Micro-Learnings to support the Digital Journey for SMEs

LIT
LIMERICK INSTITUTE OF TECHNOLOGY

Elisabeth O'Brien

Senior Project Officer

Renewable Energy and Sustainable Building Research and Development

Elisabeth.obrien@lit.ie

T: @LisOBrienLIT @RDI_LIT

W: https://lit.ie/rdi/development

WELCOME

LIT Development Unit

LIT

About LIT

6,700 Students

5 Dynamic CAMPUSES

Sunday Times Institute of the Year 2009 & 2013

LIMERICK

Moylish
Clare Street
George's Quay

Coonagh* *(under development)*

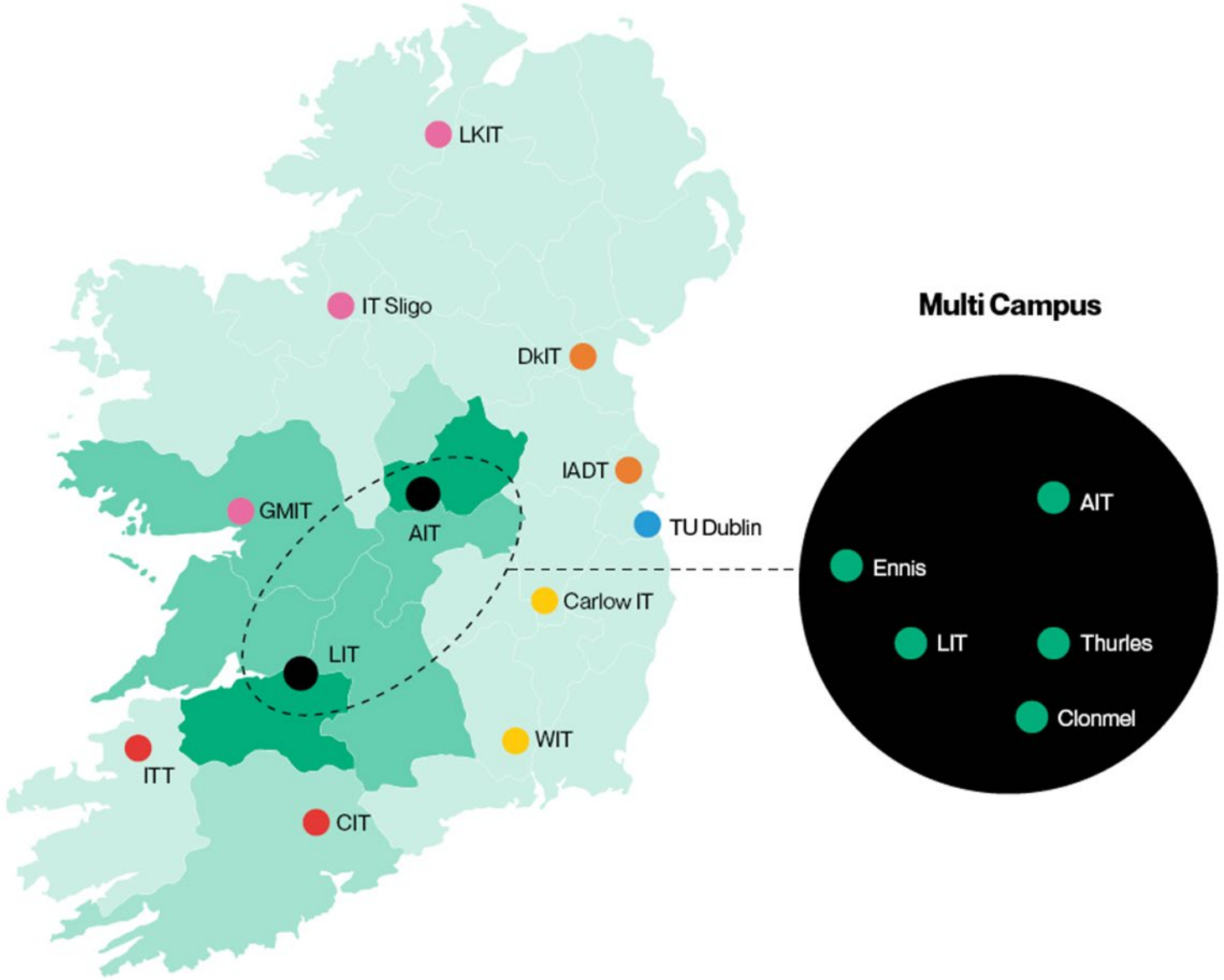
TIPPERARY

Thurles
Clonmel

CLARE

Ennis

LIT & AIT → Technological University



Growth in demand for apprenticeships

Progression and Transfer for Appenticeships and Industry

Learning Community

Active Flexible Learning

Full time, part time, online and micro-learnings

Research and Development of future skills and needs

LIT

LIT RDI – Development Unit

Sustainability Focus

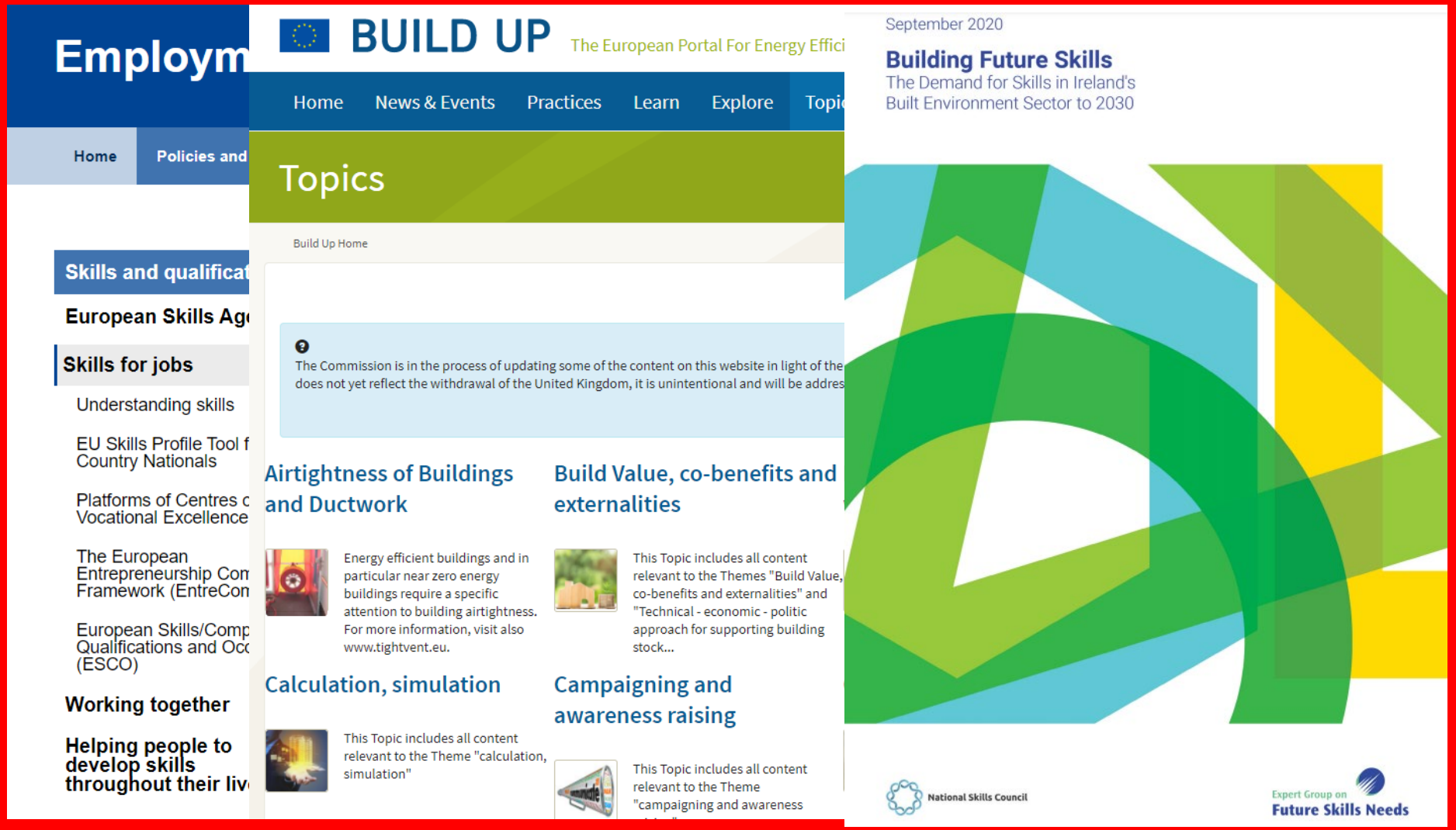
- Energy & Renewables
- Digitalisation & VR
- Climate Action
- Social Enterprise
- Outdoor Learning
- Technology for Change

