

# Digital Innovations Transforming the Construction Sector



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785155





**BIMcert Conference**

**22<sup>nd</sup> January 2020**

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

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



**Digital  
Innovations/Trainings  
Transforming the  
Construction Sector**

**BIMCert Solution:  
Technological University  
Dublin (TUD)**

**6,500 Students**  
**7 Dynamic CAMPUSES**  
**5 Enterprise Centres**



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George's Quay  
Coonagh

**TIPPERARY**

Thurles  
Clonmel

**CLARE**

Ennis Education Centre

Sunday Times Institute of  
the Year 2009 & 2013







**LIT**

LIMERICK INSTITUTE  
OF TECHNOLOGY

## Development Unit (DU)

Thurles Campus,  
Tipperary

[www.lit.ie/rdi](http://www.lit.ie/rdi)

Manager: [Seamus.Hoyne@lit.ie](mailto:Seamus.Hoyne@lit.ie)

Project Officer: [Elisabeth.obrien@lit.ie](mailto:Elisabeth.obrien@lit.ie)

- DU works across the Institute supporting access to EU funds, engaging with public and private sectors
- Applied focus engaged in capacity building, applied research and development activities
- Core areas
  - Sustainable Energy
  - Sustainable Development
  - Climate Change
  - Rural Development
- International, EU, National and Regional Focus

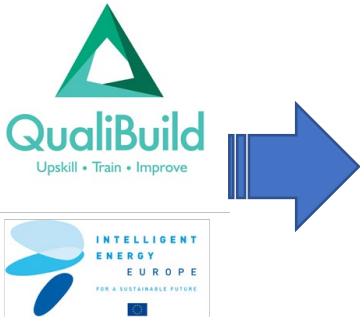


# EU and National Projects

## The Move to NZEB in Ireland



BUSI BUILD  
UP Skills  
ROADMAP



<http://www.qualibuild.ie/>



Short NZEB programmes developed for craftworkers - **Electricians, plumbers, carpenters, bricklayers, plasterers and site supervisors/foremen.**  
**Construction workers** and fundamental course for **public bodies and building owners.** (WWETB)

New NZEB programmes for **ventilation** installers and designers (NSAI approved)  
New NZEB programme for **train the trainers** (supported SOLAS ETBs) (WWETB)

<http://www.train-to-nzeb.com>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649810.



<http://www.mens-nzeb.eu/en/>



<http://www.fit-to-nzeb.com/>





# EU and National Projects



## The Move for Digitalisation with NZEB

[www.BIMzeED.eu](http://www.BIMzeED.eu)



**education**  
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### BUSLeague – H2020

Stimulating demand	Legislative changes	Capacity building
<ul style="list-style-type: none"><li>•H2020 Enerfund</li><li>•H2020 TripleA-reno</li><li>•RETROKIT</li><li>•H2020 Turnkey Retrofit</li><li>•Erasmus+ BIMzeED</li><li>•National projects</li></ul>	<ul style="list-style-type: none"><li>•H2020 BIMplement</li><li>•BUILD UP Skills qualification platforms</li><li>•QualiBuild</li><li>•Erasmus+ All.Con Blueprint</li><li>•National projects</li></ul>	<ul style="list-style-type: none"><li>•H2020 BUStoB</li><li>•H2020 NEWCOM</li><li>•H2020 Train-to-NZEB</li><li>•H2020 Fit-to-NZEB</li><li>•H2020 PROF/TRAC</li><li>•National projects</li></ul>

[www.bimcert.eu](http://www.bimcert.eu)

[www.bimplement-project.eu](http://www.bimplement-project.eu)

[www.net-ubiep.eu/](http://www.net-ubiep.eu/)

[www.buildup.eu/en/explore/links/bimeet-project](http://www.buildup.eu/en/explore/links/bimeet-project)

<http://constructionblueprint.eu/>



**CONSTRUCTION  
BLUEPRINT**



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[www.renozeb.eu](http://www.renozeb.eu)

