



**SEP. 28 – OCT. 1, 2021 ROME, ITALY**

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Sustainable **energy skills in the construction** sector Joint Workshop 2.0





# Sustainable energy skills

**in the construction sector**  
**Joint Workshop 2.0**

Day **2** Wed. 29 Sep. 15.30 - 17.00 CEST



**SUSTAINABLE  
PLACES 2021**

Sep. 28 - Oct. 1, 2021 | Rome, Italy

Virtual  
workshop

## Projects

- INSTRUCT •
- BUSLeague •
- TRAIN4SUSTAIN •
- HP4All •
- The nZEB Roadshow •
- PRO-Heritage •
- CraftEdu •
- BIMzeED •
- ARISE •
- SEEdtheSkills •



# Agenda



## 15.30 Opening . Workshop overview

Mohaddeseh Maktabifard  
R2M Solution



## 15.35 Welcome statement

Amandine De Coster-Lacourt  
European Commission



## 15.40 INSTRUCT

Ioan Petri  
Cardiff University



## 15.45 BUSLeague

Marion Jammet  
Irish Green building Council



## 15.50 TRAIN4SUSTAIN

Uli Jakob  
JER



## 15.55 HP4All

Padraic O'Reilly  
LIT



## 16.00 The nZEB Roadshow

Sonia Raetchi  
Cluster Pro nZEB

# Agenda



**16.05** PRO-Heritage

Gerald Wagenhofer  
UBW



**16.10** CraftEdu

Jiri Karasek  
SEVEN



**16.15** BIMzeED

Jose Lucas  
ITEC



**16.20** ARISE

Paul McCormack  
Belfast Met



**16.25** SEetheSkills

Lihnida Stojanovska-Georgievska  
UKIM



**16.30** Q&A

All the projects



**16.50** Conclusion

Amandine De Coster-Lacourt  
European Commission



**16.55** Close

Mohaddeseh Maktabifard  
R2M Solution



## **Workshop overview**

### 01. Introduction

Introduction of the learning units/ training modules developed by each project

### 02. Targets

Presentation of target groups

### 03. Current status

Progress of each project. Number of trained professional / lessons learned

### 04. Future plans

Conclude with future plans (future trainings & their locations/workshops/target groups)

# “Sustainable Energy Skills in the Construction Sector 2.0” - workshop

**Sustainable PLACES 2021**

*Amandine DE COSTER*  
*Project Manager*

*EU Climate, Infrastructure and Environment Executive Agency (CINEA)*



# The BUILD UP Skills initiative

- **3** main focus area :

Skills for deep renovation & new NZEBs

Digital skills supporting the energy transition of the building stock

Measures increasing demand for skills and skilled professionals

- **3** main target groups :

Building professionals/companies

Public authorities (local/regional/national)

Building owners/tenants

- **49** million euros EU funding since 2011

- **77** projects funded so far

# The journey since 2011



# Results pack 2021



Consult the report on  
CORDIS [here](#)



# **INSTRUCT** **project**

Ioan Petri  
Cardiff University



# Introduction



## Knowledge dissemination

What is the state of awareness, access to information and dissemination of knowledge for energy efficiency in the Construction sector?



## Demand of energy efficiency (EE)

What is the level of demand for skilled workforce in energy efficiency?



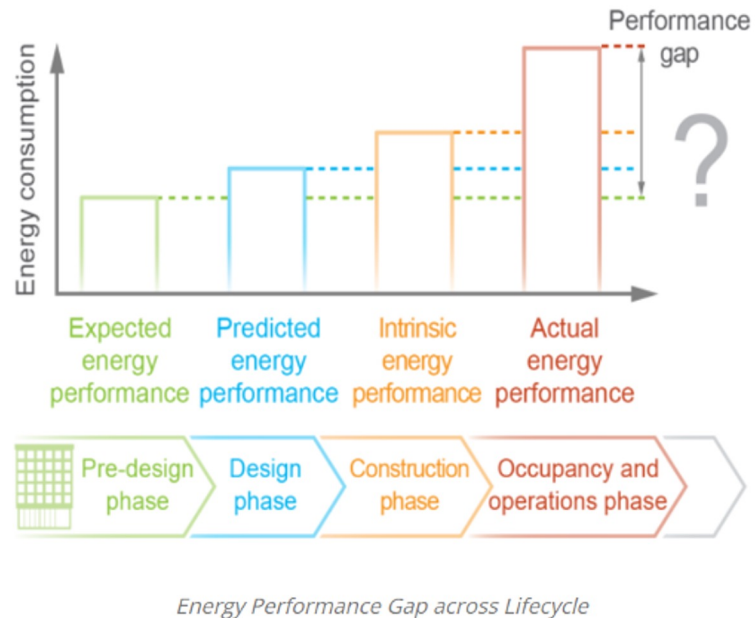
## Training for EE

What is the state of the training programs for energy efficiency currently available in the industry (in terms of scope, quality, content, cost, etc.)?



## Shared values

What is the state of the training programs for energy efficiency currently available in the industry (in terms of scope, quality, content, cost, etc.)?





# Targets

## Target 1

Raise awareness of stakeholders in the **construction value chain** about environmental challenges, benefits of sustainable energy skills

## Target 3

Pave the way to legislative **changes** by supporting public authorities and industrial stakeholders for the development of new legislative frameworks

## Target 2

Increase the number of skilled **building professionals and construction workers** along with the whole value chain

## Target 4

Respond to the increased **demand for energy skills** across lifecycle and supply chains and in consequence, contribute to improving the energy efficiency of European buildings and CO2 emission targets





## Current status

Research driven approach:

- 32 questionnaire responses – SurveyMonkey
- 27 interviews – Nvivo
- 70 Best practice use-cases
- 15 mil. datasets from social media

Q15 What are your recommendations to enhance training development programs in your organisation? (Please choose boxes as you think is appropriate)