Expertise & Networks

- 20 FTE, (& growing); €33m activity
- Engineering, Architecture, Social Science, Science, Administration, Finance
- >150 EU Partners

LIT
THIOBRAID ÁRANN
TIPPERARY
Campas Dhurlais · Thurles Campus

Skills Buzz



- Everyone is talking about skills needs
- Driven by Green/Digital Economy
- What is happening?

Scale of Challenge

Public Buildings	Residential Retrofit	New Build to nZEB
All to B by 2030	500,000 homes	20,000 homes/yr
€7-9bn	€20-€25bn	~€40bn
140,000 FTE	400,000 FTE	Existing jobs

Assuming 20 FTE per €1m invested in energy efficiency

LIT

Multi-Layered Problem

Design/ Engineering

Crafts/Trades

Construction Workers

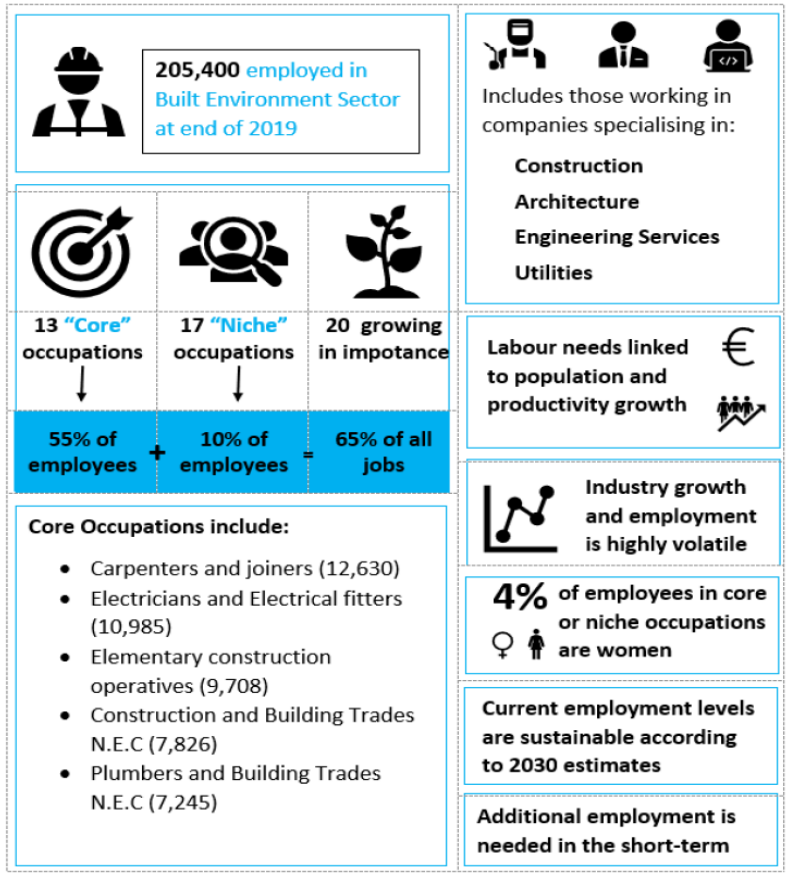
Technical

Managerial /Supervision

Leadership/Finance/Sales/Customer Journey

Industry In a Nutshell

A little History for the construction sector:
The property bubble crashed in 2008.
Employment from 240,000 to 81,300 in 2012.
In 2019, Irish overall growth improved by 23%.
Construction growth improved by 80% to 2019.
BUT still only at 60% of 2008 – 144,000 (2020).

