Sustainable

Energy Skills

in the Construction Sector

Joint Workshop 3.0

Room 1A36, IAE Nice, UCA
5 rue du 22e B.C.A, 06300 Nice, FR

Day 4 Fri. 09 Sep. 09.00 - 12. 30 CEST

Session Chair: Mohaddeseh Maktabifard,
EU project manager, R2M Solution

SUSTAINABLE PLACES 2022
Sep. 6 - Sep. 9, 2022 | Nice, France

Hybrid workshop

Projects

- PRO-Heritage
- TRAIN4SUSTAIN
- INSTRUCT
- BUSLeague
- The nZEB Roadshow
- SEEtheSkills
- ARISE
- BUSGoCircular
- nZEBready

SUSTAINABLE PLACES 2022

PRO-Heritage | BUS LEAGUE | TRAIN4 SUSTAIN | INSTRUCT

nZEB ready | nZEB Roadshow Bulgaria | Croatia | Romania | Greece | Italy | BUS GoCircular | SEEtheSkills VISIBLE | VALIDATED | VALUABLE | arise

#SUSTAINABLEPLACES2022

ENERGY SKILLS IN CONSTRUCTION

"Sustainable Energy Skills in the Construction Sector 3.0"

SEP. 6TH – SEP 9TH, 2022; NICE, FRANCE

SUSTAINABLEPLACES.EU

R2M SOLUTION | iae nice Graduate School of Management | UNIVERSITÉ CÔTE D'AZUR | MÉTROPOLE NICE CÔTE D'AZUR | VILLE DE NICE

Previous editions

Sustainable Energy Skills in Construction Sector 1.0

Introduction to the projects

120min - Registrants: 27 - Attendees 17 - Avg. Attendance Rate: 63% - Avg. Interest rate: 60%

Sustainable Energy Skills in Construction Sector 2.0

Targets, Current Status, Future Plans

90min - Visitors: 34 - Avg. Visit Time (min): 82.47 - Comments: 11

Sustainable Energy Skills in Construction Sector - BUILS UP

Best Practices & Digital Learning Tools

90min - Registrants: 78 - Attendees: 49 - Attendance rate 63% - Avg. Interest Rate: 60%

Open Research Europe

Peer-reviewed articles are optional, they can be submitted by any SP2022 contributor and will be published by ORE in a specific collection dedicated to Sustainable Places 2022

Agenda

Phase 1: Opening

09.05 Opening . Workshop overview
Mohaddeseh Maktabifard
R2M Solution

09.15 Welcome statement: “Project management and policy background: update from the agency”
Luca Angelino
European Commission, EASME

Phase 2: Overview of older projects

09.15 PRO-Heritage, end date: 31 July
Gerald Wagenhofer
UBW

09.30 TRAIN4SUSTAIN, end date: 31 October
Uli Jakob
JER

09.45 INSTRUCT, end date: 30 November
Łukasz Wilczyński
ASM

10.00 BUSLeague, end date: 28 February 2023
Jan Cromwijk (Conecting virtually)
ISSO

10.15 The nZEB Roadshow, end date: 31 May 2023
Horia Petran (Conecting virtually)
NIRD URBAN-INCERC

Agenda

10.30 Break

Phase 3: Overview of the newer projects

11.00 SEEtheSkills, end date: 31 May 2024
Lihnida Stojanovska-Georgievska (Conecting virtually)
UKIM

11.15 ARISE, end date: 29 Feb 2024
Paul McCormack (Conecting virtually)
Belfast Met

11.30 BUS-GoCircular, end date: 29 February 2024
Jan Cromwijk (Conecting virtually)
ISSO

11.45 The nZEB Ready, end date: 31 August 2024
Horia Petran (Conecting virtually)
NIRD URBAN-INCERC

12.00 Q&A
3 main lessons learned in a nutshell
All the projects

Agenda

Phase 4: Closing

12.20 Conclusion
Luca Angelino
European Commission, EASME

12.25 Close
Mohaddeseh Maktabifard
R2M Solution

Welcome remarks and Introduction to BUILD UP Skills

Sustainable Energy Skills in the Construction Sector Workshop 3.0:
Energy Efficiency Competencies and Qualifications: Sharing expertise, lessons learned and developed methodologies

Sustainable Places 2022
Nice, France

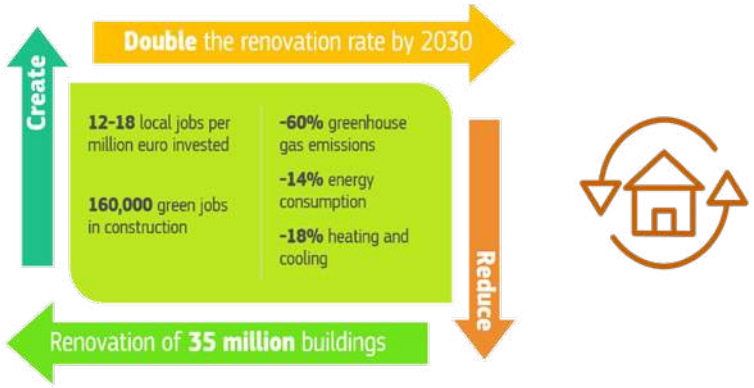
Luca Angelino, Project Adviser

09 September 2022

Luca.ANGELINO@ec.europa.eu

Policy developments

Renovation Wave – Oct. 2020



Revision of the EPBD/EED/ Renewable Energy Directive (on-going)

- More ambitious targets
- Measures to strenghten energy performance in existing buildings

REPowerEU (May 2022)

- Measures to reduce natural gas consumption
- 10 million HP installed in the next five years

European Commission

BUILD UP Skills: the journey since 2011

INTELLIGENT ENERGY EUROPE
FOR A SUSTAINABLE FUTURE

Life

2011-2012	2012-2013	2014-2018	2019-2020	2021	2022
Initial analysis and strategy (National Platforms and Roadmaps)	Training + qualification (national)	Training + qualification (national + EU)	Demand-side measures (procurement, campaigns…)	Updating the strategy	Strategy + training interventions

77 (+ 13) projects funded

49 million euros EU funding

13 European exchange meetings

Life

European Commission

„Cultural Heritage Management“

PRO-Heritage

"Energy Efficiency Competencies and Qualifications: Sharing expertise, lessons learnt and developed methodologies – Cultural Heritage”

Sustainable Places 2022

Gerald Wagenhofer

9th September 2022

Authors: PRO-Heritage consortium

Version: 2021

PRO-Heritage - Motivation

PRO-Heritage

- the need to keep Cultural Heritage in shape and available for future generations
- the need to keep historic sites “accessible and adequate for current and future generations requirements”
- Traditional buildings …
  - … do have an enormous added-value
  - … need traditional crafts
  - … do have a positive impact on climate protection
  - … are part of circular economy
  - … are different
- Research questions
  - What are appropriate energy efficient measures?
  - Which craft do need an upskilling?
  - What learning outcomes have to be covered?

Main Results

PRO-Heritage

- Common understanding
- Skills card „Energy Expert for Cultural Heritage“
- Training course & material for „Energy Expert for Cultural Heritage“
- Exam questions „Energy Expert for Cultural Heritage“
- eLearning and Exam Portal operated by The European Heritage Academy
- Certificates issued by ECQA
- Videos and best practice examples of traditional crafts and …
- Awareness

Traditional Buildings – Definition

PRO-Heritage

- These are understood to be buildings constructed before 1919. Modern materials and techniques were used widely in the construction industry from around this time onwards.
- Traditional buildings are often referred to as being of ‘breathable construction’. This means that the construction materials used can absorb and release moisture.

Basic rules regarding interventions

PRO-Heritage

- Stay in the system as long as possible
- Do not worsen the initial situation for the next intervention
- Life cycle of a traditional building should also take into account the future need to dispose of old, traditional and new (brought in with a planned intervention) materials
- Life cycle also mean keep everything in use for as long as it lasts (including regular care and maintenance)
- Identify and solve the cause of a poor performance and not a symptom
- A holistic approach to energy efficiency

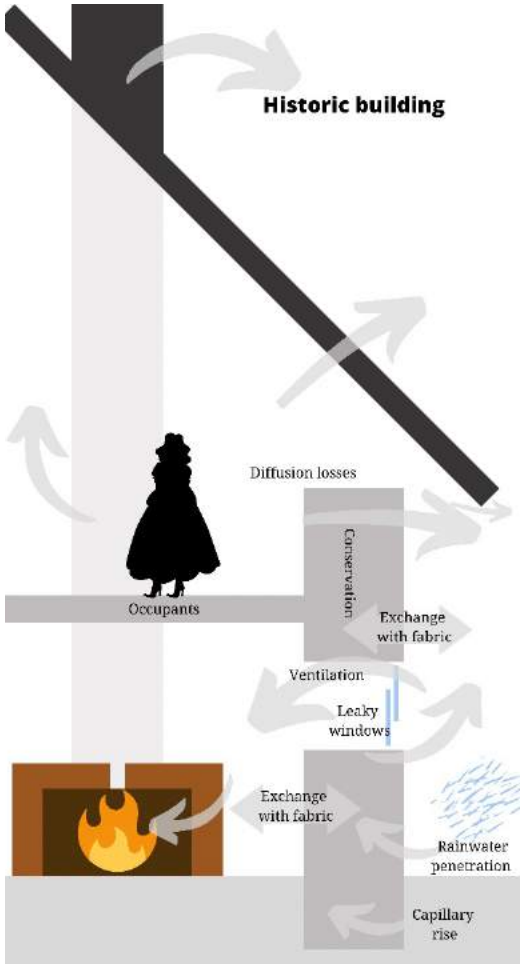
Misbeliefs regarding Cultural Heritage

PRO-Heritage

- „Traditional building has always bad energy performance“
- „Traditional buildings cannot be part of circular economy“
- „Traditional buildings are part of the problem and causing changes of climate“