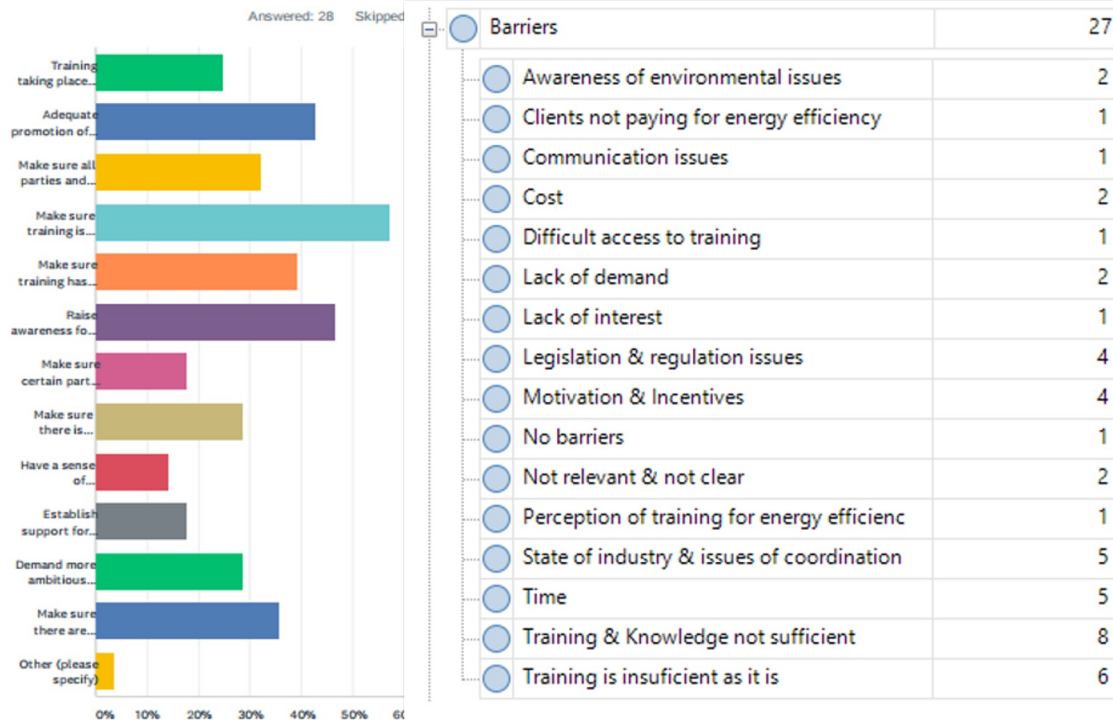


Chart 4: Detailed account of responses to Q4 and barriers

## Future plans

**2021**

### **Finalize the requirements elicitation and framework specification for instruments**

- Finalizing complete and comprehensive requirements for the new instruments
- Correlation between training and energy efficiency ad skills and Learning outcomes matrix

**2021**

### **INSTRUCT toolset developed and pilot demonstrations**

- Toolset developed in relevant project cluster with pilot implementations
- Demonstration of Energy Skills Certification
- Sensitization methodology towards producers and retailers

**2022**

### **Wide network of stakeholder engagement and dissemination**

- Exploitation plans and roadmaps are discussed and feedback gained from all the organisations
- Engagement of key stakeholders to stimulate demand of energy skills

# **BUSLeague** **project**

Marion Jammet  
Irish Green building Council



# Introduction



## Objective

Stimulate demand for sustainable energy skills in the construction sector (construction workers)



## Partners

12 Partners -  
7 Countries



## Push & Pull Approach

- Practical and effective upskilling
- Stimulating demand



# Objective

## Stimulate demand through GPP

Rational: Public procurement constitutes approx. 14 % of the EU GDP  
It has the potential to provide significant leverage in seeking to influence the market.

### How?

#### *Energy efficiency/nZEB training clause*

A training clause may be included whereby the company who won a tender commit to train all staff working on the project on energy efficiency.

#### *Competency-based clauses*

Specific training or education may be requested as part of a tender, but they can only be requested as selection or award criteria and must specifically relate to the subject matter of the contract.

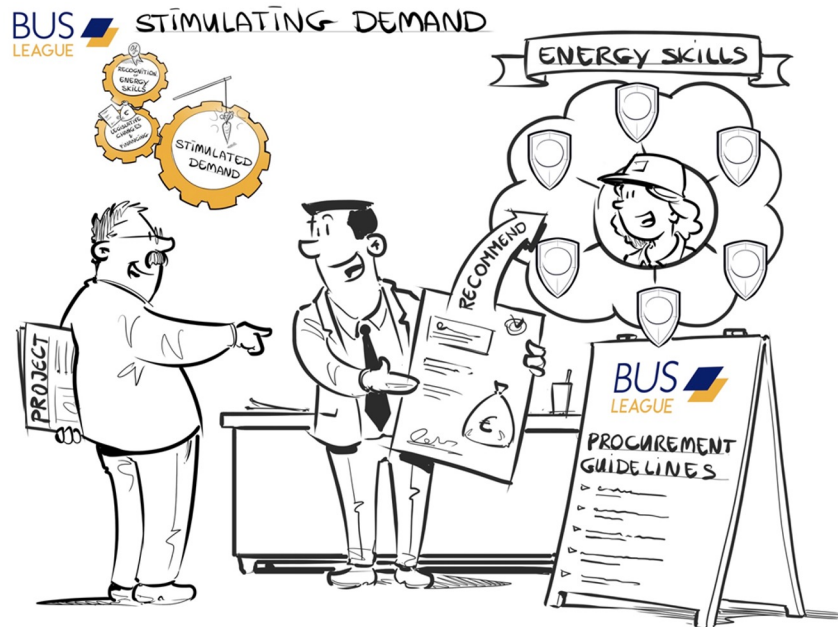
## Current Status



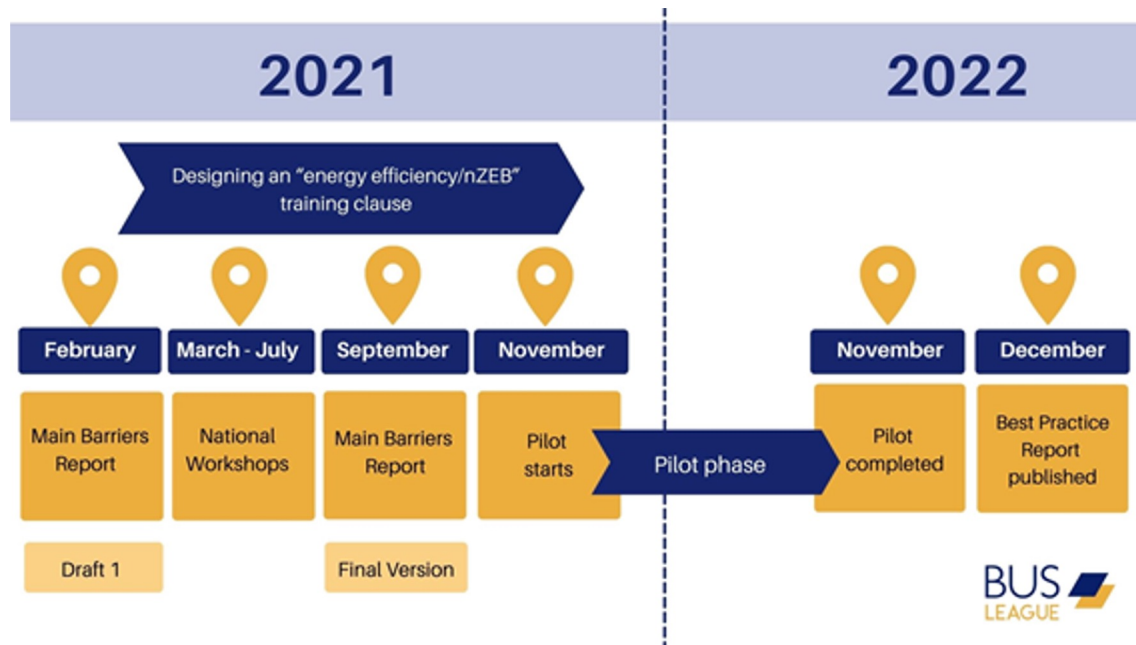
Analysed barriers to the use of these clauses