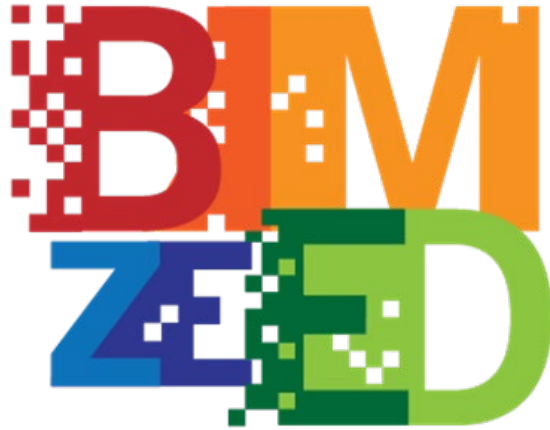
[www.triplea-reno.eu](http://www.triplea-reno.eu)

[www.bim-speed.eu](http://www.bim-speed.eu)

[www.cultural-e.eu](http://www.cultural-e.eu)

[www.bim4eeb-project.eu](http://www.bim4eeb-project.eu)

[www.digiplaceproject.eu](http://www.digiplaceproject.eu)



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**BIMzeED Website:**

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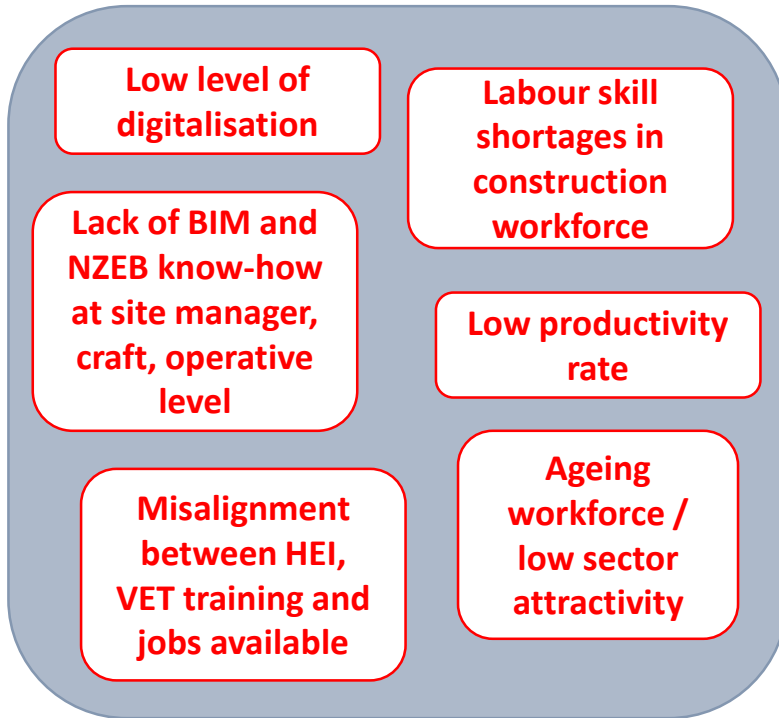
**BIMzeED Video:**

<https://youtu.be/g61fyPfrzY0>



# Why?

## EU Construction Sector weaknesses



## Objectives

Identify the knowledge and skills gap in BIM and nZEB within the Educational and Construction sector

Update the knowledge and skills of Educators and Trainers and SMEs in the field of BIM and nZEB

Stimulate development of new training and education programmes/modules in the fields of BIM/nZEB which can be integrated into existing HEI programme delivery

Transfer knowledge of BIM and nZEB to and from other countries.