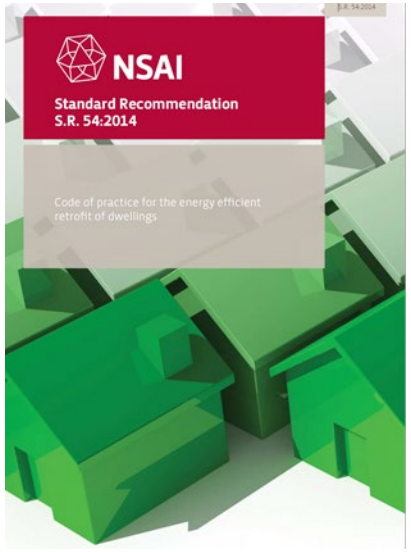


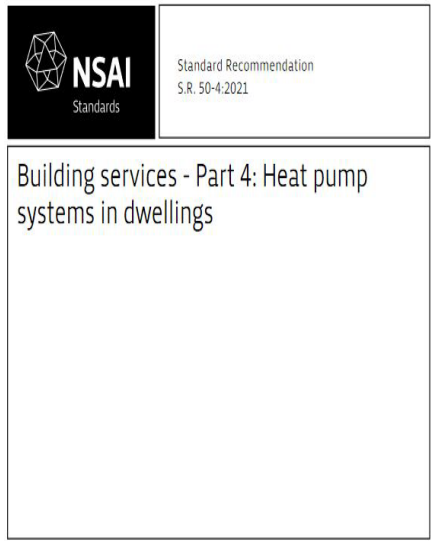
- Shortage of skills

Working with the EGFSN:
We look at understanding skills, quantifying the skills needs, closing the skills gap and preparing for the future with trainings.

- Niche skills and emerging skills

Deep Retrofit of 600,000 homes, requiring 400,00 heat pumps to be installed.
Developing the entire HP value chain in HP4all





Key Drivers

Europe

Energy Efficiency			Digitalisation			Circular Economy		
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 upskilled in this field.	**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	The construction industry has a very **important role**	Circular economy will change the **traditional standard** of the sector	From a linear economy to a more **sustainable** one

Ireland

Energy Efficiency			Digitalisation				Circular Economy		
Mandatory NZEB Compliance for all new Buildings and Major Renovations	Climate Action Plan set to **reduce 50% EE and 30% GHG** by 2050	The drive to upskill in energy renovation to **upgrade 500,000 homes** and install **400,000 heat pumps**	**BIM and AR/ER** are the main key drivers of this change	National BIM Council set out **BIM Roadmap** to 2050	Tools to contribute to **optimisation** of building design, installation and utilisation	**Grow industry capacity** and maturity in the use of BIM and other innovative technologies.	High Level Government Circular Economy **Strategy and Roadmaps**	All public **Procurement to have Green Criteria** and Circular Economy Principles	**Transition** from a linear economy to a more **sustainable** one working with the **Digital Sector**

Environmental and Comfort Impact

Quality and financial/time savings

Sustainable and reuse of materials

Awareness, Flexible Education, Trainings, Training Plans, Skills Recognition

LIT - EU Funded Projects involving Trainings

QualiBuild
Upskill • Train • Improve

FactHP

NZEB

Better Buildings
A National Renovation Strategy for Ireland

A2PBEER
AFFORDABLE AND ADAPTABLE PUBLIC BUILDINGS THROUGH ENERGY EFFICIENT RETROFITTING

SPEEDIER

HP ALL

BIM ZED

BUS LEAGUE

Train-to-NZEB
The Building Knowledge Hubs

ManagEnergy
Leaders in energy transition

An Chomhairle Oidhreachta
The Heritage Council
Fundamentals of Energy Renovation for Traditional Buildings

superHOMES

CONSTRUCTION BLUEPRINT

DASBE
Digital Academy for the Sustainable Built Environment

Limerick Institute of Technology ¦ www.lit.ie ¦
information@lit.ie ¦ +353 61 29 3000

www.lit.ie/rdi

National NZEB Specifications

National Specifications for NZEB Trainings approved

Modules: NZEB & EU policies, Building Regs, Product Certs: Building Physics: Building Fabric: Building and Smart Services: Communication and User information

- Develop to assist in NZEB and Sustainable trainings with support from SOLAS and Skillnet
- Provide a platform for the advancement of awareness and understanding of Energy Efficiency, and Circular Economy.
- Developed new NZEB Training Unit in Waterford for retrofit trainings and NZEB Centre of Excellence in Wexford
- **Additional Training Units/ETBs are underway to enable practical trainings nationwide**
- Training Units using the Terms of Reference developed for Train-to-NZEB Building Knowledge Hubs