Preparing a pilot in six countries



## Future plans



# TRAIN4SUSTAIN project

Uli Jakob  
JER





# Introduction



## Context

As sustainable buildings are on the rise, also **sustainable energy professionals** are more and more requested across Europe



## Goals

Raising **acceptance of regional and national qualifications and skills** on the EU construction market



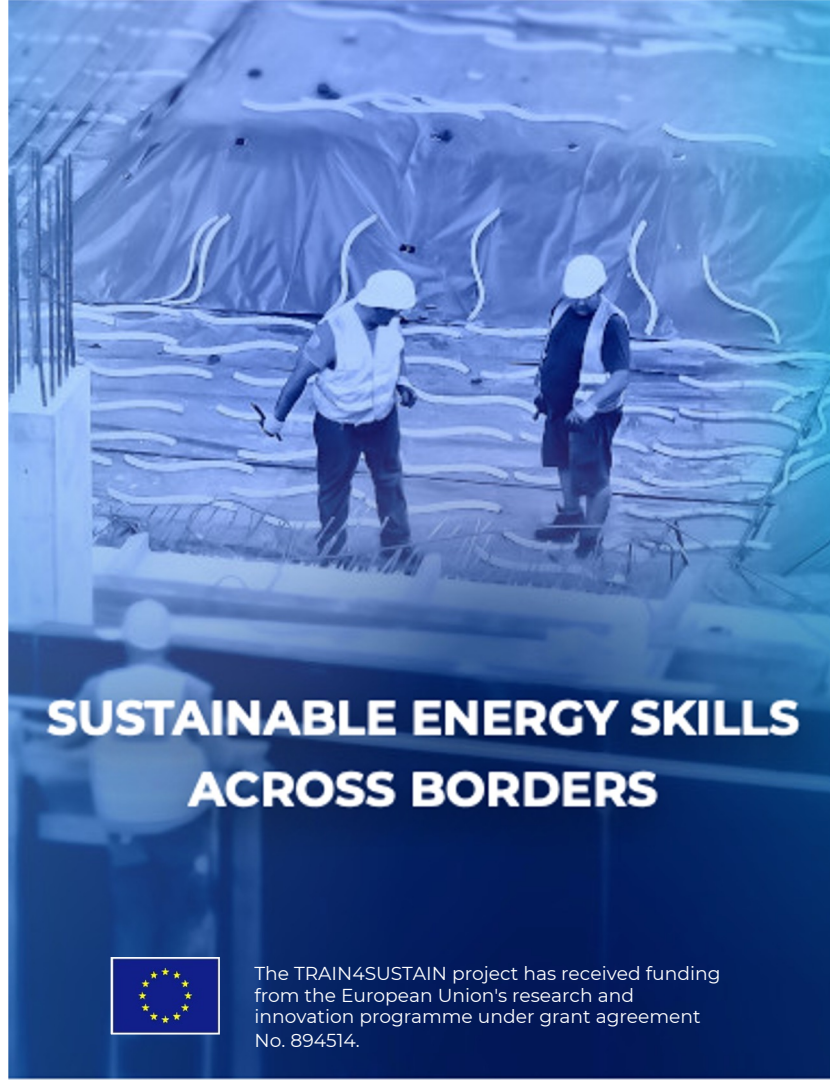
## Approach

**European Skills Registry (ESR)** web application based on the **T4S Competence Quality Standard (CQS)**



## Team

**7 partners**  
from  
**5 EU countries**



# SUSTAINABLE ENERGY SKILLS ACROSS BORDERS



The TRAIN4SUSTAIN project has received funding from the European Union's research and innovation programme under grant agreement No. 894514.

# Targets

## Exploitation of existing qualification schemes (QS)

Setting up T4S CQS by mapping **at least 300 QS** and launching **one** CEN workshop agreement process (CWA)

## Green Public Procurement

Provide guidance for public authorities in demanding and **evaluating sustainable energy skills** in procurement and contracting processes and conduction of **one pilot** in the Region of Catalonia

## T4S platform

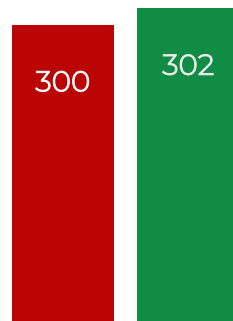
Setting up ESR including Skills Passport and **achieve 500 registered users** in 5 European countries

Setting up **comparison function** in the ESR and create e-Inventory for **300 training schemes** to promote the ESR among **500 scheme operators**

Provide a **web-based Match-making Hub** for professionals and end-users with **800 experts registered** until the end of the project



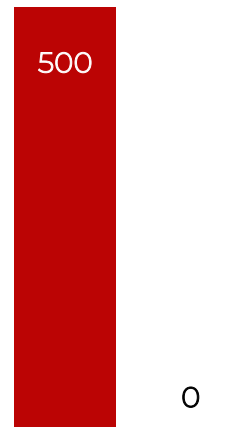
## Current status



### Mapping of QS

Includes 10 EU and  
2 non-EU countries

 Planned



### Registered users

The T4S platform will be  
launched in late  
autumn 2021

 Achieved

# Results and Future plans

**2020**

## Competence Quality Standard (CQS)

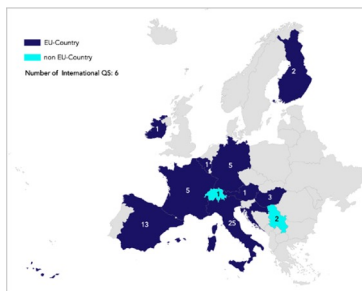
Describes **Learning Outcomes** for professions on a unified manner and communicate the **competences across domains** (environment, society, economy, processes)



**2021**

## Evaluation & Mapping Qualification Schemes

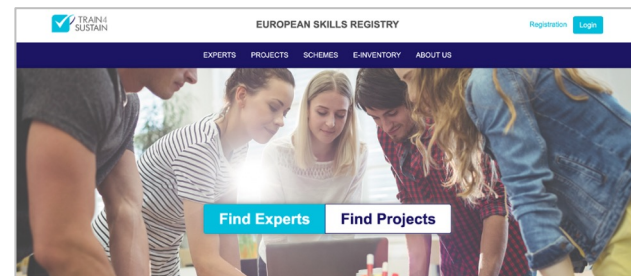
> 300 QS/courses analysed  
67 QSs included into CQS  
1,335 LOs described



**2022**

## European Skills Registry

Web App including Match-making Hub, Skills Comparison Tool, Scheme Evaluation Tool and **Skills Passport**



# HP4All project

Padraic O'Reilly  
LIT



# Introduction



## Develop Skills

Working with all actors in the supply chain:

- Designers & Installers
- Manufacturers/Distributors
- Training providers
- National Policy