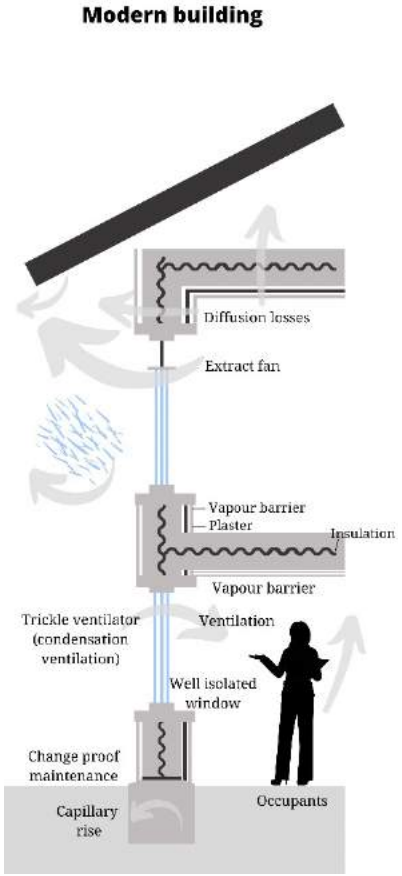
Concept of embedded energy

PRO-Heritage



Energy which is embodied in the building

Energy needed for destroying



Energy which is embodied in the building

Lesezeichen Extras Hilfe

Chronik Lesezeichen Extras Hilfe

Lesezeichen Extras Hilfe

ergy Exp × Kurs: Energy

Kurs: Energy Expert for Cultural ×

https://learn.european-heritage-academy.eu/course/view.php?id=3

the european heritage acader

DEUTSCH (DE)

Allgemeines

• PRO-Heritage – Your Energy E

PRO-Heritage

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U2.E4 Signif

U3 Understanc

Energy Efficiency Impact by Selected Craft (Condensed Documents)

Energy Efficiency Impact by Selected Crafts

SL Supervisory Levels	
Bl Blacksmith	Le Leadworker / Plumber
Br Bricklayer / Brickmaker	Li Limeworker
Ca Carpenter	Mw Millwright
De Decorator	Pl Plasterer
El Electrician	Ro Roofer / Roof Element Maker
Gl Glazier	St Stonemason

SL Energy Efficiency Impact by Supervisory Levels

Bl Energy Efficiency Impact by Blacksmith

Bl Energy Efficiency Impact by Blacksmith

Watch the video of a blacksmith.

Br Energy Efficiency Impact by Bricklayer / Brickmaker

Br Energy Efficiency Impact by Bricklayer / Brickmaker

Watch the video of a brickmaker.

Ca Energy Efficiency Impact by Carpenter

De Energy Efficiency Impact by Decorator

El Energy Efficiency Impact by Electrician

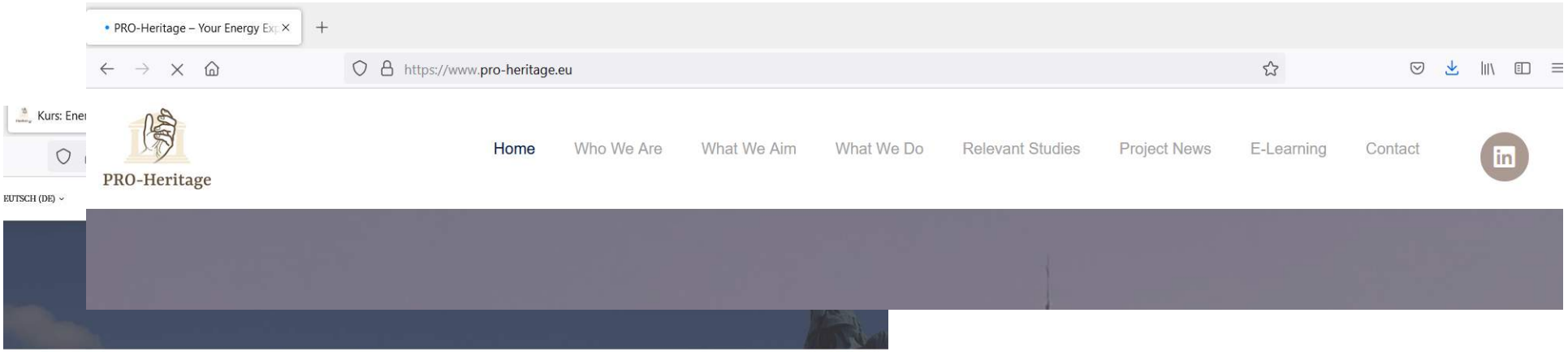
Gl Energy Efficiency Impact by Glazier

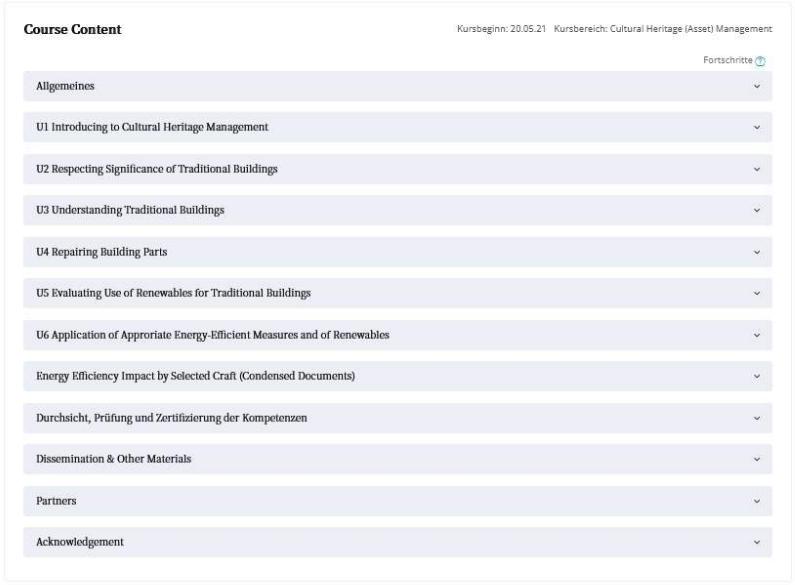
Gl Energy Efficiency Impact by Glazier

Watch the video of a glazier.

Results – eLearning Portal (1)