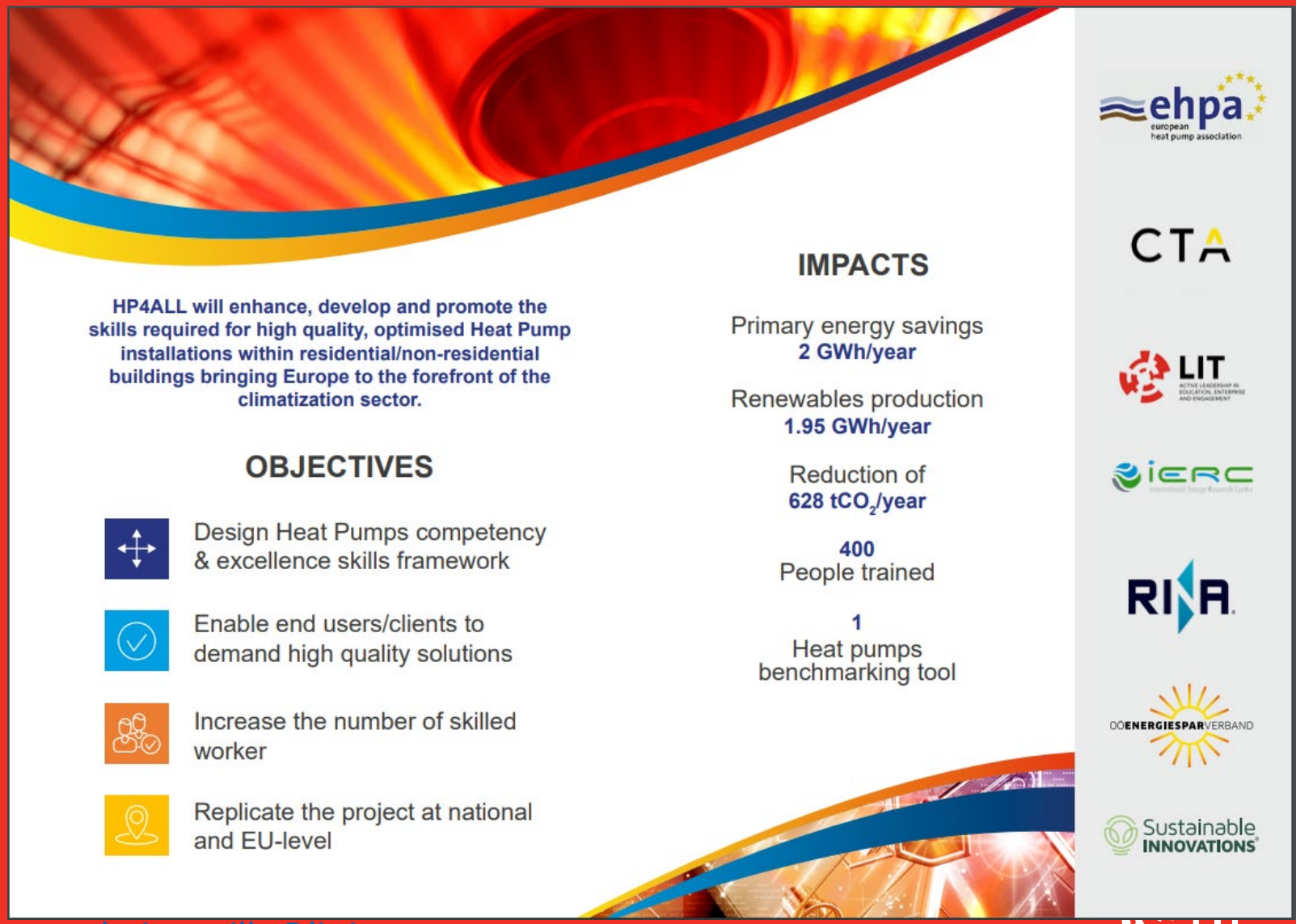
Heat Pump Supply Chain

Co-funded by the Horizon 2020 programme of the European Union

HP ALL

- Developing the entire HP value chain
- Creating greater awareness of the benefits of HPs among building owners
- Increasing the skills of designers, installers and entire supply chain

http://hp4all.eu



For more information contact Padraic O'Reilly at padraic.oreilly@lit.ie

BUNRS

Building Upon National Renovation Strategy

Retrofitting buildings is crucial to Irelands Climate Action remit:
LIT and IGBC are developing new roles:

- **Energy Retrofit Advisors**
- **Energy Retrofit Installers**

Collaboration with panel including: Industry, Education, Environmental experts, Government bodies,
Facilitating energy renovation trainings.
Developing a one-stop-shop **Skills App** where professionals and workers can find suitable trainings and develop their own training plan.
This App will be further advanced in the **BUSLeague** project

Skills in Green Procurement

Co-funded by the Erasmus+ Programme of the European Union

gupp

Skills for EU Greener Public Procurements in Construction Works

01-10-2020 => 30-11-2022

- Stimulate behavioural changes of the industry towards a sustainable, greener and circular economy.
- Raise awareness about the lifecycle environmental impacts of projects.
- Create new opportunities for public authorities and professionals to stimulate resource efficiency and green growth.
- Facilitate and strengthen knowledge transfer between key stakeholders, practitioners and educational sector
- Introduction of innovative training programme in the Green Procurement Process.
- Working alongside another GPP project – Life Level(s) project https://lifelevels.eu/

- ***Survey and Interviews***

OUTCOMES

GUPP project foresees to meet the following results and outputs:

Green Handbook, an instrument on GPP Regulatory Framework and Practice on Construction Works

GUPP capacity building program including up-to-date knowledge and advanced aspects of GPP in construction works, facilitating deeper knowledge and familiarity with GPP.

GUPP Web Platform, an innovative e-training and e-learning tool

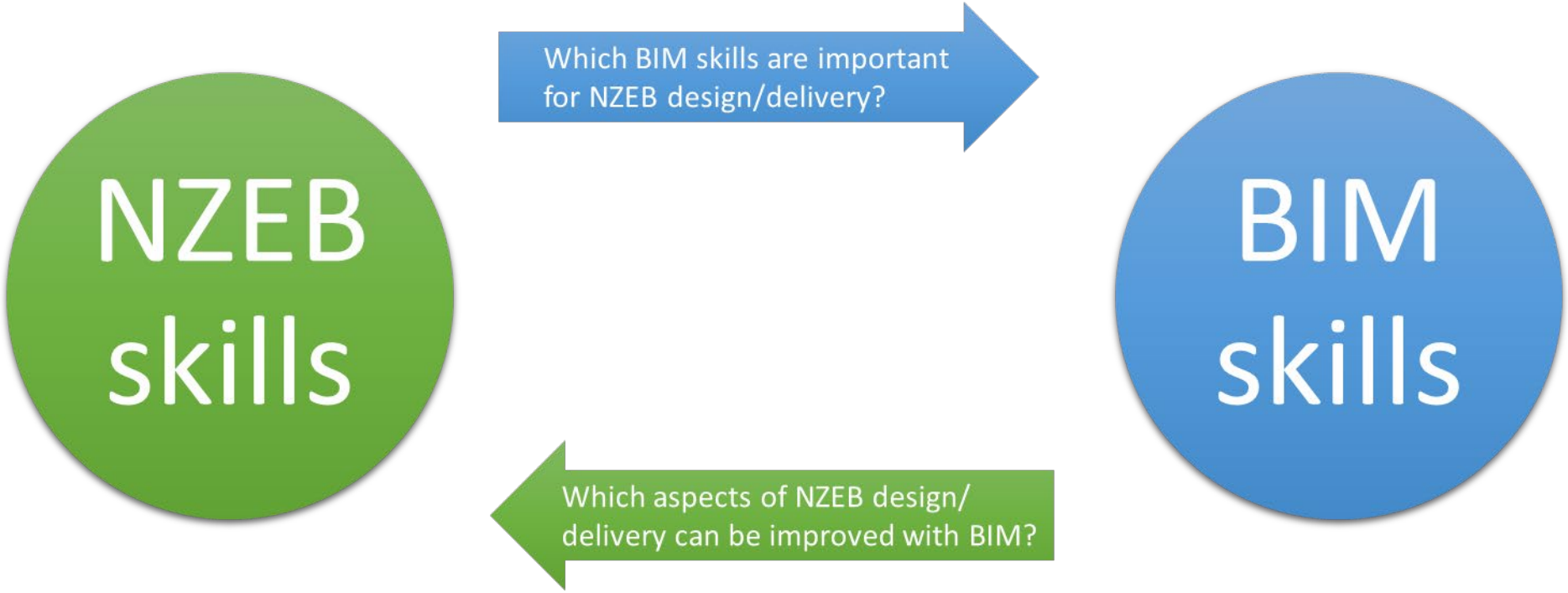
Engagement with GUPP in construction works, More than 100 staff from public authorities in total across all participating countries trained in the GUPP course and development of Policy recommendations on Greener Public Procurement with operative guidelines