## Recognition of Skills

End-users  
Developers of projects  
Public Authorities



## Training Frameworks

Help to link policy to on-the-ground training offerings



## Regional Pilots

- Upper Austria
- Andalucía
- Ireland

# Targets



## Target 1

Primary Energy Savings:  
2.0 GWh/year

## Target 3

400 people trained

## Target 2

Reduction of 628 tCO<sub>2</sub>/year

## Target 4

3 Benchmarking Tools



## Current status

## Development of Regional Pilots

### Andalucía

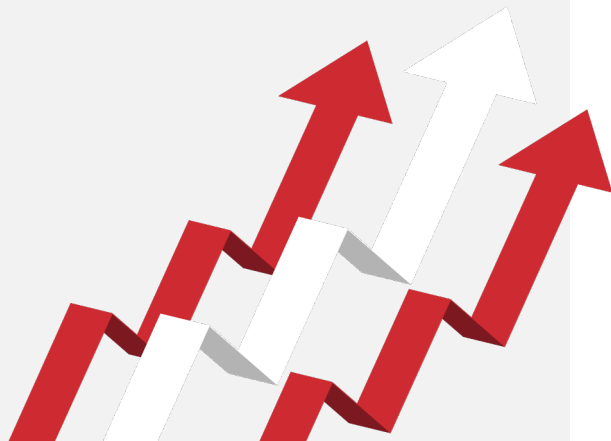
- Public Authorities
- Residential and Non Residential
- Focus on upgrading old equipment for better efficiency

### Upper Austria

- Large Scale Heat Pump Systems (100kW +)
- Feasibility studies
- Case studies
- Project promotion

### Ireland

- 600,000 new residential HPs by 2030
- Skills shortage
- Training plans and encourage new entrants





## Future plans

**2021**

### **Pilot Preparation**

- Plan pilot activities
- Benchmarking Tools
- Training plan
- Engagement with market actors, end users and purchasers of equipment

**2022**

### **Pilot Roll-out**

- Activities seek to improve the quality of installations
- Create a demand for skills from the end-users / purchasers
- Deliver training
- Track installations

**2023**

### **Final Report**

- Evaluation of impact
- Reporting
- Complete in Feb 2023

# The nZEB Roadshow project

Sonia Raetchi, Pro-NZEB  
Dragomir Tzanev, EnEffect



# Introduction



## Thesis

No skills demand without  
quality building



## Goals

Stimulation the demand  
for nZEB-relevant  
construction skills



## Basis

BUILD UP Skills EU  
Exchange sessions,  
outcomes from Technical  
Working Group on Market  
Acceptance, Train-to-nZEB  
and Fit-to-nZEB projects



## Team

ENNEFECT Bulgaria  
Cluster Pro nZEB Romania  
UNIZAG Croatia  
ZEPHIR Italy  
Hellenic Passive House Institute Greece



# Targets

## NZEB weeks

At least 15 events in Bulgaria, Croatia, Greece, Italy & Romania with at least 3000 visitors

## Suppliers on board

50 memoranda of understanding concluded with product suppliers

## Training courses

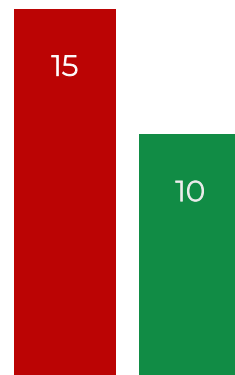
At least 50 training courses with 1000 participants in total supported by mobile demo units and gamification

## Consultations

At least 100 consultations for clients interested to invest in nZEB projects



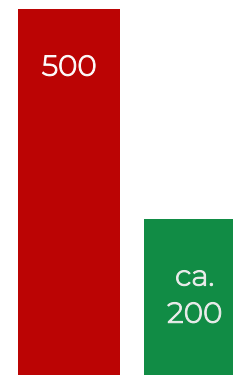
## Current status



### nZEB weeks

Already 2 per country delivered or in the pipeline; around 30 expected by the end of the project in 2023

 Planned



### Trained professionals

Despite COVID complications, training will continue in BKHs till the end of the project - and beyond

 Achieved

# Future plans

**2021**

## Pilot events

Back from COVID-19 limitations, the first public events are organized and evidence high interest



**2022**

## Mass roll-out

Having the methodology tried and tested, multiple events will be organized, involving all stakeholders



**2023**

## System integration

Outputs would be integrated to the national qualification system, support policies and market - so it's **#nZEBReady**



# PRO-Heritage project

Gerald Wagenhofer  
UBW





# Introduction



## Context

Traditional buildings need traditional crafts



## Objectives

Protecting traditional craftsmen skills that have an **impact** on the support of **energy-efficient** traditional buildings



## Approach

Developing a **certification** for “Energy Experts for Cultural Heritage”



## Team

**9 partner** being responsible for traditional buildings from **5 countries**





# Targets



## Target 1

Capacity and structural overview and evaluation of **traditional competences** and **skills for energy efficient**, built cultural heritage sites

## Target 3

**Harmonised training** of traditional competences and skills for energy efficient, built cultural heritage sites

## Target 2

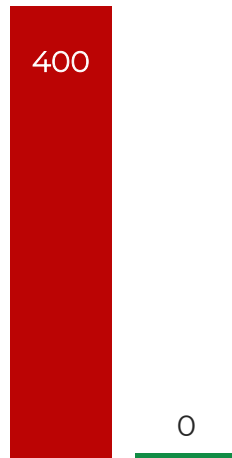
Quality analysis of selected **training provider** for traditional built cultural heritage competences and skills for energy efficient, built cultural heritage sites

## Target 4

**Best practices advices** on traditional competences and skills for energy efficient cultural heritage sites



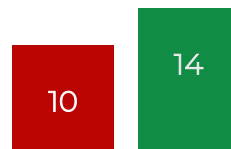
## Current status



### Certification "Energy Expert"

Lorem ipsum dolor sit  
amet, consectetur  
adipiscing elit

 Planned



### Best Practices "Energy efficiency"

Lorem ipsum dolor sit  
amet, consectetur  
adipiscing elit

 Achieved

## Future plans

**2019**

### **Alignment and Terminology**

Aligning the consortium on appropriate energy efficiency measures and define the used terminology

**2020/2021**

### **Training developing**

Developing the curriculum, the learning outcomes, the training materials, the visual aids and the exam questions for the “Energy Expert for Cultural Heritage”

**2022**

### **Training piloting**

Conducting 4 pilot trainings and organising the examination and validation process to certified craftspersons and other professionals as “Energy Expert for Cultural Heritage”