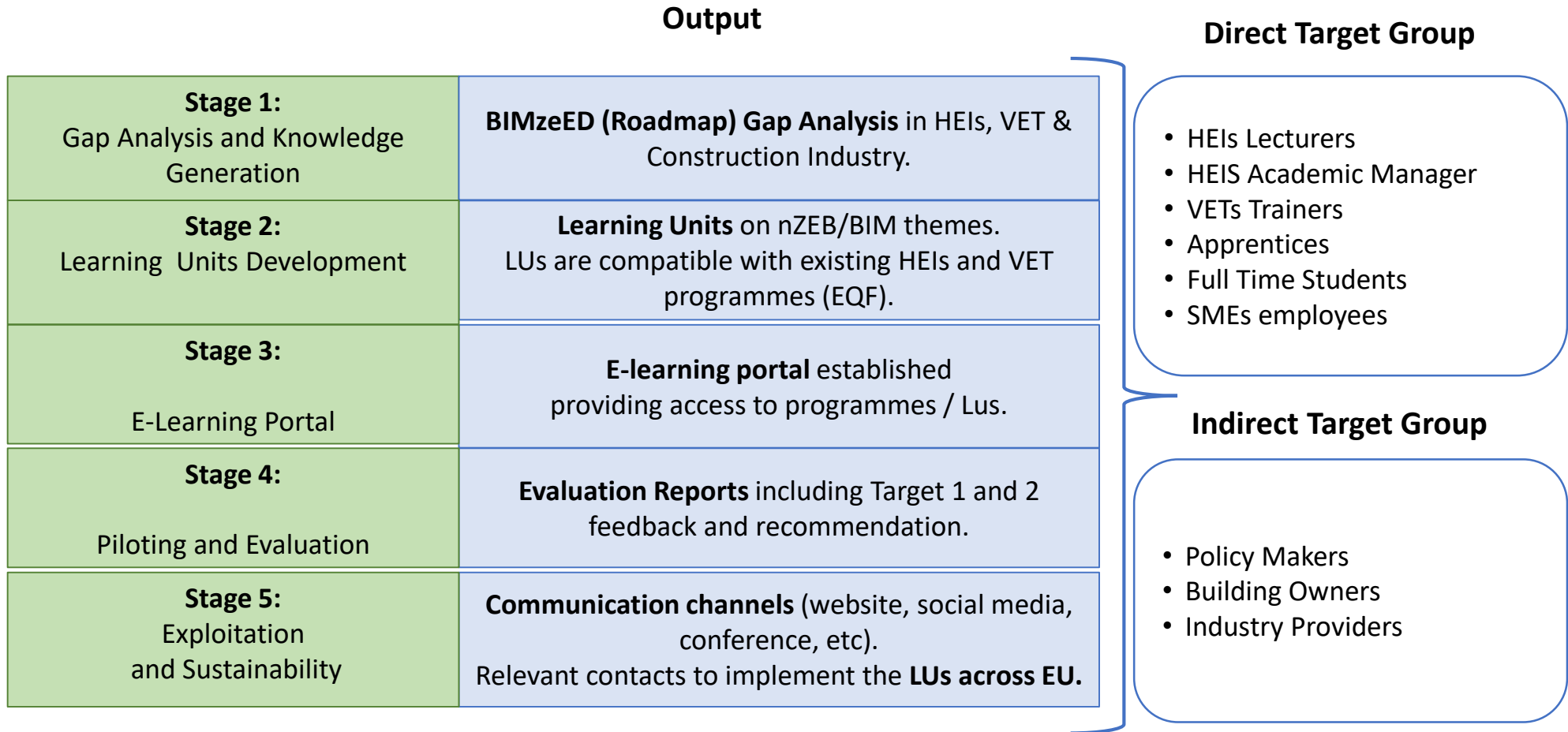
Strengthen links between lecturers, industry and SMEs with innovative technologies

Strengthen employability in teaching and SMEs





# Stages and Outputs



# Current practice and limits

## Trainings available

- BIM and NZEB skills are often **transferred in a fragmented way** – different training courses from different organisations
- **Non structured offer of training from level 3 - 7** of the educational system EQF
- Individual trainings held at each HEI and little collaboration is achievable at **national level due to concerns with competitive edge**
- Few European-oriented courses on the integration of BIM and NZEB

FRAGMENTATION

## Perception of advanced skills

- NZEB policies still seen as time consuming and expensive by the construction industry and SMEs. BUT IT IS NOW MANDATORY IN IRELAND
- BIM advantages not realised in the construction sector except within the professional fields at design stage and for large tender projects managed by larger construction companies

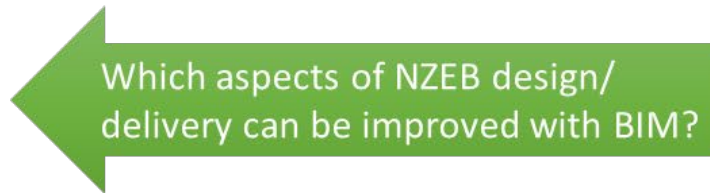
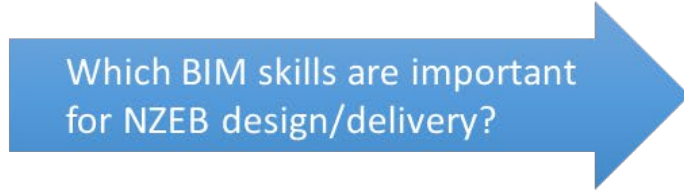
WRONG PERCEPTION

