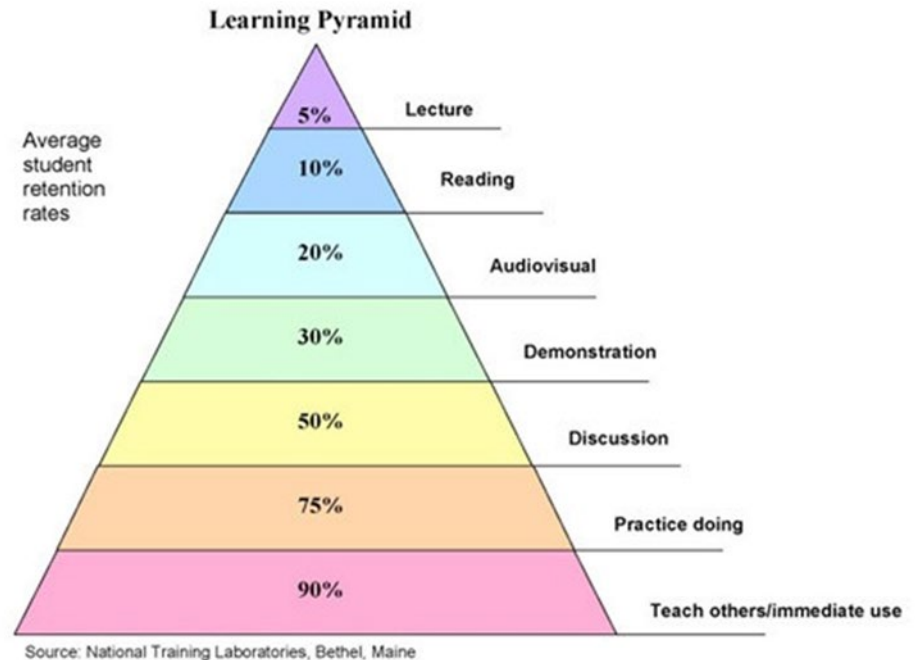
We need a blended approach to learning

In fact – we need to think "Beyond Blended

BIMcert ©-Construction skills - Energy efficiency - Regulating supply chain - Tackling climate change

Digitising the Construction Sector

Encourage a more blended approach to self development:

- Encourage individuals to embrace digital learning as well as digital construction
- Easy entry level modules for those uncomfortable with technology
- Coaching and mentoring approach to progression into digital learning & working
- Develop desire to continue to develop using digital materials
- Develop appreciation of how digital construction (BIM) can improve long term performance of the Built Environment

Learning Pyramid

Average student retention rates

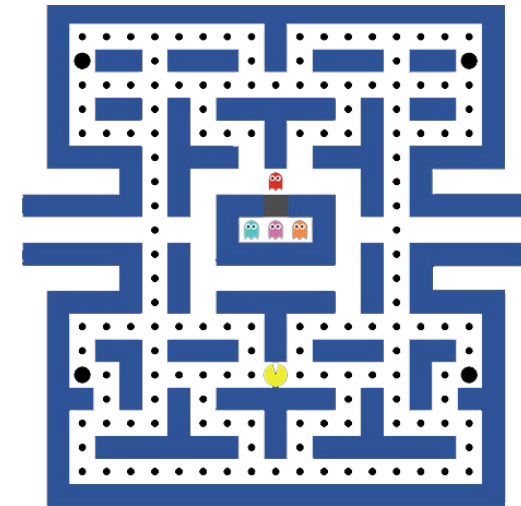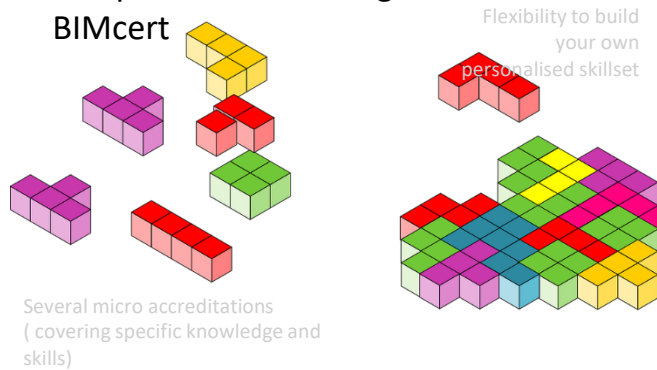| 5% | Lecture |
10%	Reading
20%	Audiovisual
30%	Demonstration
50%	Discussion
75%	Practice doing
90%	Teach others/immediate use