# CraftEdu project

Jiri Karasek  
SEVEn

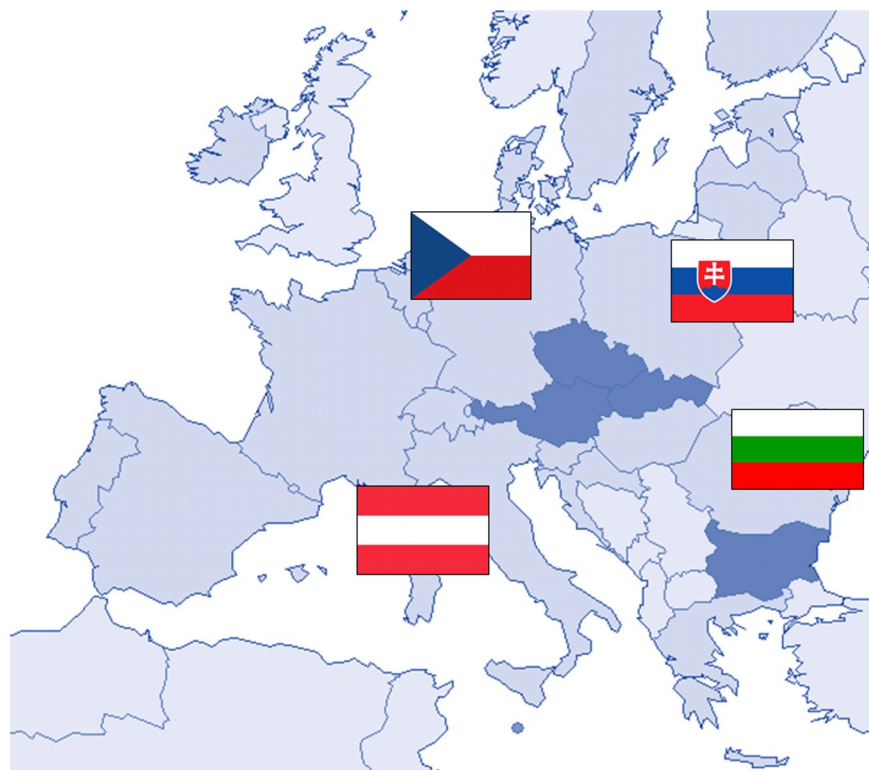


# Introduction

Setting up national qualification and training scheme for craftsmen in the Czech Republic and developing the further offer of training courses in Slovakia, Austria and Bulgaria



2018-2021



**SEVen**  
THE ENERGY EFFICIENCY CENTER, z.ú.

**EnEffect**

**VIAEUROPA®**



**SPS**  
SVAZ PODNIKATELŮ  
VE STAVEBNICTVÍ V ČR



**SIEA**  
SLOVENSKÁ INOVAČNÁ  
A ENERGETICKÁ AGENTÚRA



# Targets

## On site training courses

Development of **on-site training course** based on the training course developed by CrossCraft project (IEE project BUS Pillar II).

## Training courses for craftsmen

Development of **training courses for further education and training of craftsmen** and on-site workers in the field energy efficiency and use of renewable energy sources of buildings.



**7 training programmes** for: HVAC installer, Carpenter, Low-voltage electrician, High-voltage electrician, Hydro-insulator, Stove and chimney builder and Inspecting technician.

## Network of trainers

Setting up **permanent network of trainers** delivering the programmes developed under the project.

**Training of trainers** for delivery of the programmes.

## E-learning programmes

For targeted craftsmen and construction professionals in Austria, Bulgaria, the Czech Republic and Slovakia.



# Main challenges and barriers starting from 2015

## Main barriers in 2015

- **Technical barriers:** Existing building structure and technical system limit the choice of technical solutions that can be used but where technical solutions can be found, they are often costly and not financially viable.
- **Financial barriers:** Investment cost too high
- **Social barriers:** Lack of knowledge and/or interest for energy efficiency among residents and building owners, often due to lack of awareness combined with challenges with architectural and cultural values
- **Organizational/legal barriers:** The ownership structure and need for consensus among several homeowners can hinder a nZEB renovations

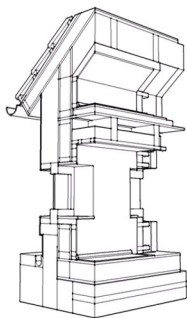
## Main challenges in 2015

- **Disconnection between developing innovative technologies** for the building industry and the lack of take up.
- **End user awareness** of how they are using energy in residential buildings.
- Energy targets are **challenging for cultural and historic significant buildings**.
- **Policy**, regulations and standards are not established and are still developing across a number of countries.
- **Lack of understanding** of what nZEB means in legislation for the actual building process, e.g. air-tightness, thermal bridging, RES
- **Status Quo analysis** and **Roadmaps**

# Timeline of nZEB activities in the Czech Republic

**2016**

**Design of 4 building models**



**2017**

**Opening of Training centre**

**Target groups for trainings:**

- Architects, designers, planners
- Construction managers, supervisors
- Facility managers, building users, public

Principles of nZEB, RES, sustainable development, life cycle of buildings, energy performance, construction details, HVAC systems

**2017-2018**

**Training courses**

Theoretical and practical courses





# Timeline of nZEB activities in the Czech Republic

**2017-2018**

## Excursions for schools

- More than 30 trainings on nZEB,
- more than 700 trainees passing the nZEB courses and excursions in the training centre.



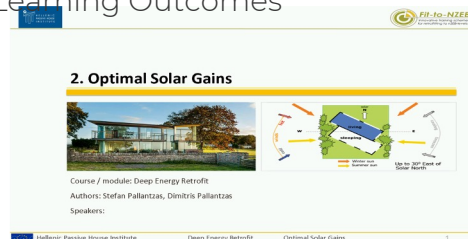
**2018**

## Study materials for retrofits



**Fit-to-nZEB**  
Innovative training schemes  
for retrofitting to nZEB-levels

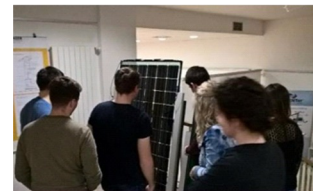
- In total 17 topics, 22 full topic presentations and database of trainers.
- Catalogue of existing study materials and Catalogue of Learning Outcomes