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

Project website: http://gupp.eu/

LIT

Using Digitalisation



What we want to do

Digitisation & NZEB

Co-funded by the Erasmus+ Programme of the European Union

BIMzeED education for zero energy buildings USING BUILDING INFORMATION MODELLING

BIMzeED at Solar Decathlon Europe19 using BIM for NZEB Builds (Source: Lis O'Brien, LIT)

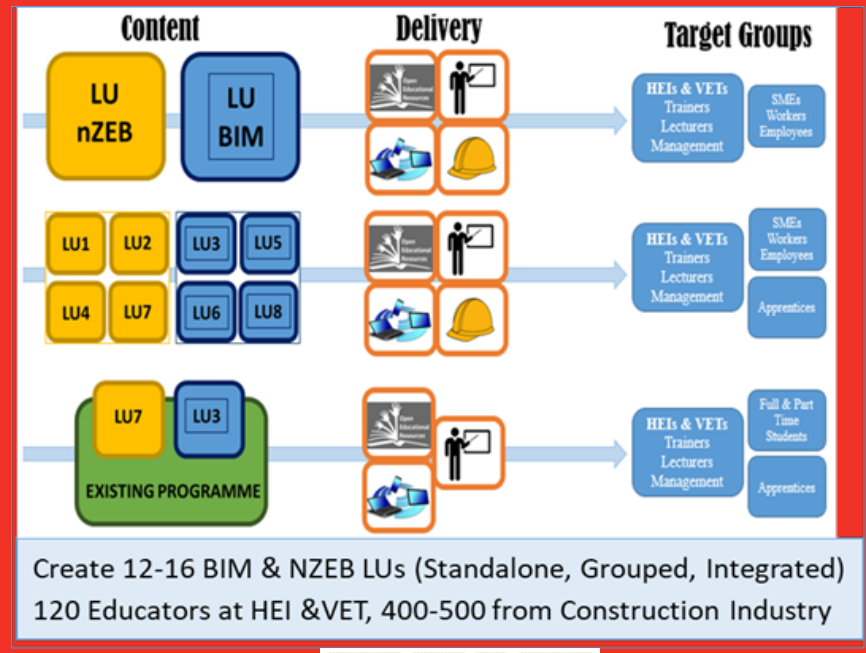
"We are connecting the worlds of Building Information Modelling (BIM) and nearly Zero Energy Buildings (NZEB) with a view to increasing and enhancing the capacity of the construction sector to meet our energy and climate goals, while also enhancing job security and education and training quality"

Adaptable Learning Format - OER across EU. Delivery of blended, in-class, on-line and on-site trainings.

Flexibility of Learning Units – Micro Learning Units used as stand-alone, grouped together or integrated into existing programmes at VET or HEI levels.

Changing market's needs – easily adaptable and mutually recognised across Europe

Strengthen links - between VET/HEI, R&D, industry and SMEs using innovative digitalised technologies.



Project website: http://bimzeed.eu

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

LIT

Micro-Learning Units

12 Learning Units (LUs)- Provides information of the target group and EQF level of training.

EQF	7	**Target**	Project manager Consultant Designer Construction manager Specialists in green building
Description			
EQF	4-5	**Target**	Craft workers Apprentices Specialized workers Construction workers
Description			
EQF	6	**Target**	Project manager Consultant Designer Construction manager Specialist in green building
Description			

Each LU also sets out:-

- Descriptor,
- Objectives,
- Generic Competencies
- Specific Competencies.

- 8-10 hours of structured contact learning
- 24 -36 hours of self-directed learning
- Blended, online, on-site or in-class delivery.

education for zero energy buildings
USING BUILDING INFORMATION MODELLING

Co-funded by the Erasmus+ Programme of the European Union

12 Learning Units

BIMZEED
education
for zero energy buildings
USING BUILDING INFORMATION MODELLING

Collaborative BIM to achieve nZEB

BIM & nZEB for Workers

nZEB Realization and commissioning. Building Envelope and Air Tightness

nZEB Realization and commissioning. Building Services and Smart Technologies

nZEB Realization and commissioning. Quality Assurance

BIM Model Uses during construction

BIM Model Uses for specification and quantification

BIM Model Standardization for nZEB Design

Building Energy Modeling (BEM) Design and Export

Energy Simulation with BIM Tools

Near Zero Energy Building Facility Management

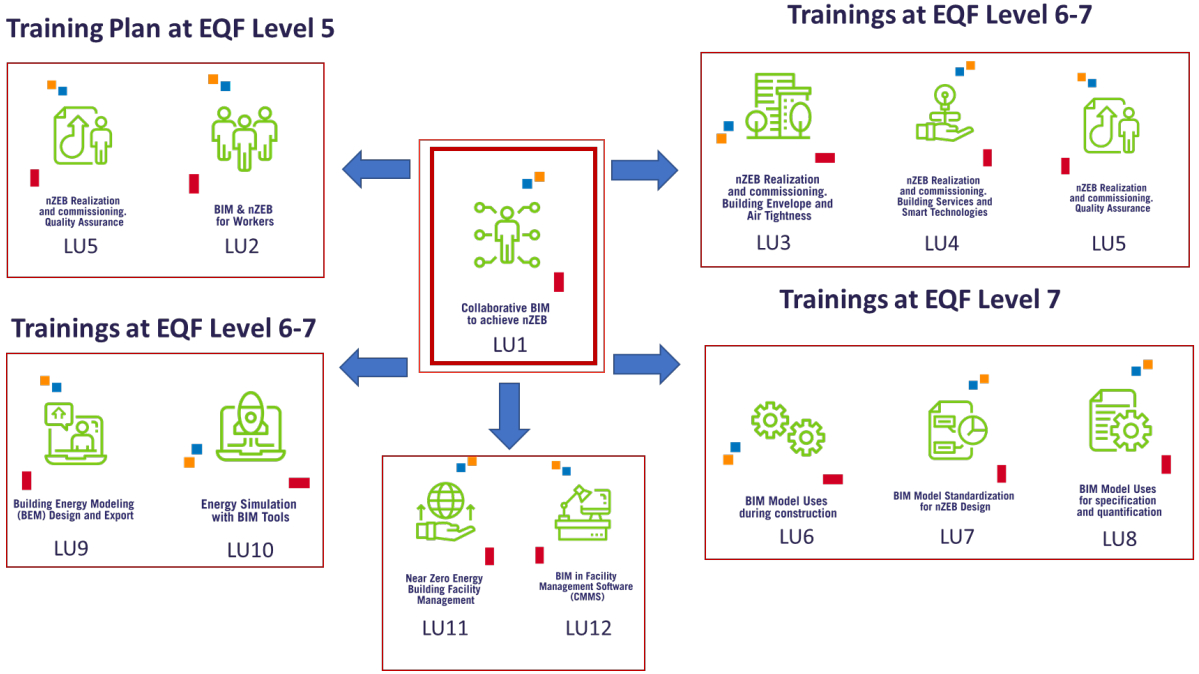
BIM in Facility Management Software (CMMS)