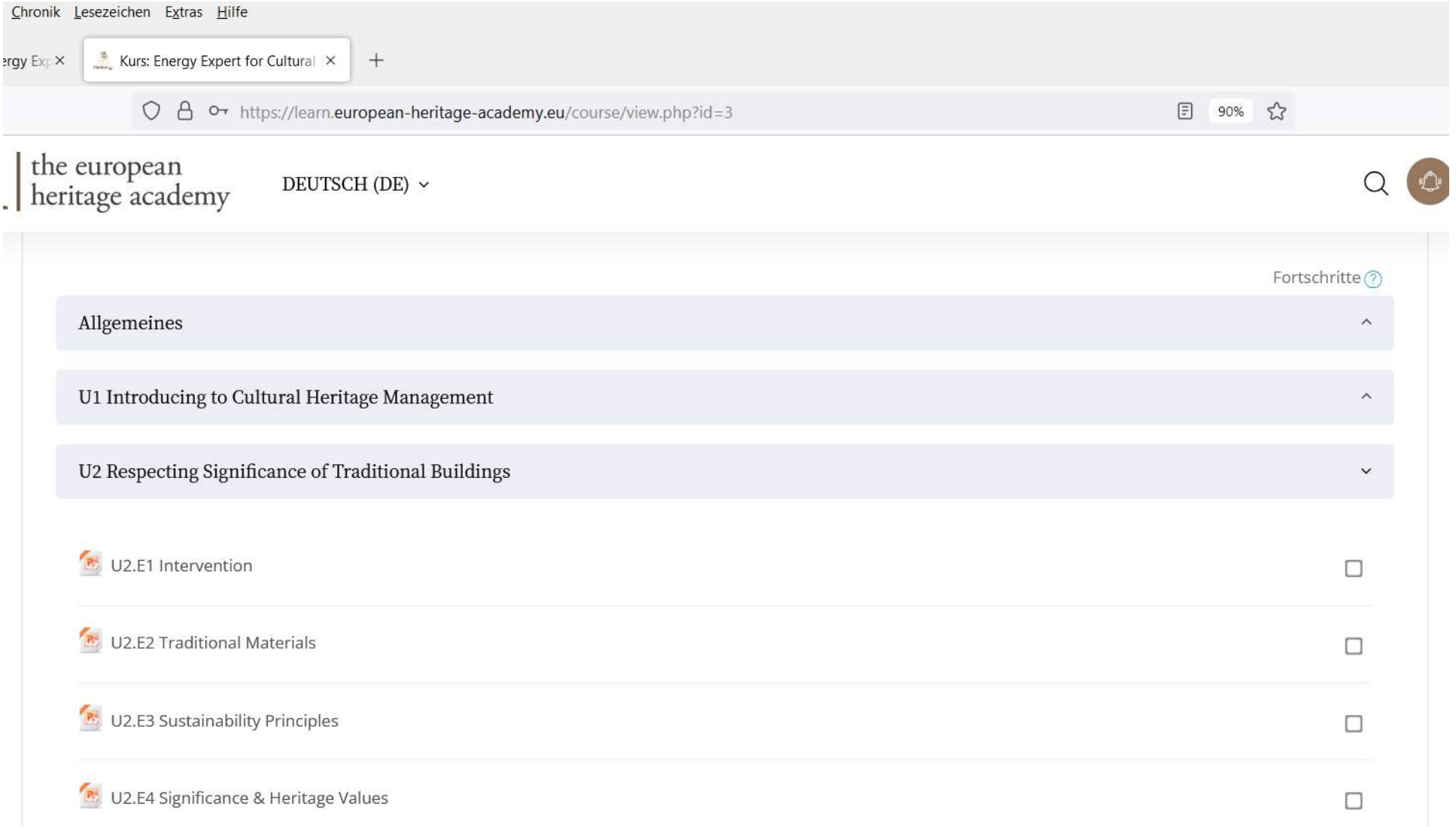
PRO-Heritage





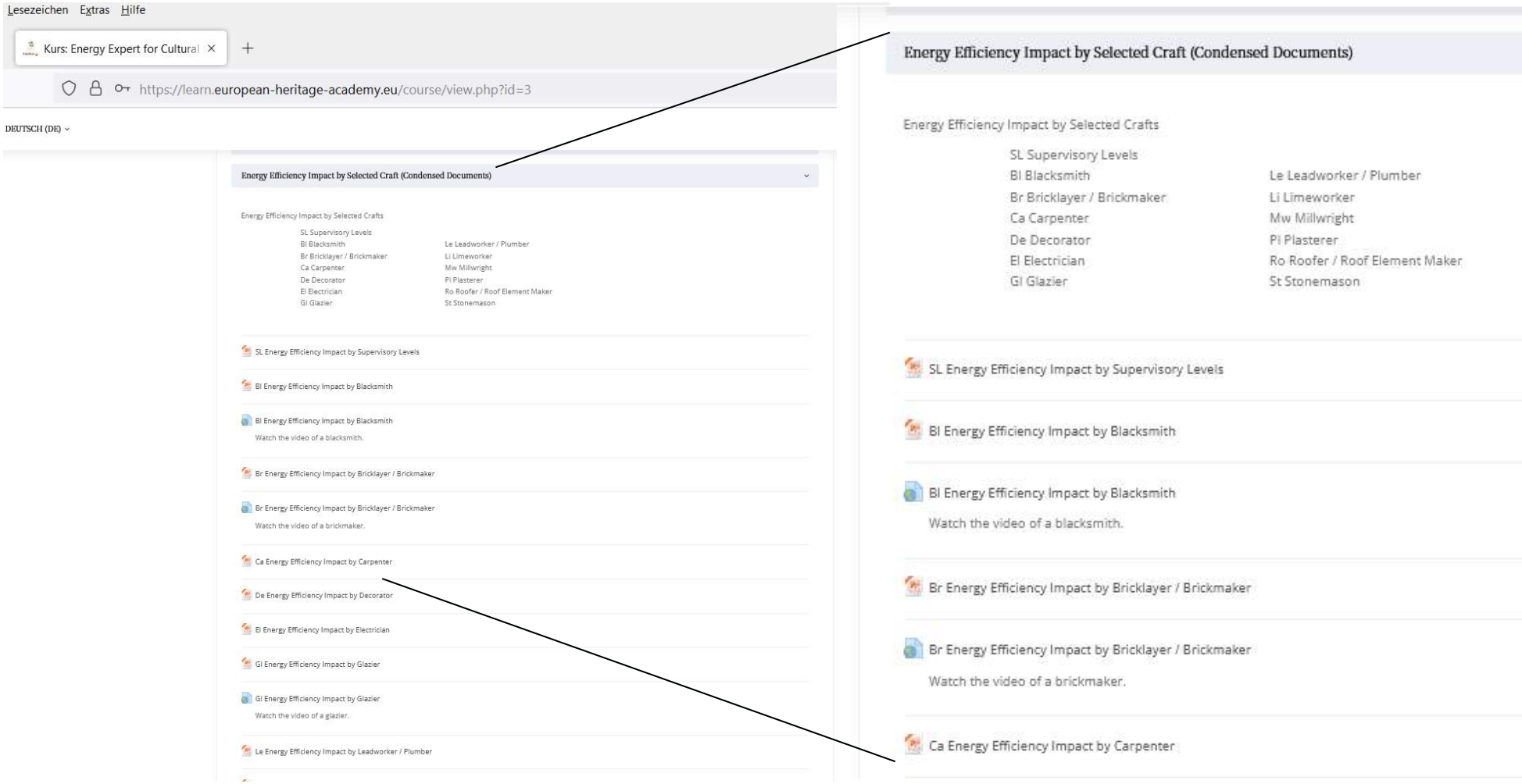
Results – eLearning Portal (2)

PRO-Heritage



Results – eLearning Portal (3)

PRO-Heritage



Information PRO-Heritage

PRO-Heritage

Coordinator:	BHOe, AT
Responsible person:	Reinhold Sahl / Burghauptmann BHOe
Project lead:	Elisabeth Bauer / BHOe
Contact person:	Gerald Wagenhofer / UBW, AT
(+43 676 3273024)	
	gerald.wagenhofer@ubw-consulting.eu
Project website:	pro-heritage.eu
Certification organisation (ECQA):	https://jobcertification.eu/

Thanks for your attention!

TRAIN4SUSTAIN project

09.09.2022 at Sustainable Places Conference
Nice, France
Uli Jakob, JER

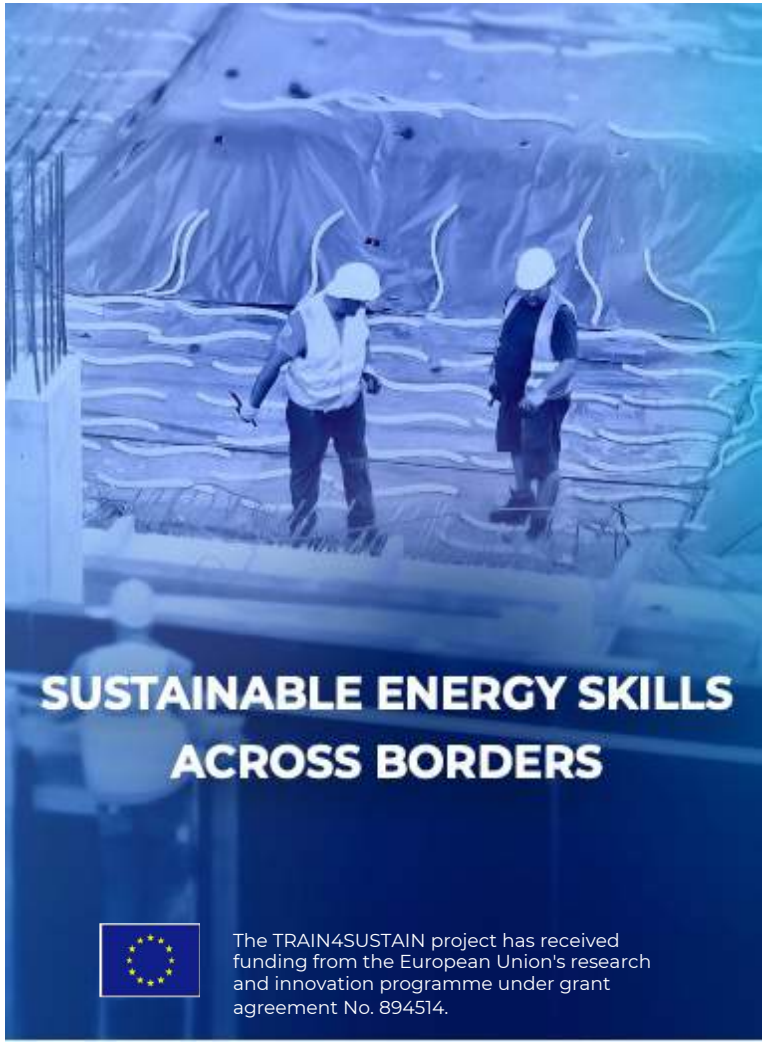
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S Project factsheet

- Start date 1 May 2020
- End date 31 October 2022
- Overall budget: € 994,375
- EU contribution € 994,375
- Coordinated by: Geonardo, Hungary
- Topic(s): LC-SC3-EE-3-2019-2020 - Stimulating demand for sustainable energy skills in the construction sector