**2019**

## Training courses for retrofits

+2 new construction models, PV panels and new measuring instruments



## 2020: Study materials for craftsmen





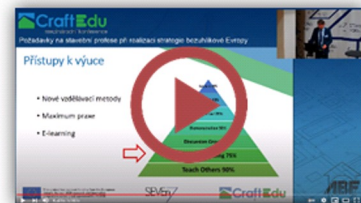
 **17 videos**  
 **29 videos**





  **2 films**



 **6 Teacher's books**  
 **6 Student's books**





 **7 days covered by**  
 **recorded webinars**



**19 E-learning courses**



 **9 E-learning modules**  
 **for each profession**

### Focused on 8 professions:

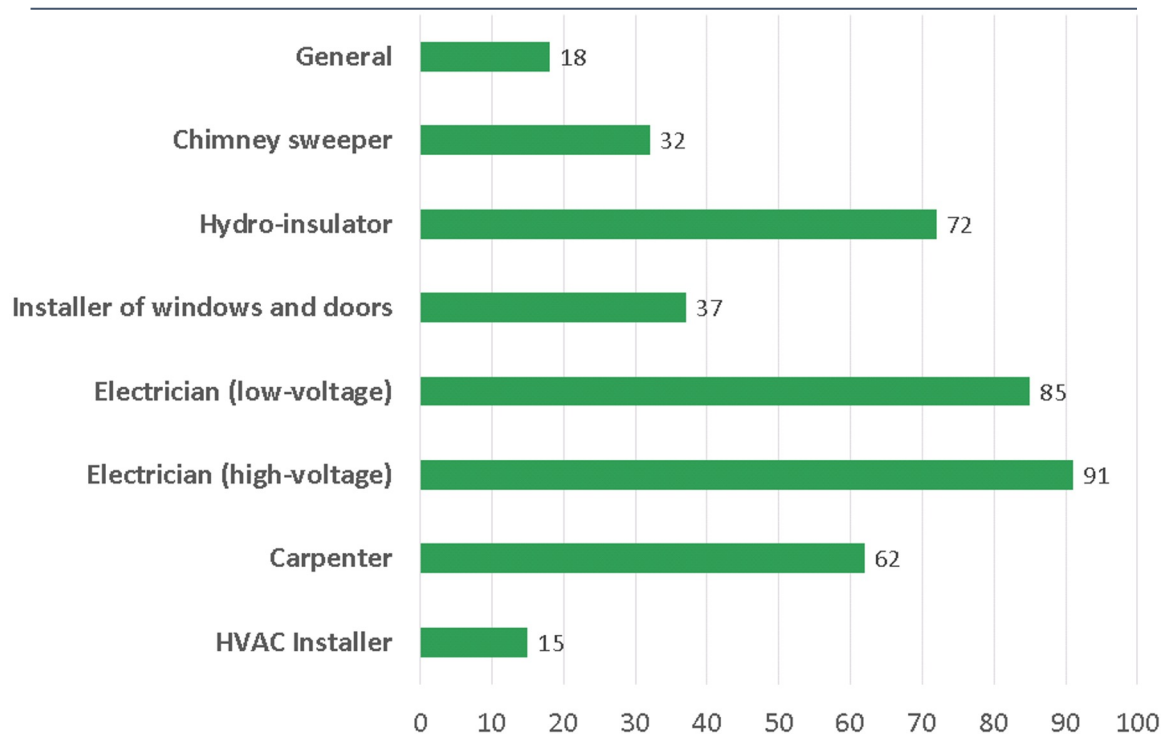
- HVAC installer,
- Carpenter,
- Electrician (high voltage),
- Windows fitter,
- Hydro-insulator,
- Electrician (low voltage),
- Chimney sweeper (installation),
- Chimney sweeper (inspection).

## Current status

*as of 27 September 2021*

- A total of 412 participants registered for courses
- Training materials downloaded: 435

## Registered participants



# Future plans

## Challenges for future steps 2022+

### New programmes

- Increase motivation of on-site workers to educated, obligatory certification?
- Include more professions in the schemes
- Enlarge the content of the current CraftEdu database
- Include BIM and virtual reality in education
- Increase attractiveness for youth to enter the market

### New policies

- Update of the status quo analysis, national roadmap
- National education scheme?
- Higher involvement of professional high schools

# BIMzeED project

Jose Lucas  
ITEC



**Instituto de  
Tecnología de la Construcción  
de Cataluña**

# Introduction



**Call:** EAC/A05/2017

Erasmus+, Cooperation  
and Innovation for Good  
Practices (KA2) Knowledge  
Alliances for higher  
education



**Title:** BIMzeED education  
for zero energy buildings  
using Building Information  
Modelling



Nov. 19 – May. 22



BIMzeED is a project funded by  
Europe and encompassed within the  
Erasmus+ framework.

BIMzeED project intends to:

- Identify the knowledge and skills gap in digitalization (BIM) and nZEB within the HEI and construction sector for each partner country.
- Improve the human-capital basis of the construction sector acting on HEIs and VET systems in Europe.
- Support the construction industry, though education and training to upskill on technical innovation and digitalization.
- Transfer knowledge of BIM and nZEB to and from other countries.



# Targets



## Learning content

Develop 12 Learning Units within the aim of increasing understandings of BIM/nZEB within existing construction training curricula.

## Educators

Train and upskill 120 educators at European HEIs and VETs by piloting the new learning resources and materials, which will be made available as transferrable Learning Units.

## Upskill target groups

Improve employability in the current European construction market by improving and extending the existing skills of Trainers, SMEs, site managers, craftworkers and other experienced operatives.

## Students

Pilot 12-16 Learning Units with 400-500 construction students, site managers, craftworkers and other experienced operatives to improve their employability.



## Current status



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



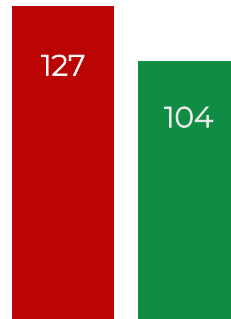
Energy Simulation  
with BIM Tools



Near Zero Energy  
Building Facility  
Management



BIM in Facility  
Management Software  
(CMMS)



## Current trainings

Trainers and students  
upskilled with BIMzED





## Future plans

**2021**

### **Piloting phase**

New piloting courses are constantly scheduled in four languages: English, Spanish, Croatian and Hungarian.

**2022**

### **Final piloting and amendments**

Feedback gathering from students and trainers for final amendments in training resources and material.

For more training information follow us in social media and check our website



[bimzeed.eu](https://bimzeed.eu)



# ARISE project

Paul McCormack  
Belfast Met



# Introduction



ARISE inspiring demand for sustainable energy skills, by providing clear learning interactions, transparency of upskilling transactions and recognition of qualifications achieved.

Revolutionising the learning process by changing the face of delivery and recognition of sustainable energy skills in the construction sector

ARISE will revolutionise the learning process by monetizing skills development and learning exchange with a digital system based on skills recognition rather than accreditation. The training and transaction system developed by the project will reward learners as they achieve competence at a certain level with the crypto currency for skills exchange - CERTcoin – the innovative currency of skills and learning of the construction sector embracing today's digital transformation benefits.

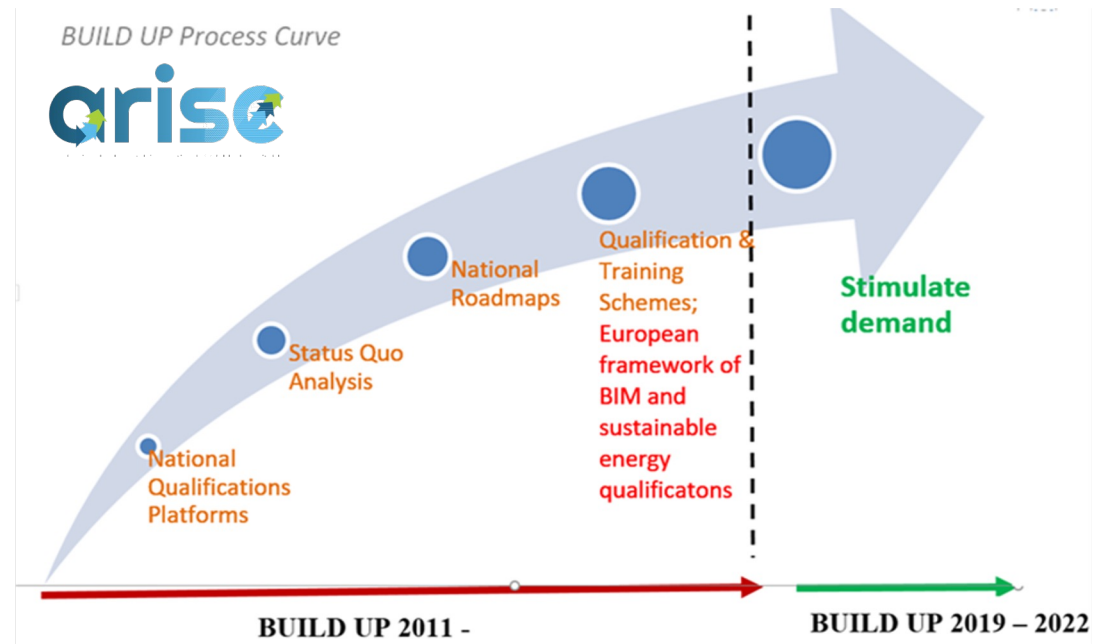
# Targets

## Step 1

The harmonization of activities, performed with partners of previous EU projects, foreseeing different actions,

## Step 3

Develop an on-demand mobile-friendly training portal for digitization and sustainable energy in the construction sector to assist in direct action in the market, and to increase demand and delivery of upskilling,



## Step 2

the development and deployment of a digital delivery system for CPD type recognition pathways and training schemes.