BIMzeED Trainers

As Trainers you will be able to choose:

- which Target Group you wish to train
- which Learning Units (LUs) you wish to use (make note of the EQF level)
- The type of delivery whether it is blended, online, on-site or in-class

Train the trainer



WEBSITE
https://bimzeed.eu/

E-Learning Platform

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

Skills for the Market

Co-funded by the Horizon 2020 programme of the European Union

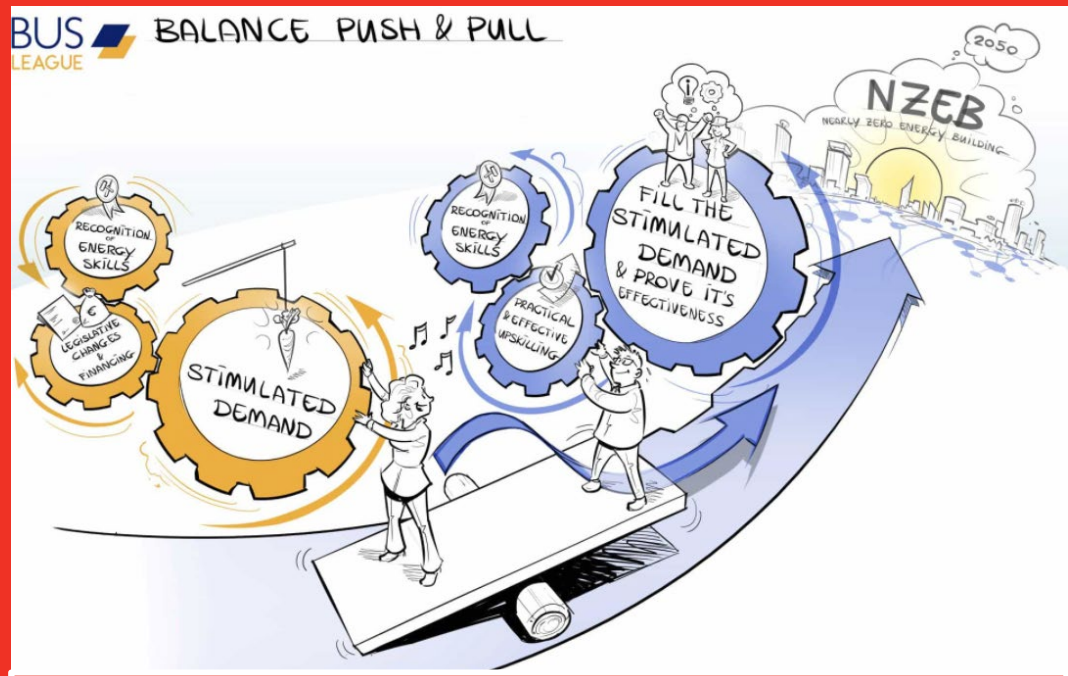
BUS LEAGUE

Challenge - How to motivate & upskill the workforce.

BUSLeague focusses on a blend of four elements: mutual recognition of energy skills, awareness raising, capacity building and legislative changes.

- **Stimulate Demand** - One-stop-Shop for trainings and access skilled workforce - *Build Up Skills Advisor App*
- **Update and provide Future Trainings** - Encourage further upskilling/trainings and Create new roles in the industry
- **Upskilling Trainers and DIY/Hardware staff** - at Practical Training Centres and Wholesale Companies
- **Awareness** – Campaigns to champion skilled workers/staff
- **Influence Legislation** – Training clause in procurement
- Demonstrate increased demand, expand and replicate

Project website: https://busleague.eu/



Supporting the Retrofit Journey with Innovative Technologies

https://www.eventbrite.co.uk/e/supporting-the-retrofit-journey-tickets-149110384173

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

LIT

Build Up Skills Advisor

1. One –stop-Shop for trainings -
White and Blue collar workers

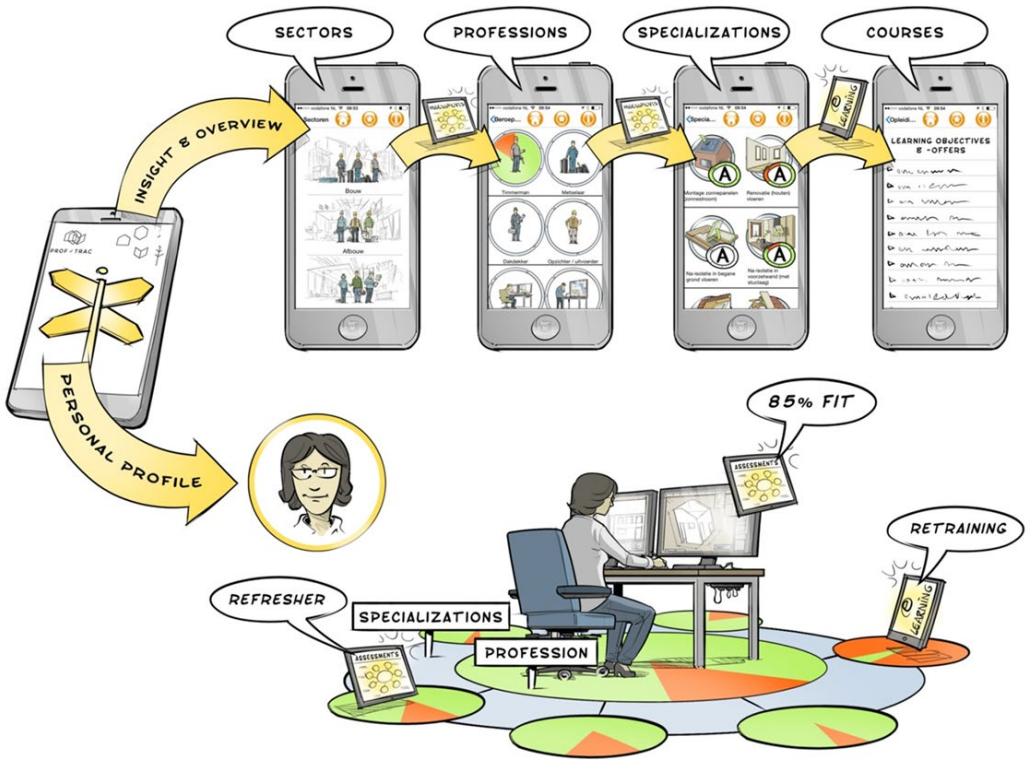
2. Develop a Training Plan -
Practical skills for White and Blue collar workers
Digital applications for upskilling