## EU projects and initiatives

- **Started collaboration** between other likeminded **HEIs and VETs** as well as essential interaction and collaboration with **SMEs and industry**
- **Exploitation and information exchange/support with other current projects** such as **BIMAlliance, other BIM and NZEB projects and All.Construction Blueprint** to work together and collectively on mutual issues

COLLABORATION /  
EXCHANGE

# Develop Learning Units





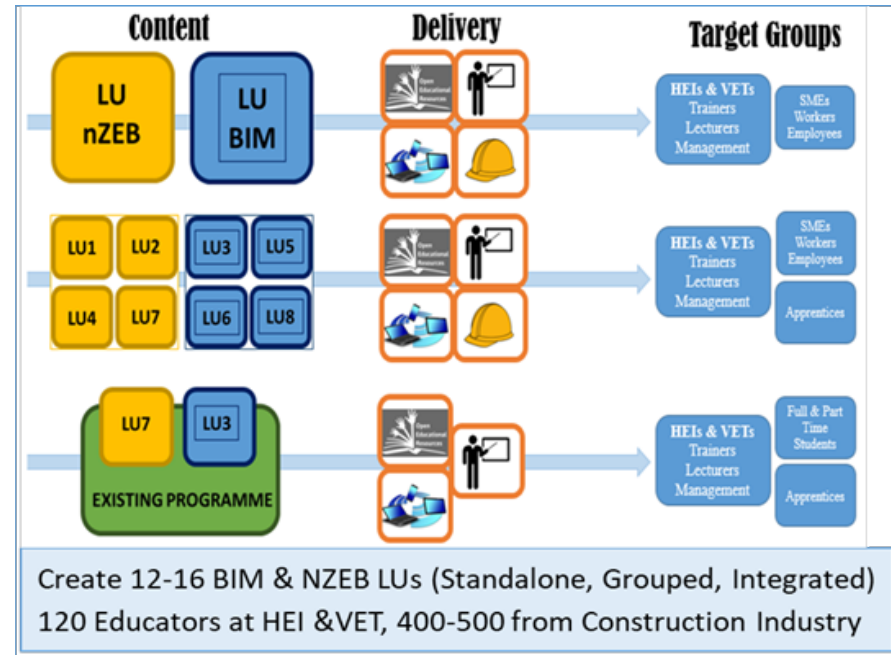
# What we want to do





# Pilots

- Blended Learning Format - Open Educational Resources (OERs) across EU. Combination of blended, in-class, on-line and on-site trainings.
- Flexibility of Learning Units - Short flexible Learning Units to be used as stand-alone units or combined with existing modules.
- The combination of LUs to be changed to follow the changing market's needs in each country.
- Strengthen links between VET/HEI, R&D, industry and SMEs using innovative digitalised technologies.



# Innovative approach

The innovative character of BIMzeED project is represented by:

## BLENDED LEARNING FORMAT

- Open Educational Resources (OERs) for exploitation across EU
- Combination of in class, on-line and on-site
- Creation of an E-Learning Portal and Learning Toolkit

## FLEXIBILITY OF LEARNING UNITS

- Short flexible Learning Units to be used as stand-alone units, or added and combined with existing modules and programmes
- LUs can be grouped together to create specific modules
- The combination of Lus can be changed to follow the changing market's needs

## INTERACTION between HEI,VET and INDUSTRY

- Strengthen links between VET/HEI, R&D, industry and SMEs using innovative digitalised energy efficient technologies and installations
- creating connected learning communities (viewing case studies, on-site site visits, industry demonstrations)

# Who are the Actors?

- Project manager
- Engineer/Designer
- Engineer/Site supervisor
- Site engineer
- Student
- Technician/Craftworker
- Educator
- Apprentice
- Owner
- Facility manager
- Policy maker
- Consultant
- Public administration
- Developer
- Contractor – Construction manager
- Construction Workers