Consortium of 7 partners from 5 EU countries

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



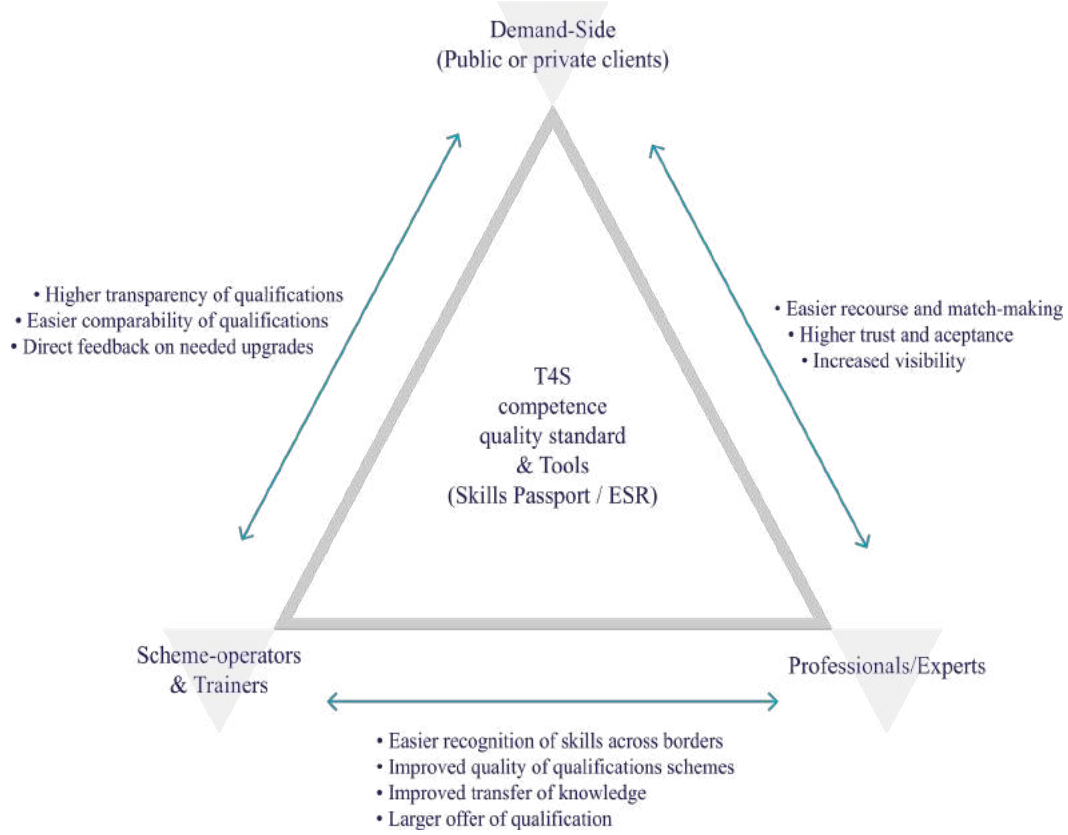
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S Project concept

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

- Mapping / analysing of over 300 **Qualification Schemes (QS)** including 10 EU and 2 non-EU countries

- Finally, **67 QSs were included** in the **CQS**, including **1,335** described **Learning Outcomes (LO)**



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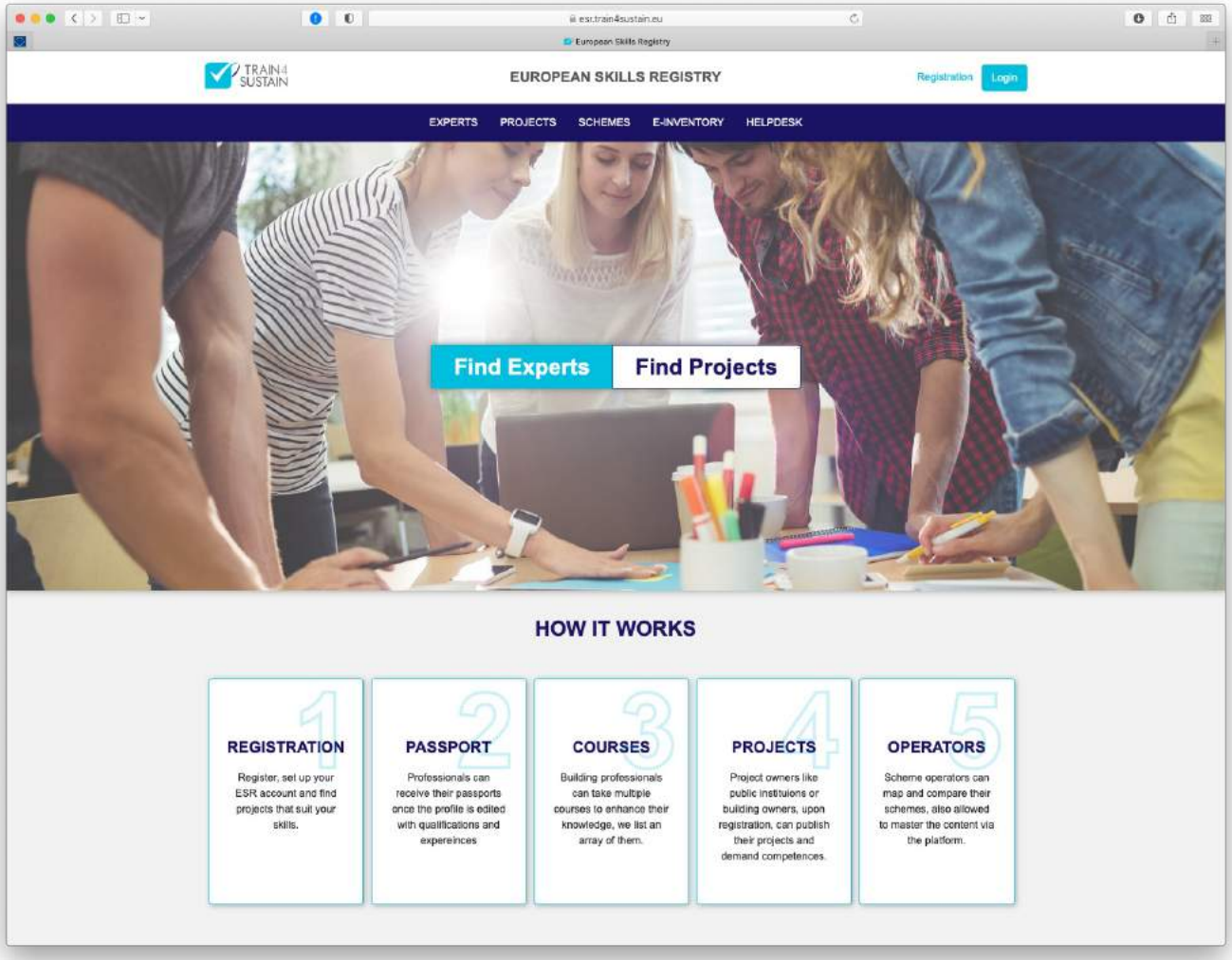
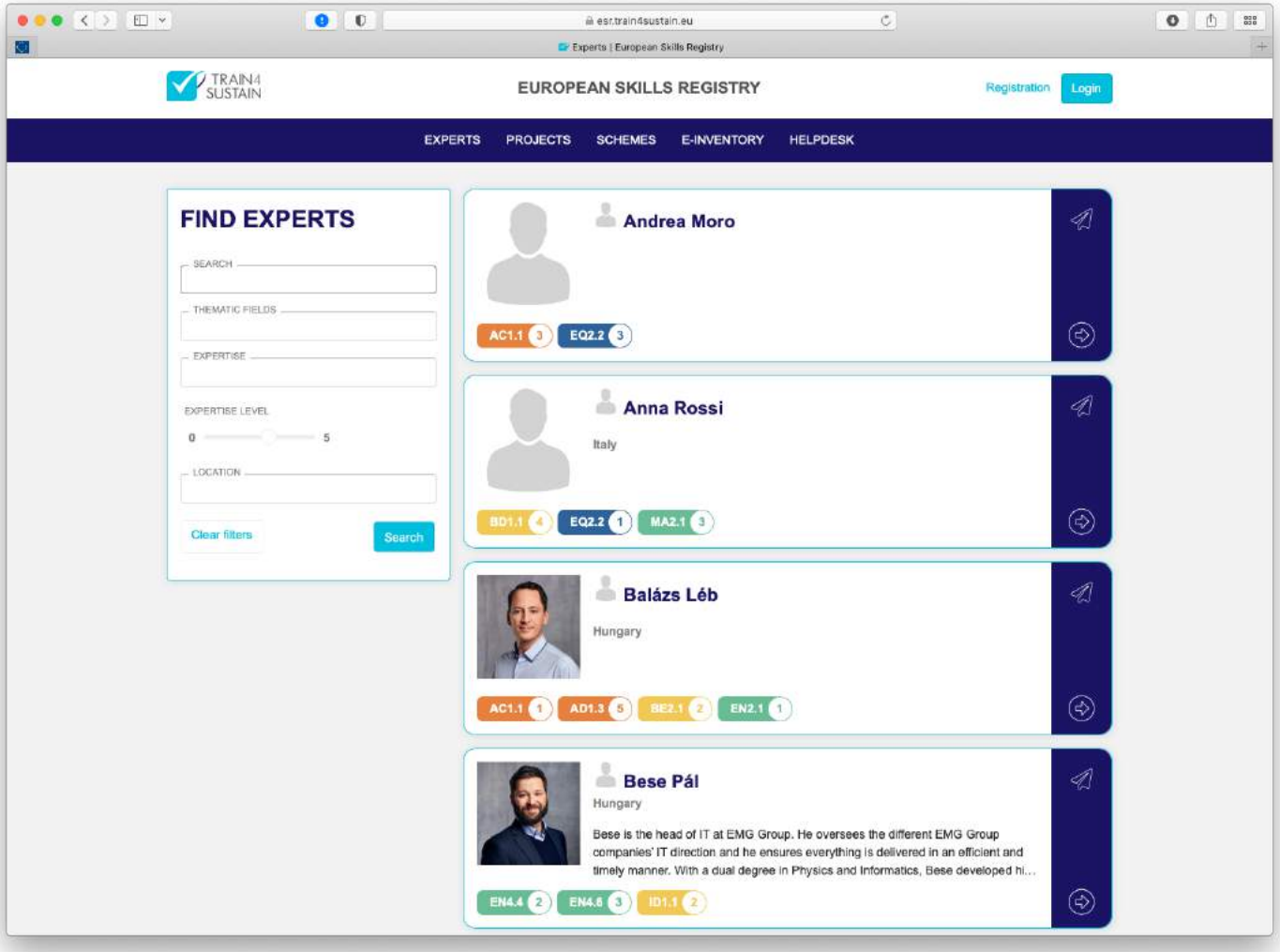
T4S ESR platform