3. Assess Workers Skills -
Workers and Potential clients

4. Upskilling DIY/Hardware stores roles-
Upskilling at Practical Training Centres and
Wholesale Companies

5. Mutual Recognition of Workers across Europe-
Reduce Skills Shortages

The CWSR developed in QualiBuild has been incorporated into the BUNRS BUS App (ISSO) with listings of available trainings for workers and professionals, and establishing a skills register.



BUILD Up Skills Advisor - BUS App

https://drive.google.com/file/d/1MKcB2w7Gil1T0TcYvJGJR4wNLs92WBdB/view?usp=sharing

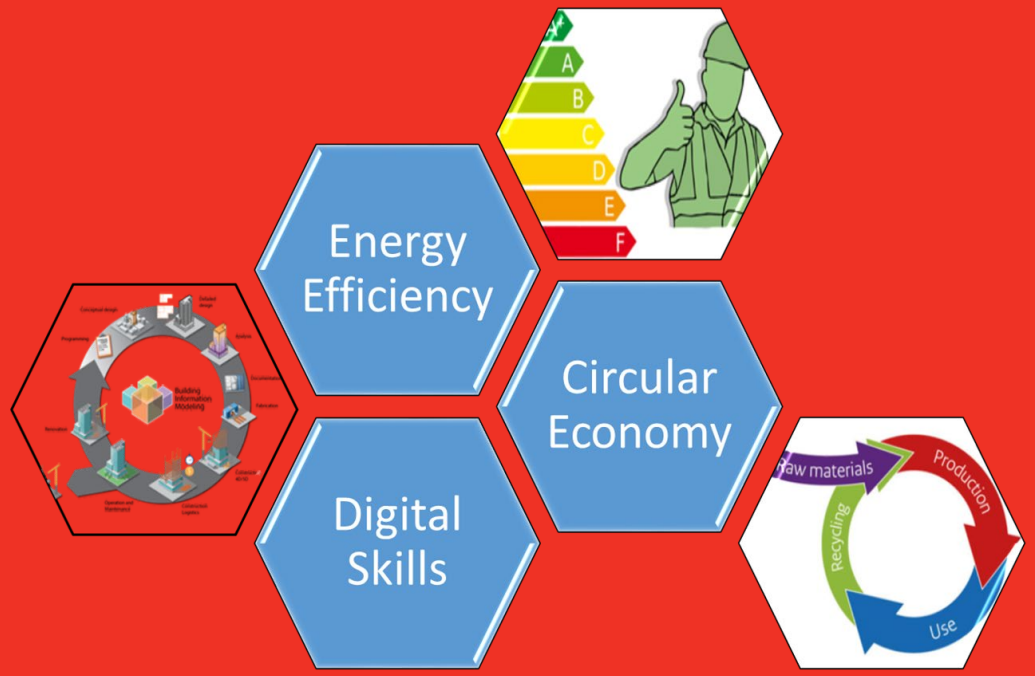
Skills across Europe

Co-funded by the Erasmus+ Programme of the European Union

A new Strategy on Construction Skills in Europe

CONSTRUCTION BLUEPRINT

24 Partners from 12 countries
January 2019 to December 2022



- Design and implement a Blueprint for the construction industry in Europe
- Set up a sustainable European Sector Skills Alliance supporting the Sector Skills Strategy
- Create a 'WatchTower' (observatory)
- Identify good practices in Europe dealing with skills shortages and mismatches
- Identify professional qualifications and occupational profiles to be revised
- **Provide flexible training (OER) and develop 3 VET curricular to be mutually recognised across Europe.**
- Establish outreach campaigns and networks

Project website: http://constructionblueprint.eu/

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

LIT

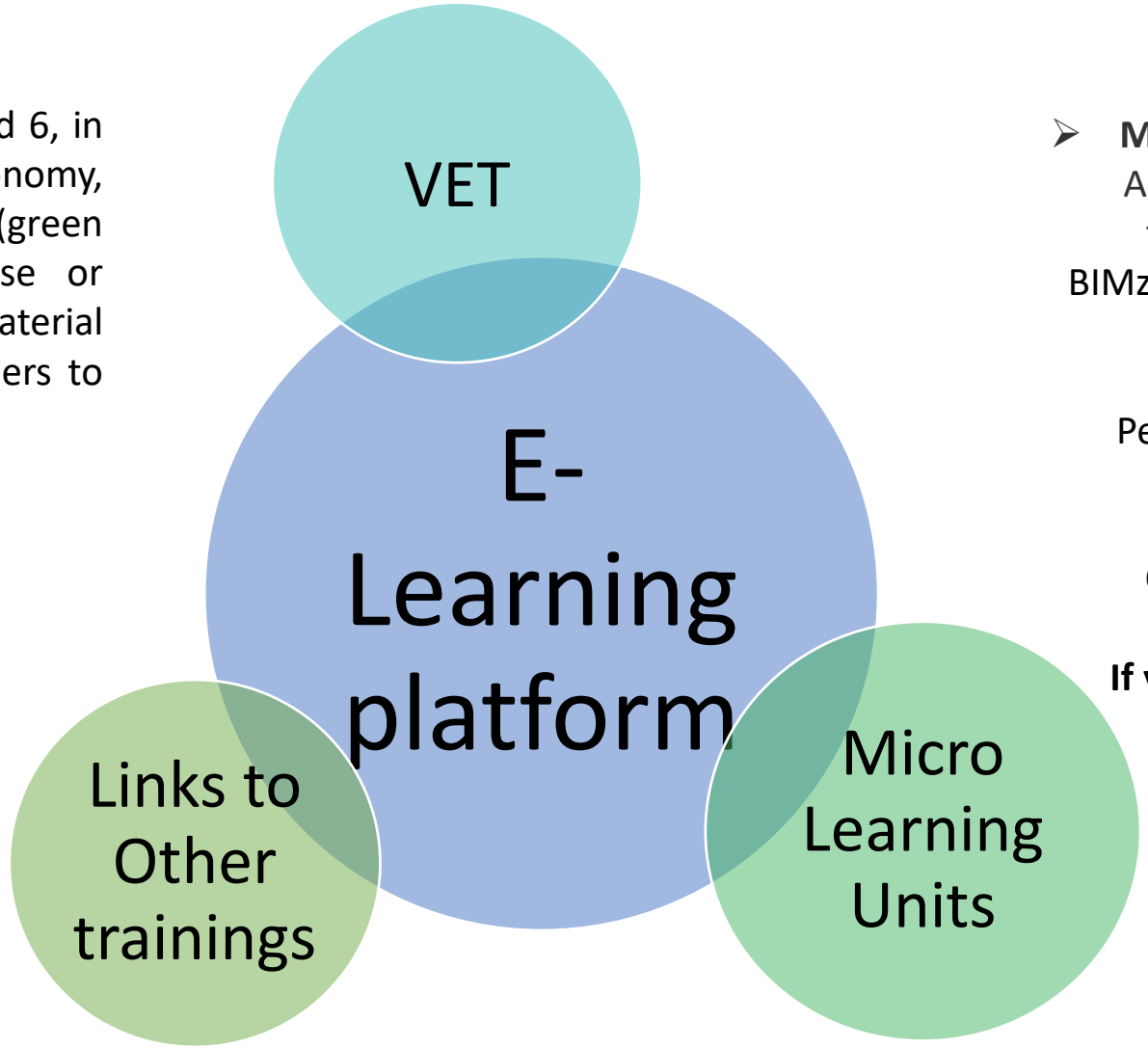
Construction Blueprint E-Learning Platform