Source: National Training Laboratories, Bethel, Maine

Digitising the Construction Sector

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

Flexibility to build your own personalised skillset

Several micro accreditations (covering specific knowledge and skills)

Not a linear progression
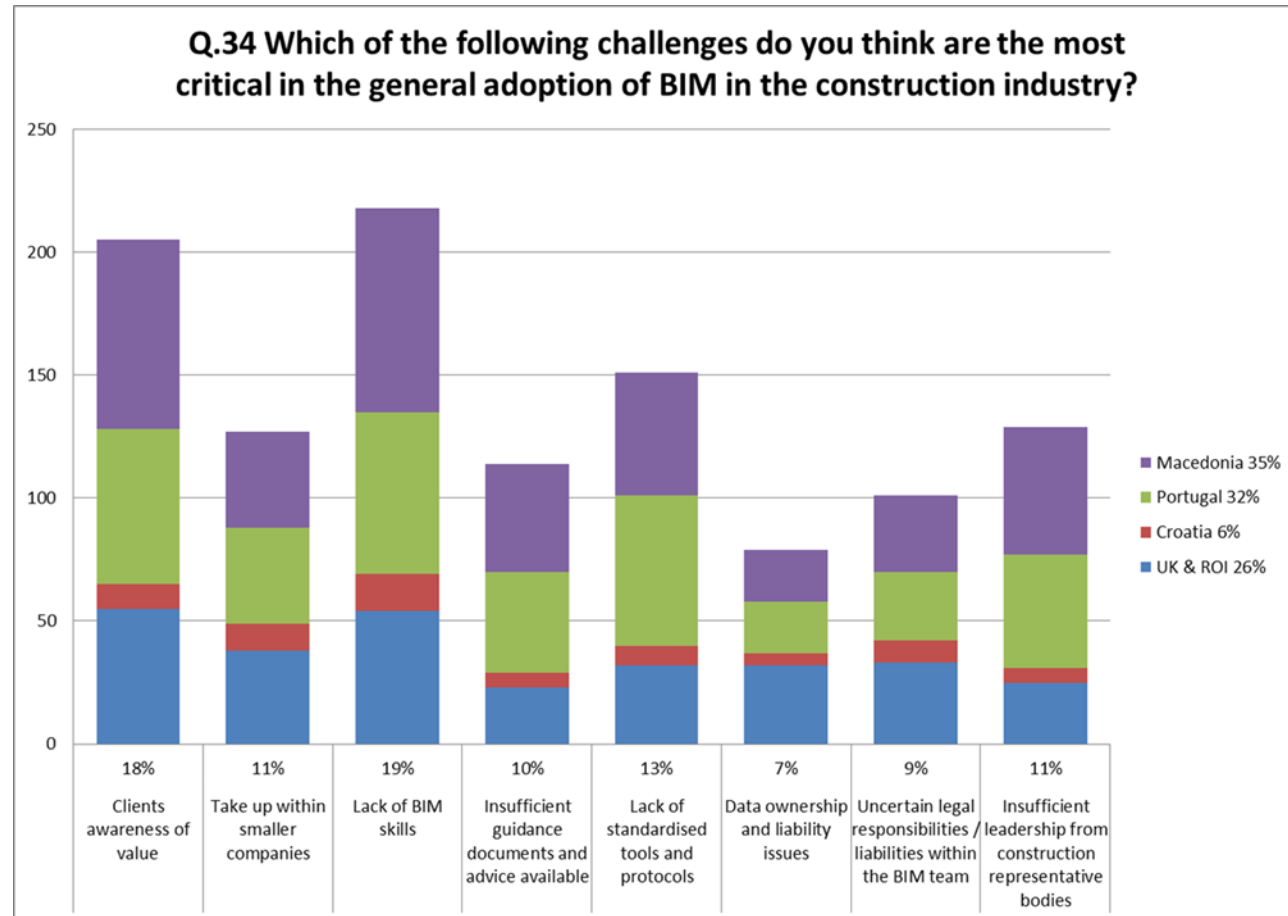
Bite sized micro accreditation

Digitising the Construction Sector

How do we address industry challenges to development?