https://esr.train4sustain.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

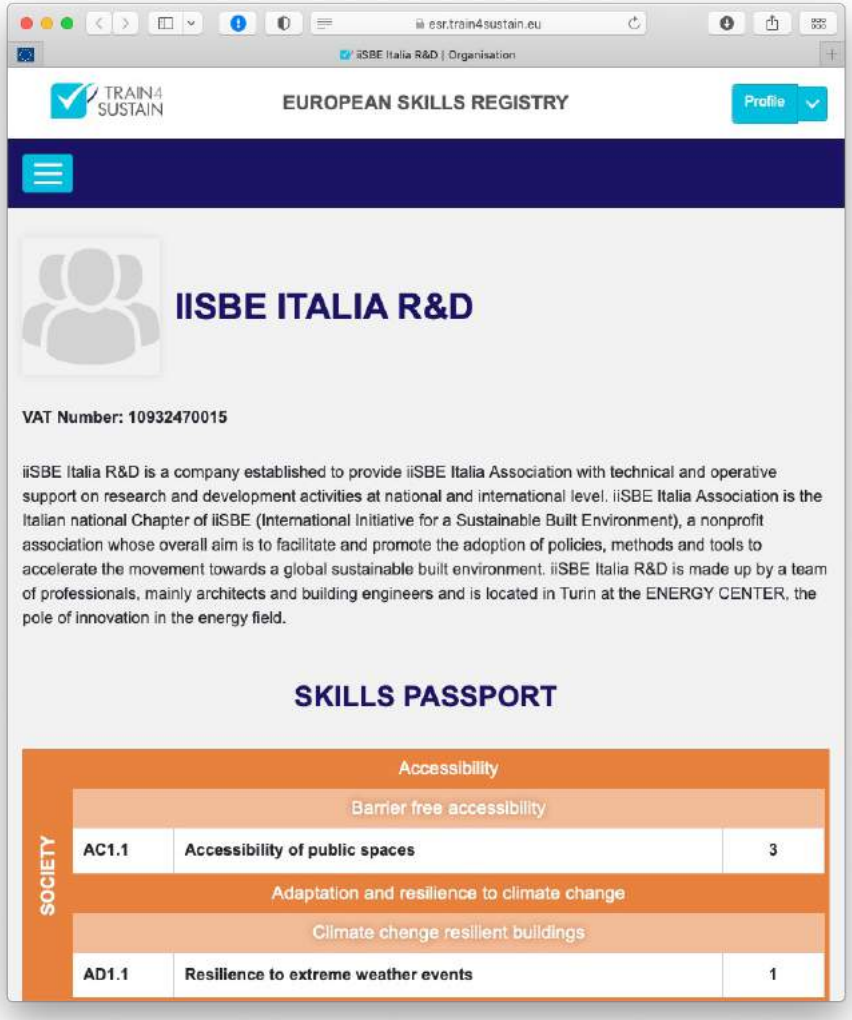
T4S ESR platform – Experts



- Expert database
  - searching by keyword, thematic fields, level of competence and location
  - Sending messages
  - Accessing profile details + Skills Passport

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S ESR platform – Skills passport



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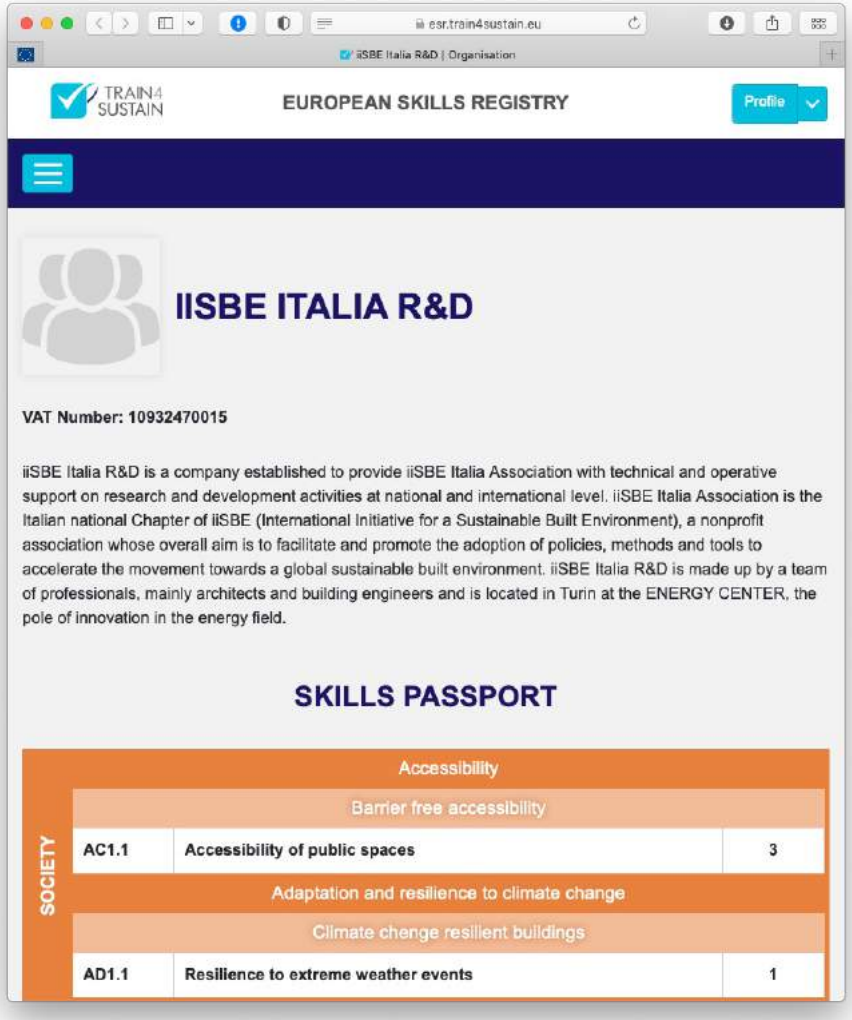
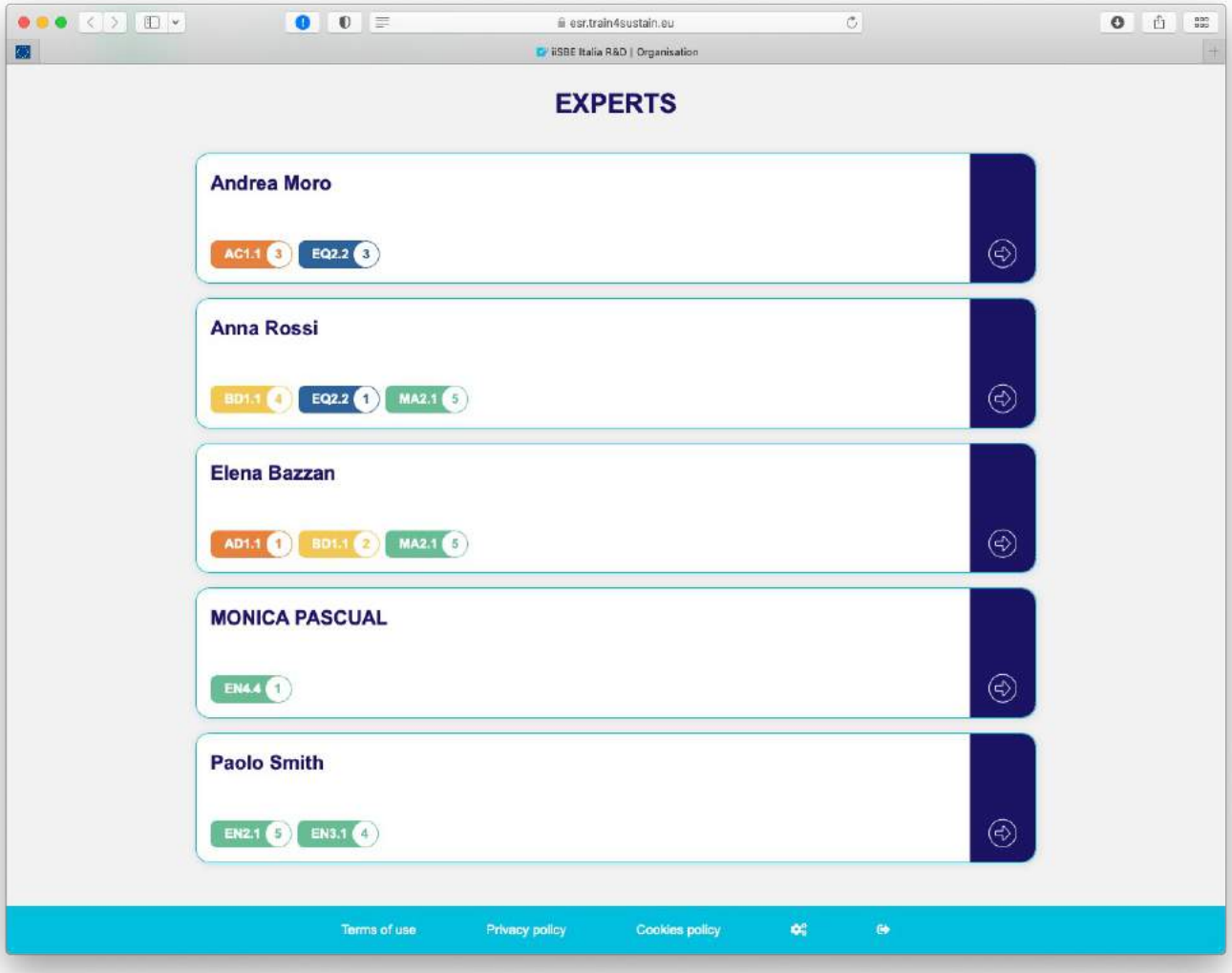
T4S ESR platform – Skills passport