# Impact

## Short term impact

- **Update skills needs of the construction sector and database of existing trainings** (Gap Analysis Roadmap Plan).
- **Roadmap used by HEIs, VETs and SMEs** to develop other supports, **outside the frame of BIMzeED**
- **“Ready to use” Learning Units on nZEB and BIM compatible** with HEIs / VET programmes, plus creation of two toolkits to enable adaptation onsite.
- **Open access to an E-Learning portal for the dissemination** of learning material available for all interested stakeholders (HEI/VET trainers, students, SMEs, industry related organisations)

## Medium term impact

- **Structuring of training material and content using common LUs with standardised delivery** (in class, on-line, on-site) **suitable for HEI and VET training.**
- **Increased capacity of the HEI and VET sectors to develop and implement new education and training programmes in the field of BIM and nZEB**, which are responsive to the fast changing sector
- **Better training opportunities for students and SMEs** with consequential gradual transfer of new skills in the construction market. Improvement of capacity building of the construction sector in increasing the human capital basis of its workforce

## Long term impact

- **LUs to be rolled out across EU as standalone training information**, grouped together as new accredited modules or added to existing EQF programmes.
- **Better collaborative opportunities for HEIs and VETs to establish mutually recognised LUs and programmes across Europe**, enabling the mobility of a mutually recognised skilled workforce
- **General improvement of the construction sector image** with increased attractiveness and competitiveness. Working with other EU funded projects and initiatives.

### INDICATORS

N. educators from HEI/VET per country (min 60)

N. private construction products providers surveyed per country (min 40)

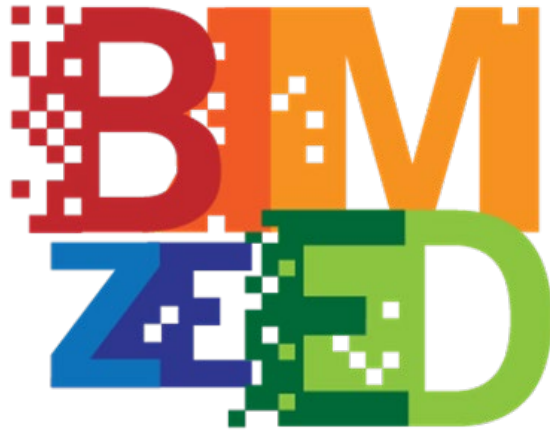
N. of training material downloaded

N. industry representatives surveyed per country (min 100)

N. of HEIs, VET participating in BIMzeED training approach (min 120)

N. of LUs available





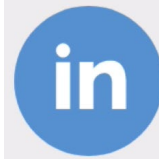
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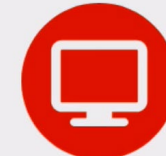
LinkedIn



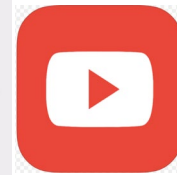
Twitter



Newsletter



Website



youtube



# A new Skills agenda for Europe



"In a rapidly evolving global world, our **capabilities** determine, to a large extent, **competitiveness** and the **talent to drive innovation**"



General strategy for **sectorial cooperation** on skills [...] **sector skills alliances** will be established, [...] **needs analysis** and development of solid and innovative solutions [...]



"**40% of employers** in Europe have **trouble** finding people with the skills they **need** to grow and innovate"