We need to find a way to:
- Incentivise organisations
- Provide practical tools
- Create a commercial driver to develop

Q.34 Which of the following challenges do you think are the most critical in the general adoption of BIM in the construction industry?

Legend:
- Macedonia 35%
- Portugal 32%
- Croatia 6%
- UK & ROI 26%

| 18% | 11% | 19% | 10% | 13% | 7% | 9% | 11% |
| Clients awareness of value | Take up within smaller companies | Lack of BIM skills | Insufficient guidance documents and advice available | Lack of standardised tools and protocols | Data ownership and liability issues | Uncertain legal responsibilities / liabilities within the BIM team | Insufficient leadership from construction representative bodies |

Digitising the Construction Sector

How do we address industry challenges to development?

From the research we carried out we gained a perception that:

- The sector responds to Governmental leadership

- Where there is a regulative environment (a "push" approach) industry responds

- Digital construction moves from an "information tool" to a "management tool" when the delivery sector engages with it

Digitising the Construction Sector

How do we address industry challenges to development?

- Countries where there is leadership from Government are developing Digital Skills faster

- Procurement of public construction works is a significant driver

- Design industries are early adopters and recognise the benefits

- Once the delivery side engages (contracting industry) the spread of digital construction accelerates within the professional & technical disciplines

Digitising the Construction Sector

What are the challenges for the future?

- Extending the benefits being realised by some at the design and construction phase of Built Environment project across all organisations within the sector.

- Getting the client sector better informed and competent in requiring Digital Construction methods (BIM) at specification stage.

- Extending the use of BIM / Digital construction into the long term management and maintenance of our Built Environment

- Engaging all people within the entire design and construction sector and developing digital skills appropriate to their role.
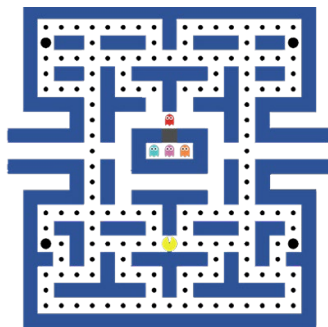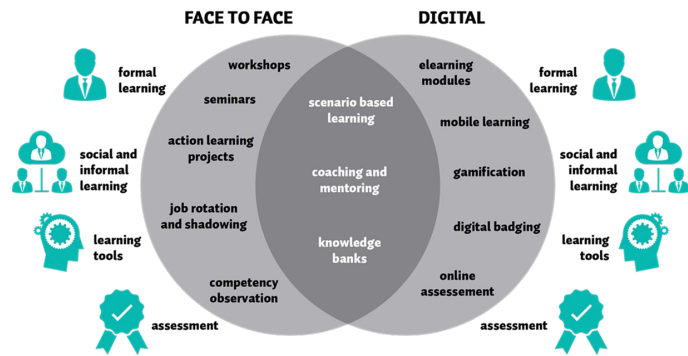
Digitising the Construction Sector

We Need to Democratise BIM / Digital Skills

Mauroof Khaleel via Getty Images

BIMcert ©-Construction skills - Energy efficiency - Regulating supply chain - Tackling climate change

Digitising the Construction Sector

How do we do that?

FACE TO FACE

formal learning

workshops
seminars
action learning projects
job rotation and shadowing
competency observation
assessment

scenario based learning
coaching and mentoring
knowledge banks

DIGITAL

elearning modules
mobile learning
gamification
digital badging
online assessment

formal learning
social and informal learning
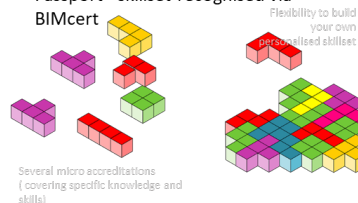learning tools
assessment

social and informal learning
learning tools

Not a linear progression
Bite sized micro accreditation

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

Allow learner to gain skills requi their own professional needs , them to obtain either pre-establ 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

Leadership Excellence

Communication
Tone Setting
Coaching-Feedback
Self Management
Coaching-Development
Decision Making
Courage and Risk
Relationships and Power
Innovation and Change
Planning and Vision

Digitising the Construction Sector

• Te

BIM*cert* ©-Construction skills - Energy efficiency - Regulating supply chain - Tackling climate change