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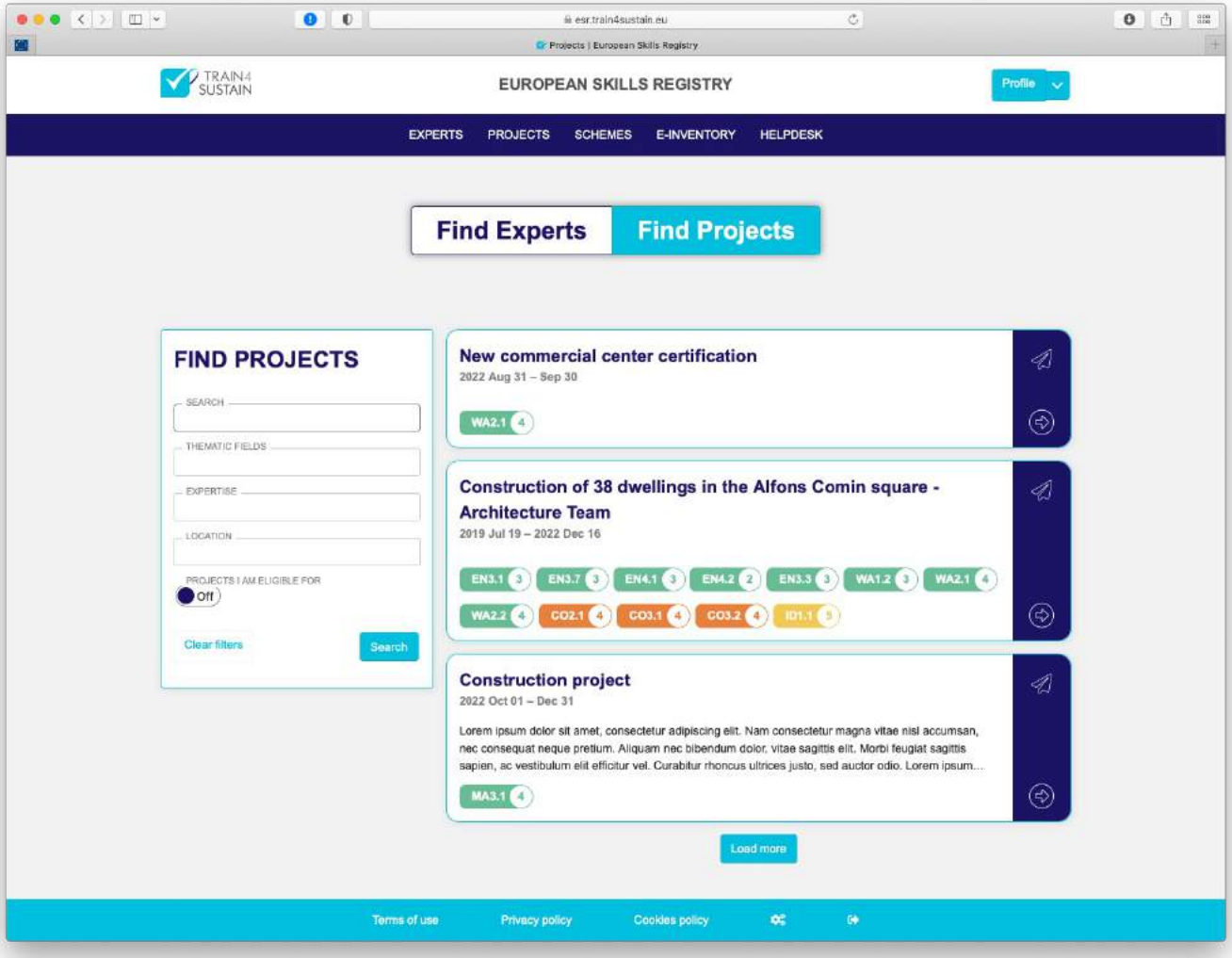
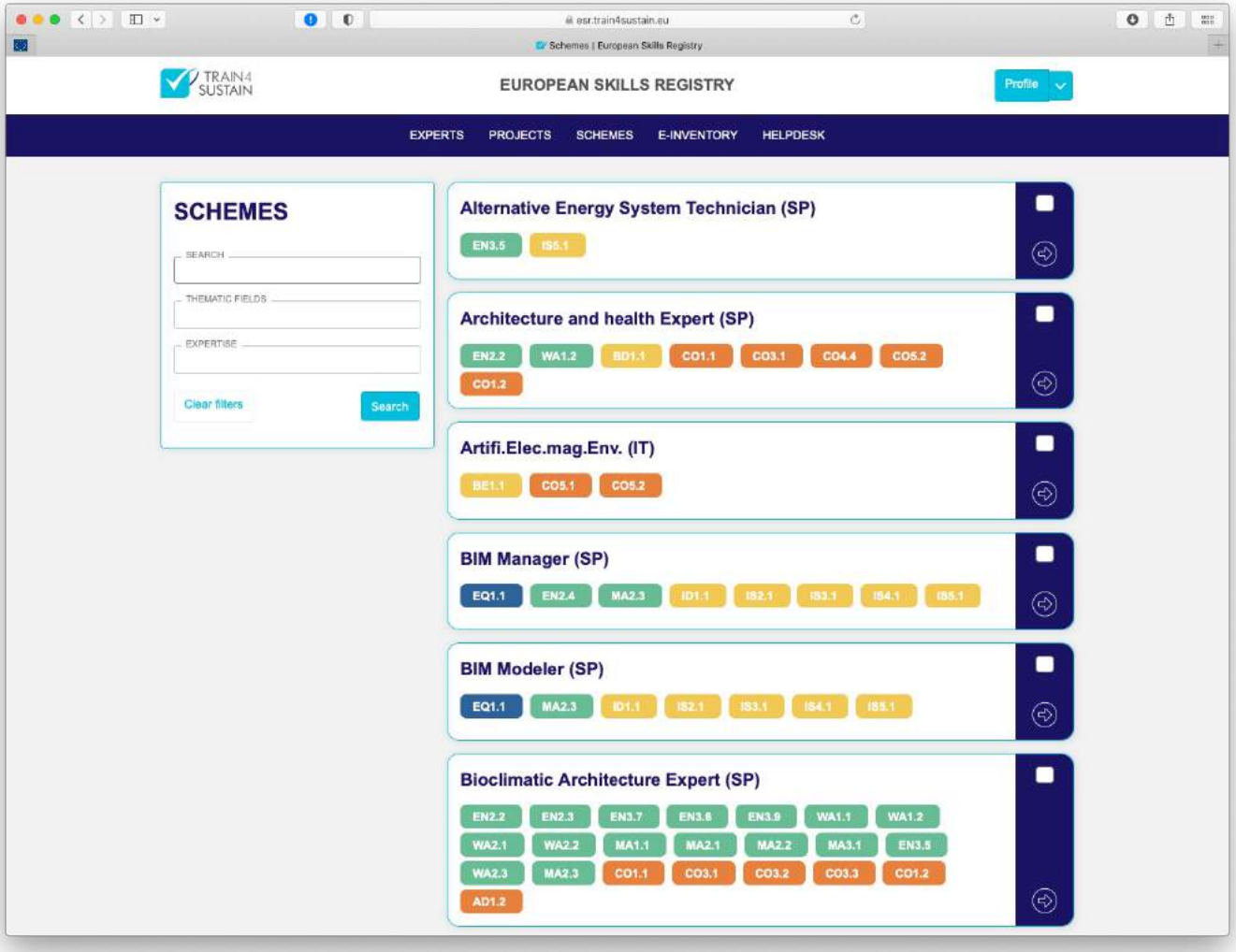
T4S ESR platform – Projects



- Project database
  - Searching by keyword, thematic fields, level of competence and location
  - Contacting the project lead
  - Accessing project details and requirements