## Step 4

The creation of a "cryptocurrency" of skills and learning in the digital built environment-enabled by blockchain technology to ensure the trust of the CPD type digital awarding. CERTcoin will 'monetize' the digital transformation of the construction sector. It is the digital asset designed to stimulate engagement and quantify skills development and learning.

## Current status



- September 2021 - December 2023
- Engaging Europe wide through the BIM Energy Performance Alliance (BIM-EPA)
- Delivering a beyond blended non linear approach to skills delivery, upskilling and training
- Developing digitized individual learning accounts, micro accreditation
- Enabling vocational mobility

## Future plans

**2021 - 2023**

### **ARISE kick-Off**

Project delivery  
EU wide engagement &  
cohesion

**2023 - 2025**

### **BIM-EPA**

Wider EU cohesion and project roll  
out through the BIM-EPA group  
Creating a level playing field for BIM  
and digitalisation in the built  
environment

**2025 - 2030**

### **EU digiCONEX**

Creation of an EU digital  
centre of excellence in the  
built environment



# SEetheSkills project

Lihnida Stojanovska-Georgievska  
UKIM





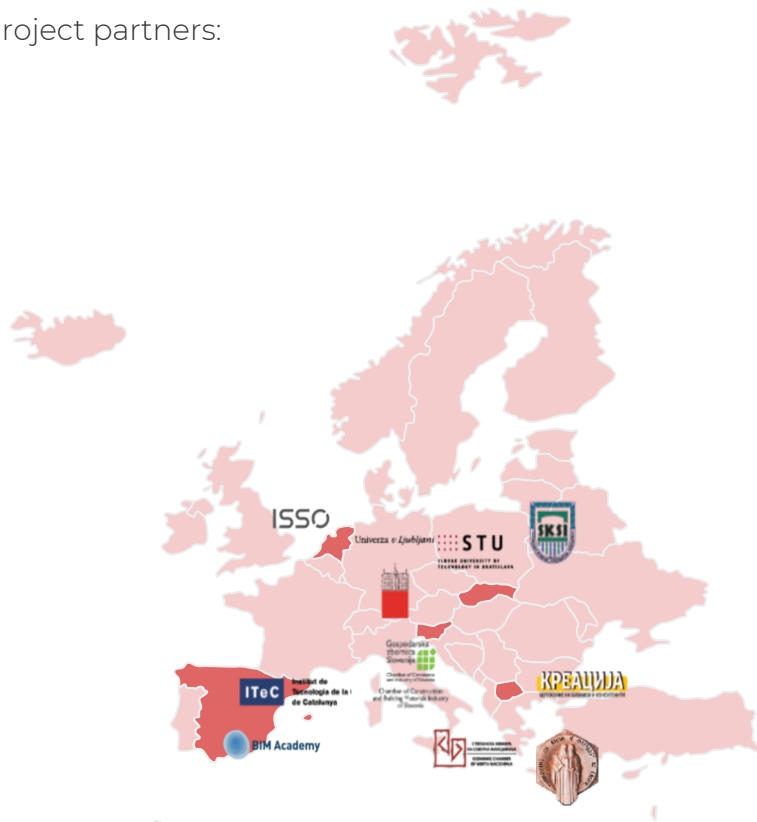
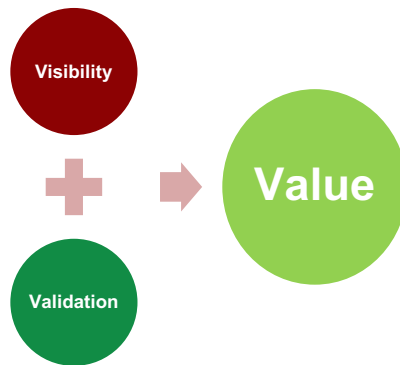
Project partners:



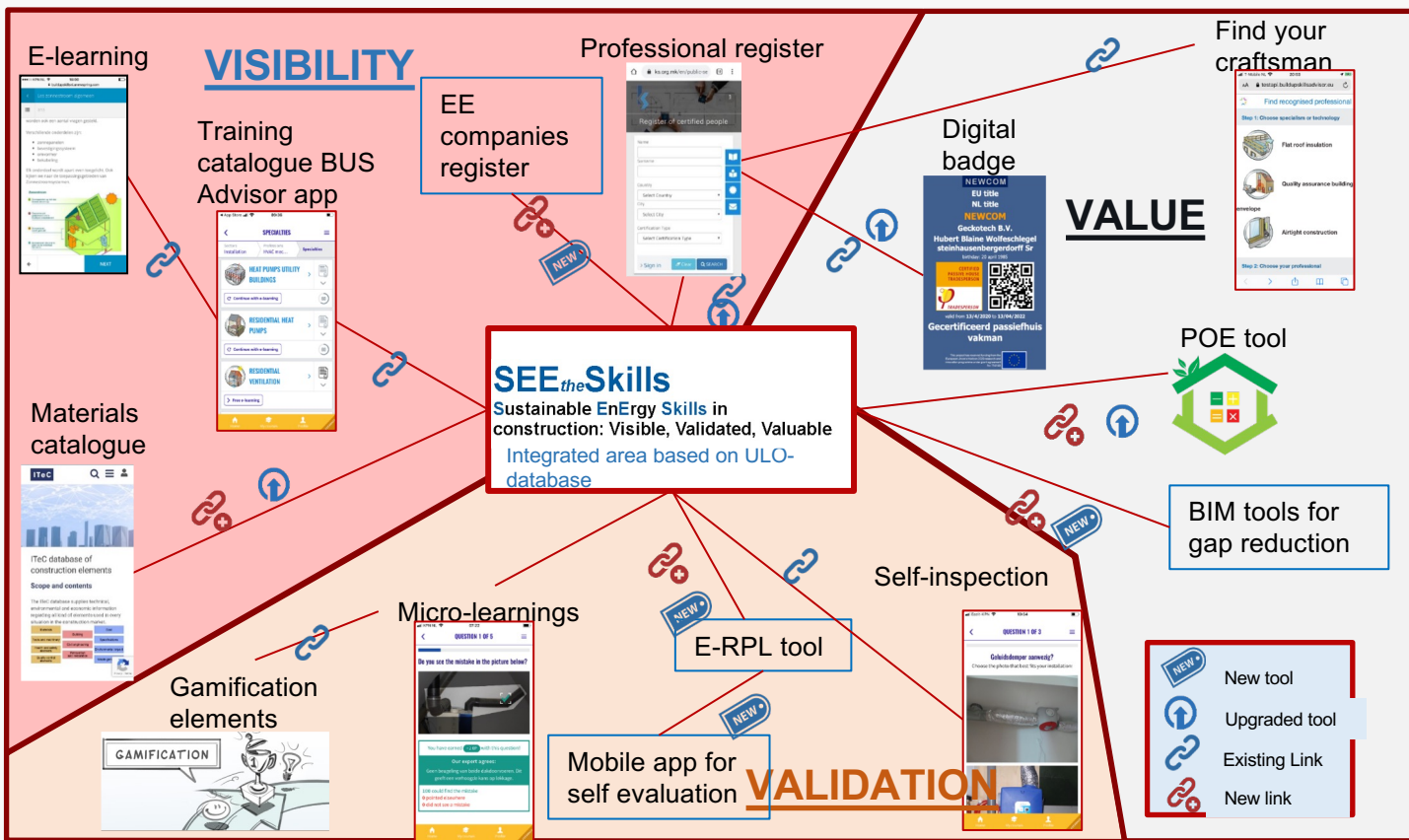
Starting Date: 01 June 2021;  
End date: 31 May 2024