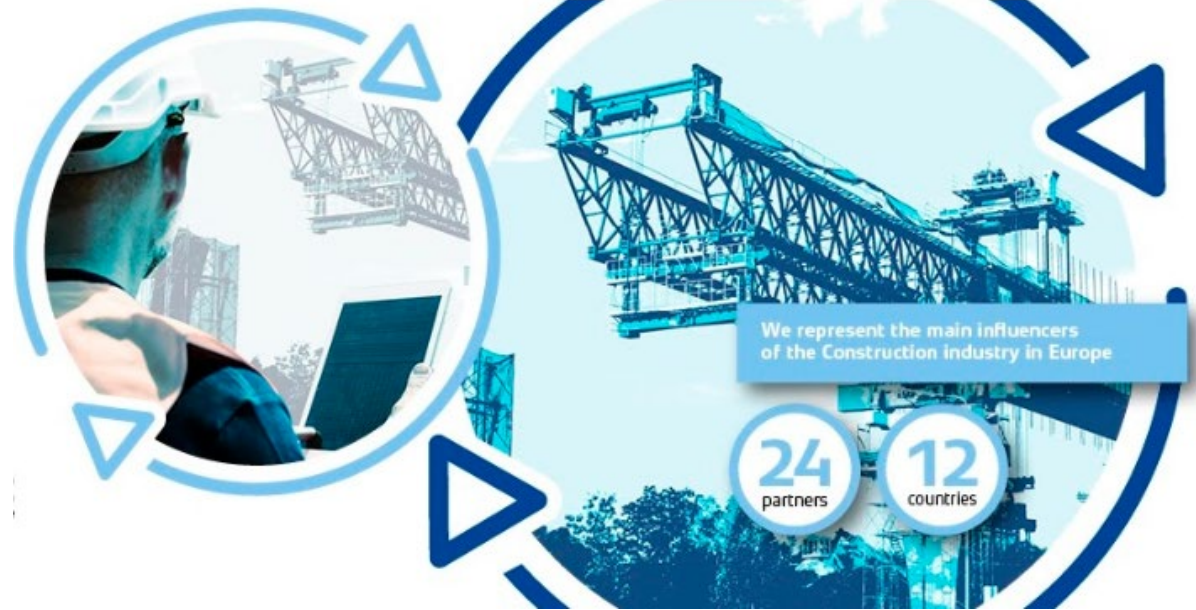


# CONSTRUCTION BLUEPRINT

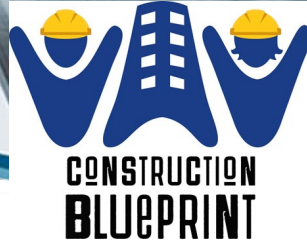


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## Establishing a new Strategy on Construction Skills in Europe