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

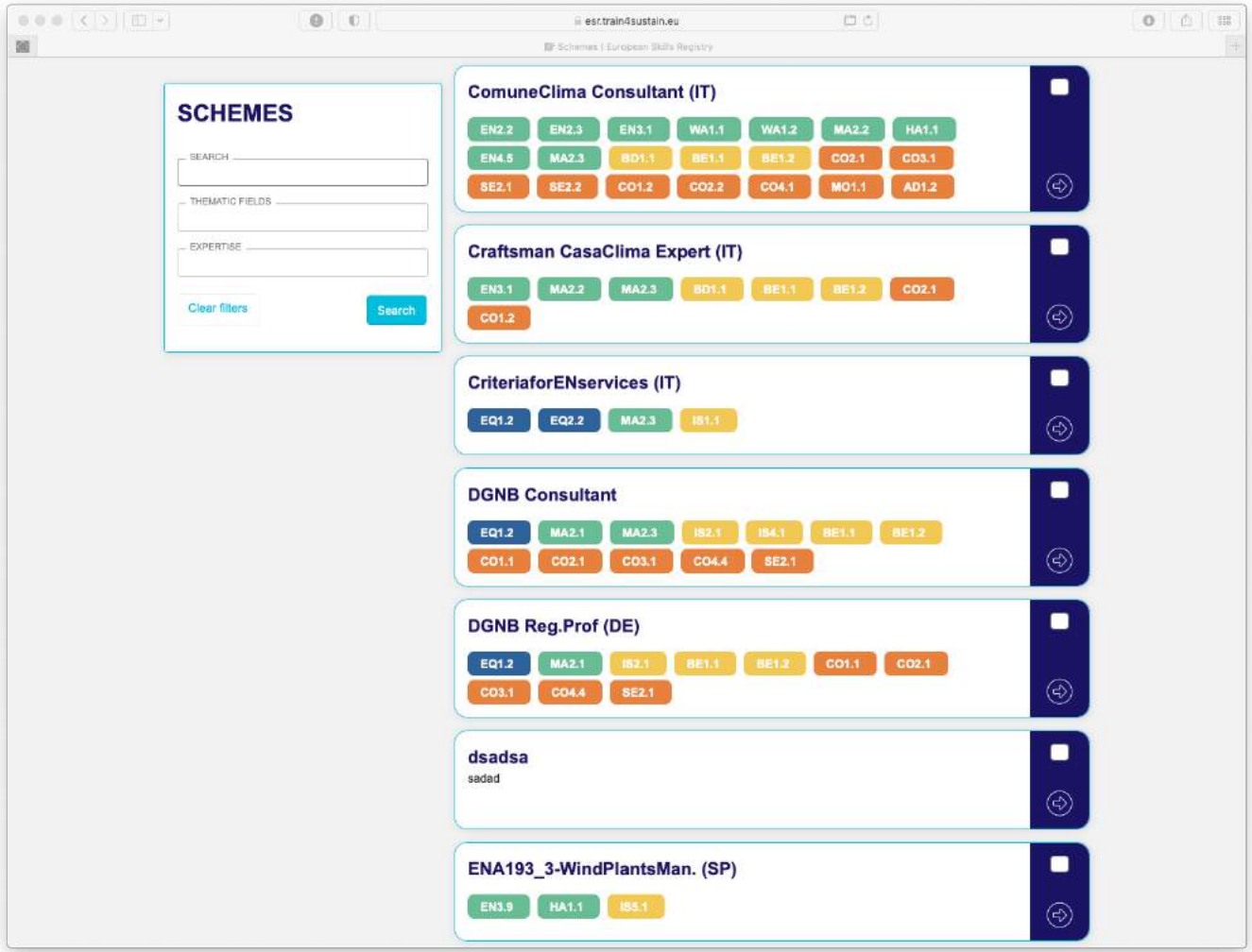
T4S ESR platform – Schemes



- Scheme database
  - Searching by keyword, thematic fields, level of competence
  - Listing available area of expertise's
  - Comparing schemes

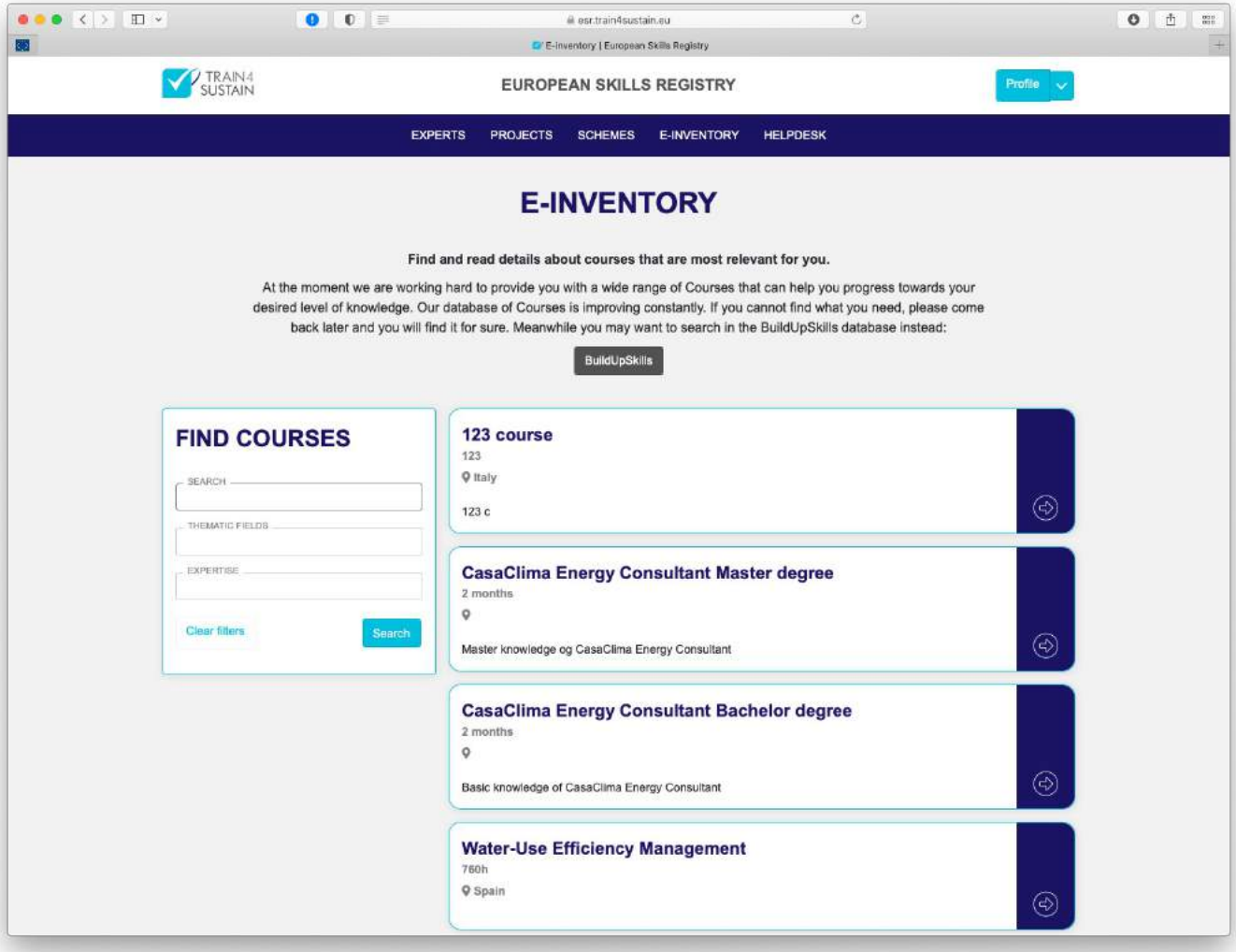
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S ESR platform – Scheme example