➢ **VET Curricula**

Mainly aimed at NQF levels 4, 5 and 6, in energy efficiency, circular economy, digitalisation and health & safety (green economy). Complete a full course or chosen modules. The Training Material will be available for training providers to use in their trainings.

➢ **Other Trainings**

The project will also allow the construction sector to avail of other trainings in the fields of energy efficiency, circular economy, digitalisation. We can direct to CIF, Skillnet, Fetch, other EU funded projects and other training providers platforms.
So get in touch to link with us.



➢ **Micro Learnings**

And micro-learning units developed from EU and Irish funded projects:
BIMzeED BIMCert BIMEET BIMPlement BuildingSmart NetUBIEP ZEBRA H&SBlueprint, TechCMS, GroWing Pedmede BIM and PP, WATTER Skills I-Town, ICaro, DEFMA, RIBi I, II, III, Train4Sustain.
Other trainings can be added from GUPP, BUSLeague, HP4ALL etc etc
If you need a host platform for your short modules or trainings get in touch

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

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

DASBE – Bringing it all together

DASBE
Digital Academy for the Sustainable Built Environment

A Hub for the provision of upskilling, capacity building and education in the building sector on <u>green construction, circular economy and digital skills</u>

- Low energy buildings to Virtual Reality
- Rapid Design, Development and Deployment
- On-line, blended and face to face approaches
- Digital Platform enabling access to **Micro Credentials through to Major Awards**
- **Connecting** R&D with Education and Training
- **Connecting** Industry demand with Local Provision

LIT LIMERICK INSTITUTE OF TECHNOLOGY

AIT

GMIT INSTITIÚID TEICNEOLAÍOCHTA NA GAILLIMHE-MAIGH EO GALWAY-MAYO INSTITUTE OF TECHNOLOGY

TIPPERARY energy AGENCY

IGBC IRISH GREEN BUILDING COUNCIL

Rialtas na hÉireann Government of Ireland

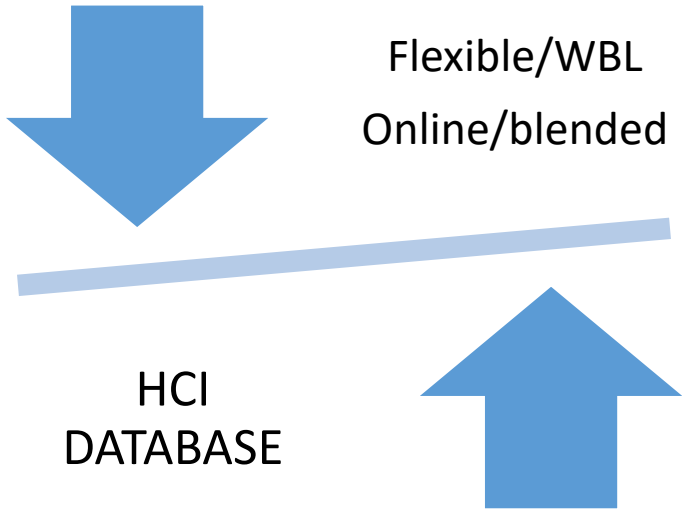
FUTURE JOBS IRELAND
Preparing Now for Tomorrow's Economy

LIT

DASBE
Digital Academy for the Sustainable Built Environment

Overall Aim

DASBE seeks to create a National Digital Academy that enables the Construction Industry, SMEs, Manufacturers and Workers to upskill and gain new knowledge in a cost effective, worker centric learning environment.



Objectives:

1. Develop a National Digital Academy
2. Create a Programme Design, Development and Deployment model
3. Expand the DASBE Consortium
4. Develop a robust strategic and business plan

Innovation:

- *Accessibility* - Open up Access to education or training to workforce
- *Rapid Response* - Combine expertise, faster programme development
- *Digital tools*
- *Integration with R&D*

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

LIT

Conclusion

- Challenge is immense to reskill and upskill
- Already stretched construction sector – which means employers have a challenge in recruiting/retaining/releasing staff
- Innovative tools
  - Digital/on-line training
  - Micro Credentials and Badges
  - Alternative deliver modes
- We also need to support upskilling of educators/trainers
- We will need to invest (both time and money)

For more information contact Lis O'Brien at Elisabeth.obrien@lit.ie

LIT

LIT Development Unit

Thanks for your attention

Lis O'Brien

Elisabeth.obrien@lit.ie

T: @LisOBrienLIT @RDI_LIT

W: https://lit.ie/rdi/development

LIT
LIMERICK INSTITUTE
OF TECHNOLOGY