Construction Blueprint Website:  
<http://constructionblueprint.eu/>



Digitalisation

Gaps

Energy  
Efficiency

Invigorate

Ms-matches

support

CHANGE

SHORTAGES

SKILLS

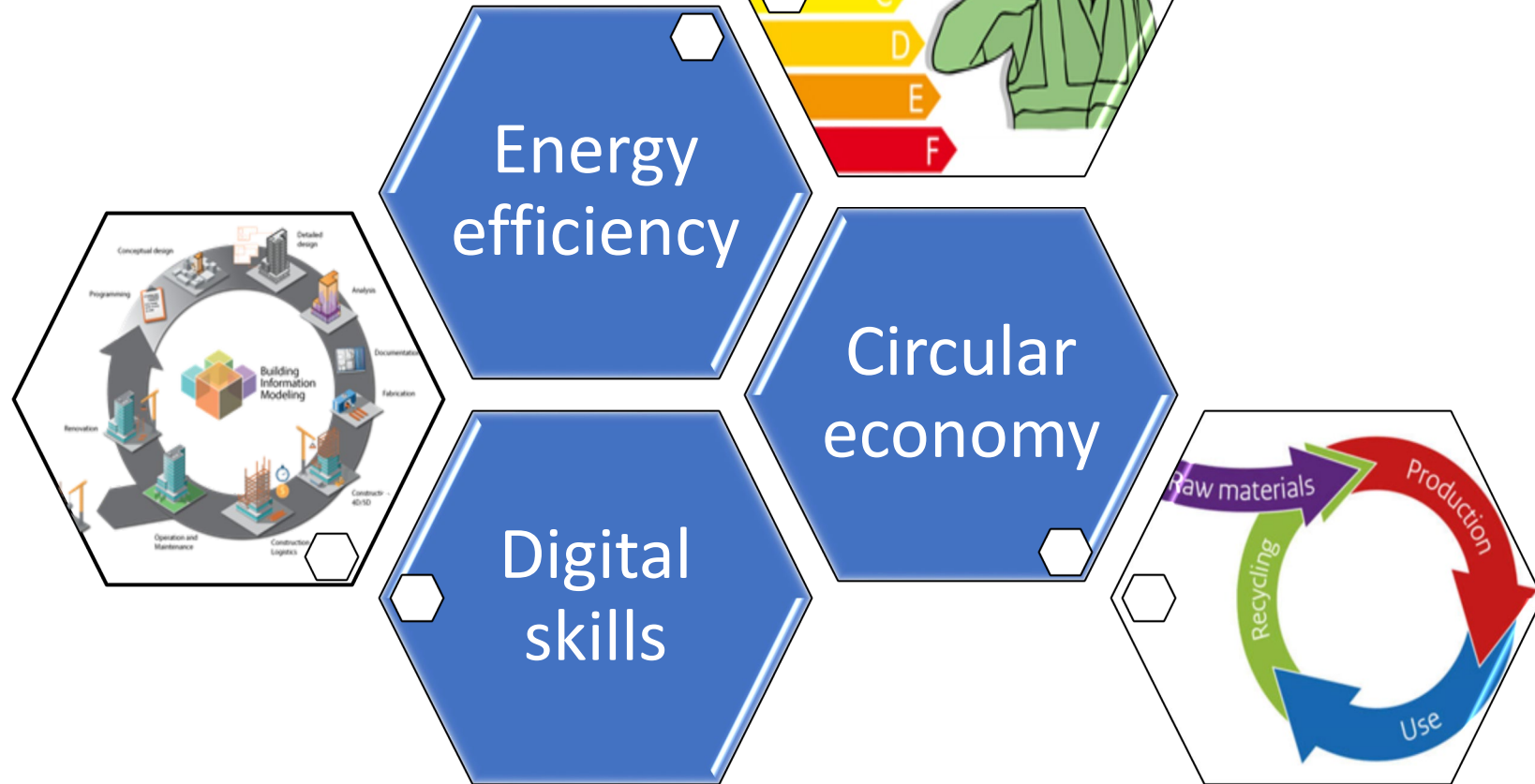
Circular  
Economy

Co-operation

LABOUR MARKET

# Construction Industry







# Key areas



## Energy efficiency

It is one of the main **drivers** of skills development in the sector

The European Commission agreed to **decarbonise** the European building stock by 2050

It is foreseen that **3-4 million workers** will need to be updated in this field.



## Key areas

# Digitalization

**Workforce** will use tools to do their job quicker, more precisely and with fewer errors

Tools will contribute to further **optimisation** of building design and utilisation

**BIM** is one of the main key drivers of this change



## Key areas

# Circular economy

The construction industry has a very **important role**

Circular economy will change the **traditional paradigm** of the sector

From a linear economy to a more **sustainable** one





# Objectives





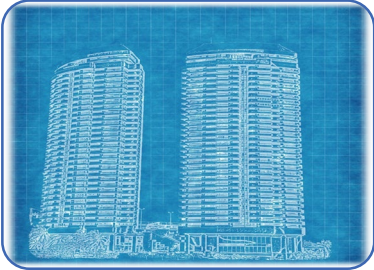
# General objective

To develop specific **innovative relevant instruments** to address skills shortages and gaps and to match skills demand and supply

As well as the creation of new occupations dealing with **green and digital competences**.



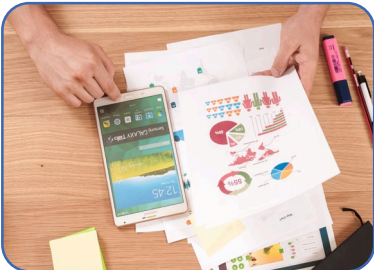
# Specific objectives



- Designing and implementing a **Blueprint** for the construction industry
- Set up a sustainable European **Sector Skills Alliance** supporting the **Sector Skills Strategy**



- Creating a **'WatchTower'** (observatory) for the matching of skills supply and demands.
- Identified **good practices** in Europe dealing with skills gaps, shortages and mismatches



- Identifying **professional qualifications** and **occupational profiles** that should be revised
- Fostering the development of specific solutions **on VET provision**
- Providing training with **flexible** training/learning methods (**MOOC**)



# Specific objectives



- Promoting **attractiveness** of the sector by Outreach Campaigns
- Developing actions for encouraging **mobility**



- Creating **networks** to improve skills intelligence and information mechanisms
- Promoting **mutual trust** through transparency and transferability among partners



- Launching a **collaborative platform** to build community among stakeholders
- Getting the involvement and **endorsement** of relevant stakeholders
- Identifying **funding opportunities** to ensure sustainability of outcomes