Overall objective:  
Challenging market acceptance and acting toward stimulation of demand of energy skills in construction through a **novel 3V approach**, to support need for energy efficient construction of new and renovation of existing building stock







# Targets

## Target 1. Individuals

- 500 building professionals
- 2000 blue collar workers
- 1200 home owners

## Target 2. Professional groups and associations

## Target 3. Companies

## Market actors

- Public authorities
- Employers especially SME construction companies and producers of EE construction products/materials
- Investors and retailers of construction materials and products
- Training and educational institutions
- Professional organizations and associations



## Current status

01



**Project  
organization  
established**

80%

02



**Procedure  
documents  
created**

50%

03



**Kick-Off  
meeting  
organized**

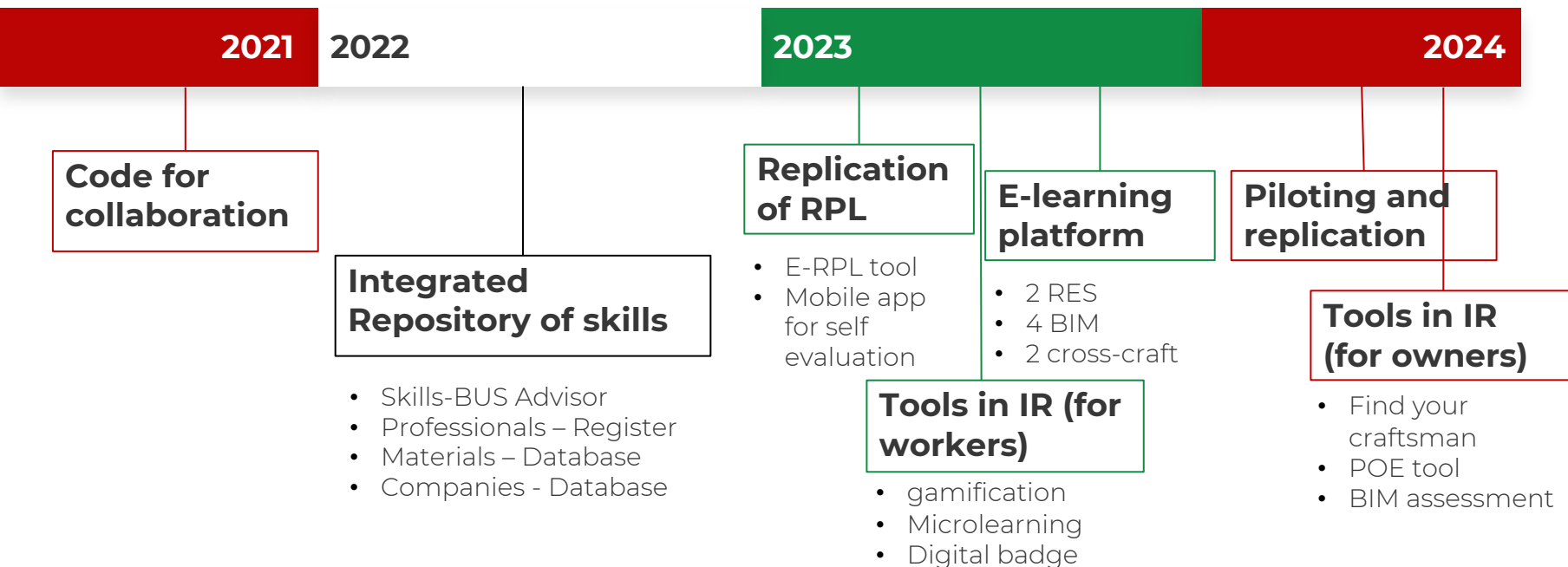
100%

04

**Taskgroup  
work initiated**

10%

## Future plans



# LIFE CET Call 2021: 5 intervention areas and 18 topics

- Building a national, regional and local [policy framework](#) supporting the CET (3 topics)
- Accelerating technology roll-out, digitalisation, [new services and business models](#) and enhancement of the related professional skills on the market (7 topics)
- Attracting [private financing](#) for sustainable energy (2 topics)
- Supporting the development of local and regional [projects](#) (3 topics)
- Involving and empowering [citizens](#) in the clean energy transition (3 topics)

- Call Document: [Funding and Tenders Portal](#)
- Call for proposals 2021 [Funding and Tenders Portal](#)
- FAQs are published for each topic on the [Funding and Tenders Portal](#)
- **Detailed presentations per topic** (slides and recordings) on the [LIFE website](#)

Overall budget: **94.5 M€**

Submission deadline: **12 January 2022 – 17:00:00 CET (Brussels)**

Not legally binding

# LIFE-2021-CET-BUILDSKILLS: BUILD UP Skills – rebooting the National Platforms and Roadmaps

- **Objectives (extracts)**
  - support the **revitalisation of the National Platforms** created in the first phase of the BUILD UP Skills initiative (2011-2012), gathering all key national stakeholders [...] expanding their scope by involving new stakeholders.
  - **update the Status Quo Analyses and National Roadmaps** to reflect the new realities of the building sector [...]

# EU Sustainable Energy Week 2021



**SUSTAINABLE  
ENERGY WEEK**

An initiative  
of the  European  
Commission

25-29 OCTOBER 2021

**EU SUSTAINABLE ENERGY WEEK**

TOWARDS 2030: RESHAPING  
THE EUROPEAN ENERGY SYSTEM



#EUSEW2021

Programme & registration: <https://eusew.eu/about-main-programme>

# Thank you



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Slide 2: Photo by [Silvia Brazzoduro](#) on [Unsplash](#)





SEP. 28 – OCT. 1, 2021 ROME, ITALY

Sustainable **energy skills in the construction** sector Joint Workshop 2.0



Thank you  
for attending **SP2021**



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