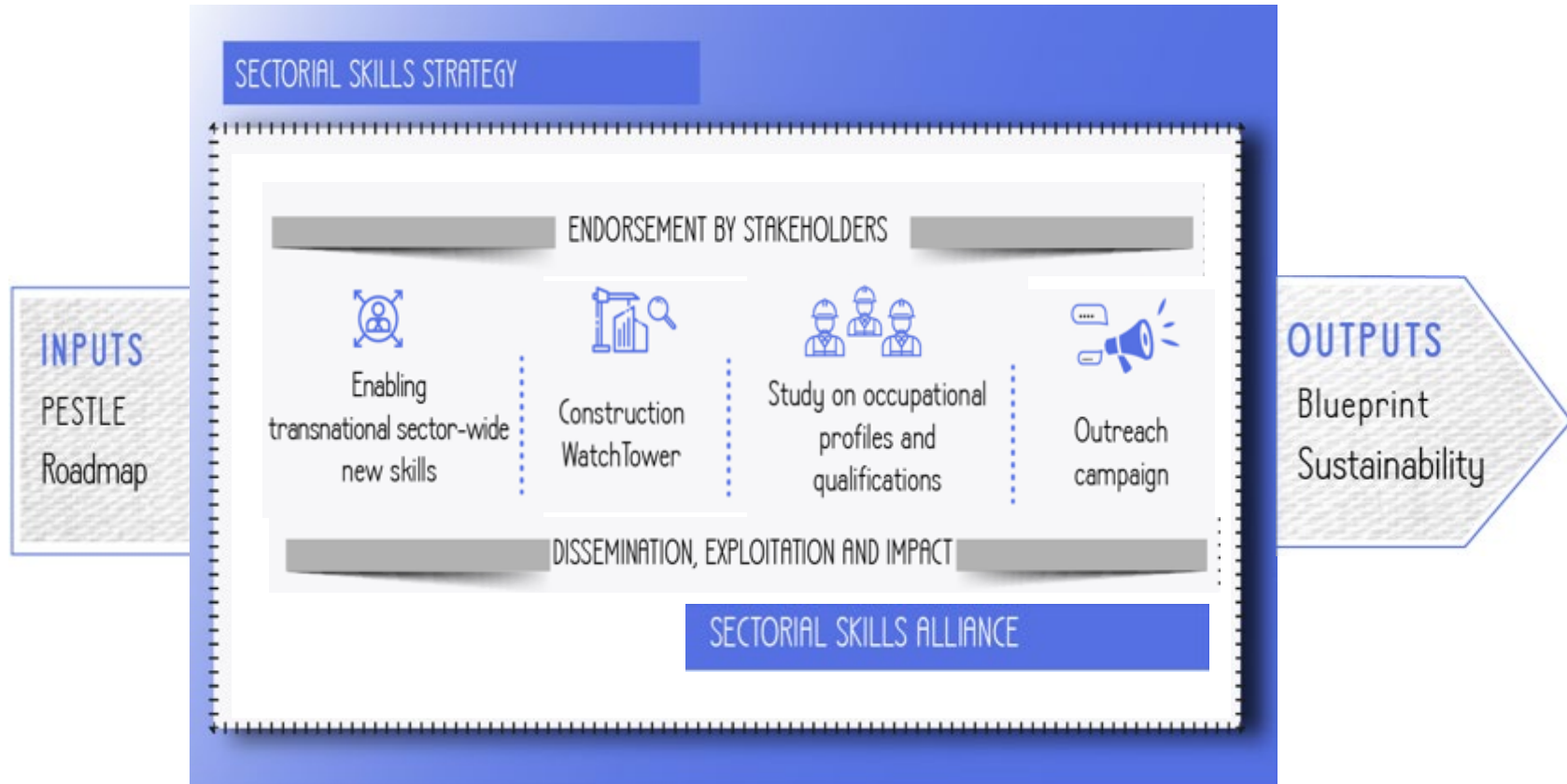


# Outcomes





# Outcomes



Working with **EC-Europe** as they develop actions for digitalisation in Europe  
See a report - Supporting digitalisation of the construction sector and SMEs  
<https://ec.europa.eu/docsroom/documents/38281>



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# THANKS FOR LISTENING

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[Elisabeth.obrien@lit.ie](mailto:Elisabeth.obrien@lit.ie)



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# BIMCert Solutions Lets Talk!

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