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

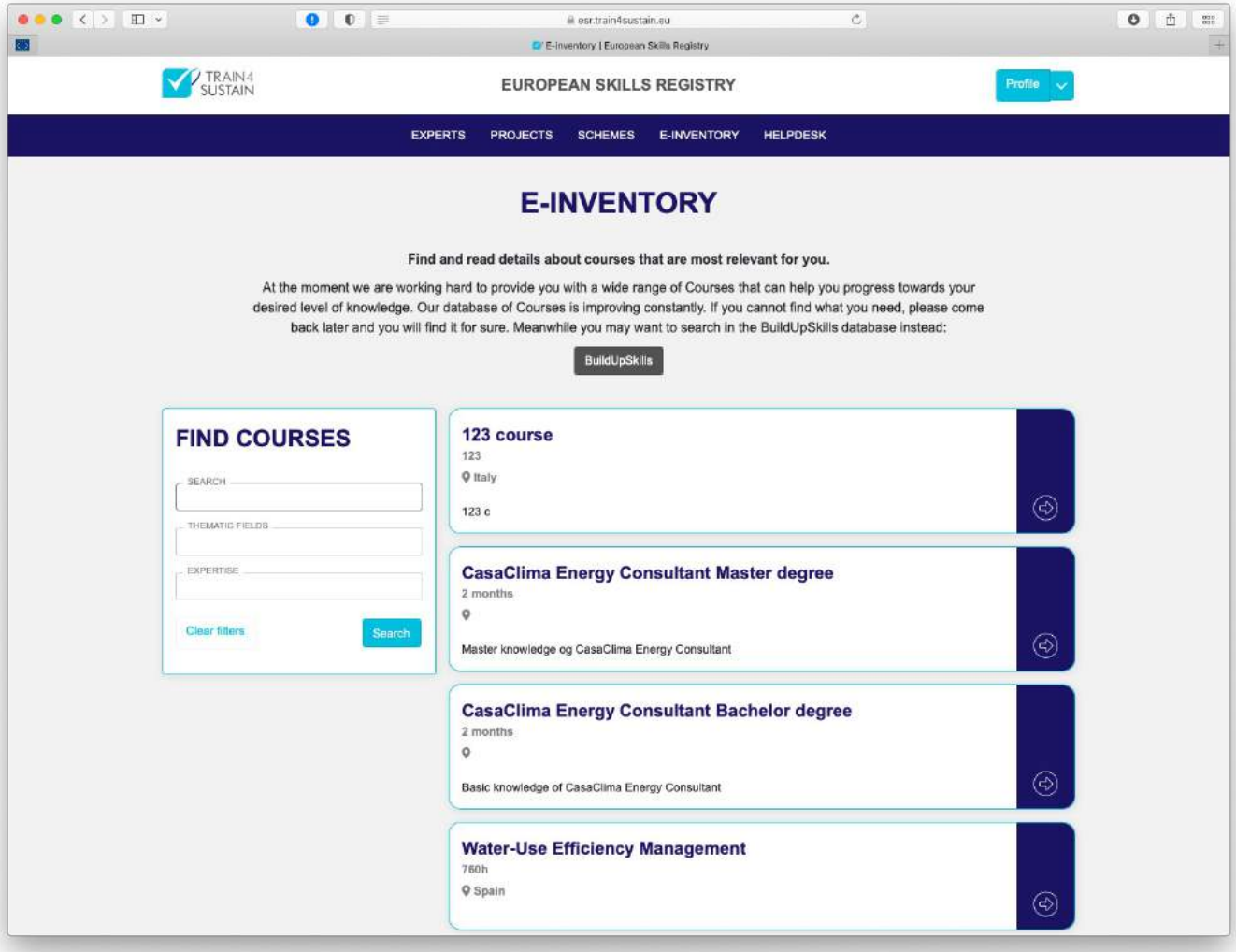
T4S ESR platform – e-Inventory

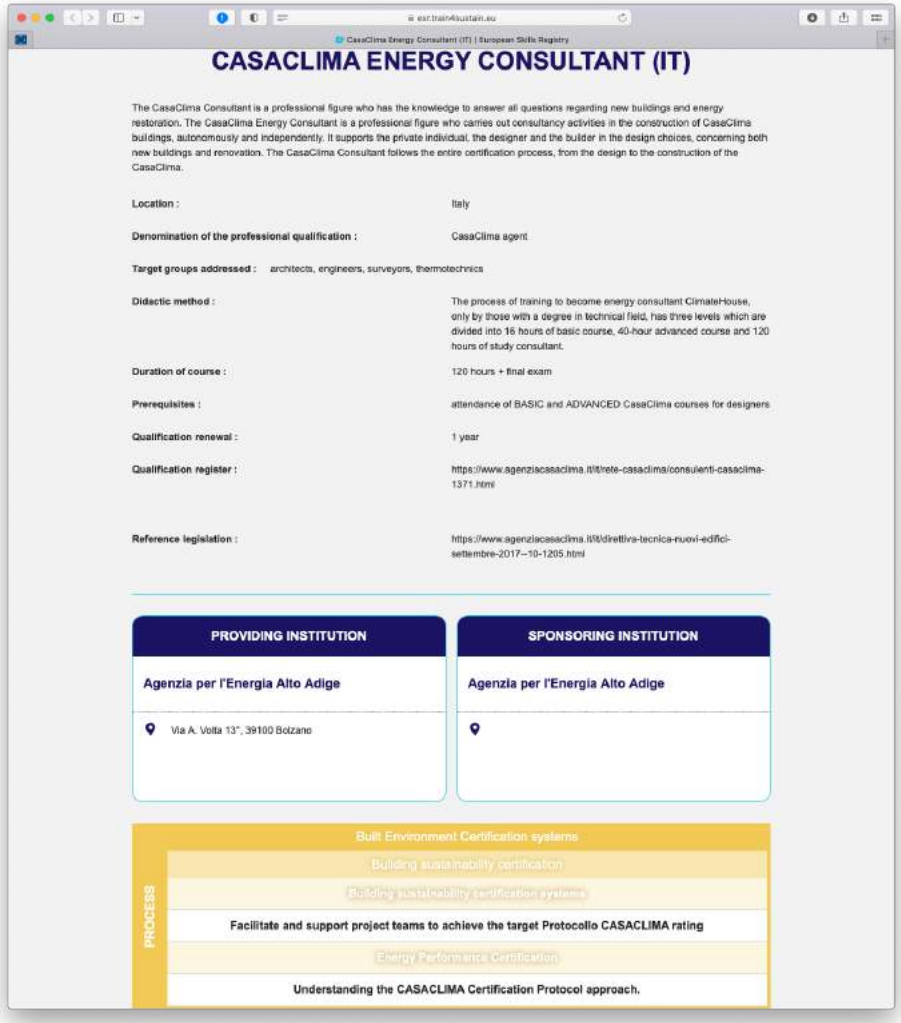


- e-Inventory
  - Searching by keyword, thematic fields, level of competence
  - Accessing course details
  - Searching in BuildUpSkills database

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

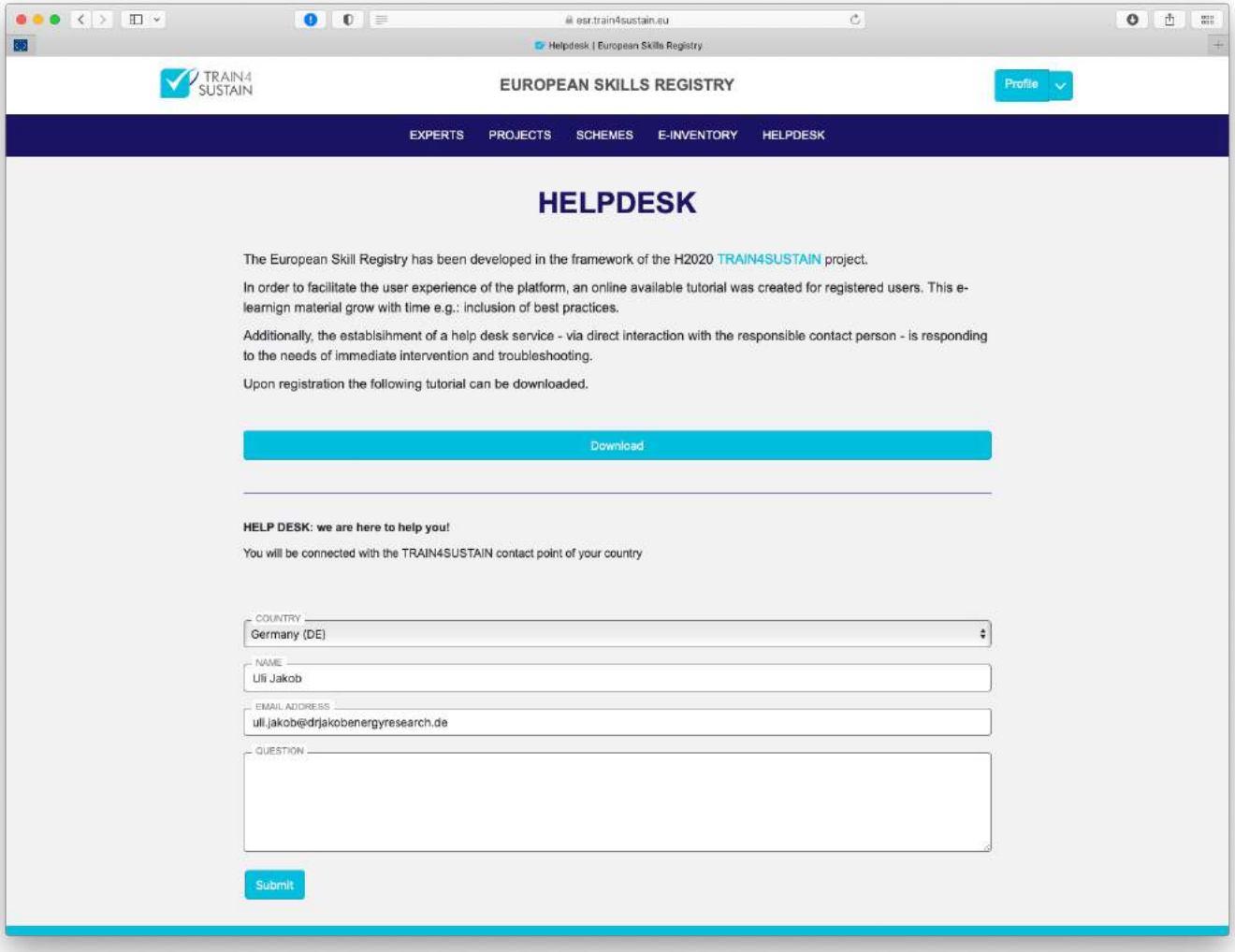
T4S ESR platform – Course details





This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S ESR platform – Helpdesk



- Helpdesk
  - devoted to provide technical assistance and support to the ESR's users
  - Questions concerning possible future collaborations?
  - Technical issues related to the operation of the ESR?

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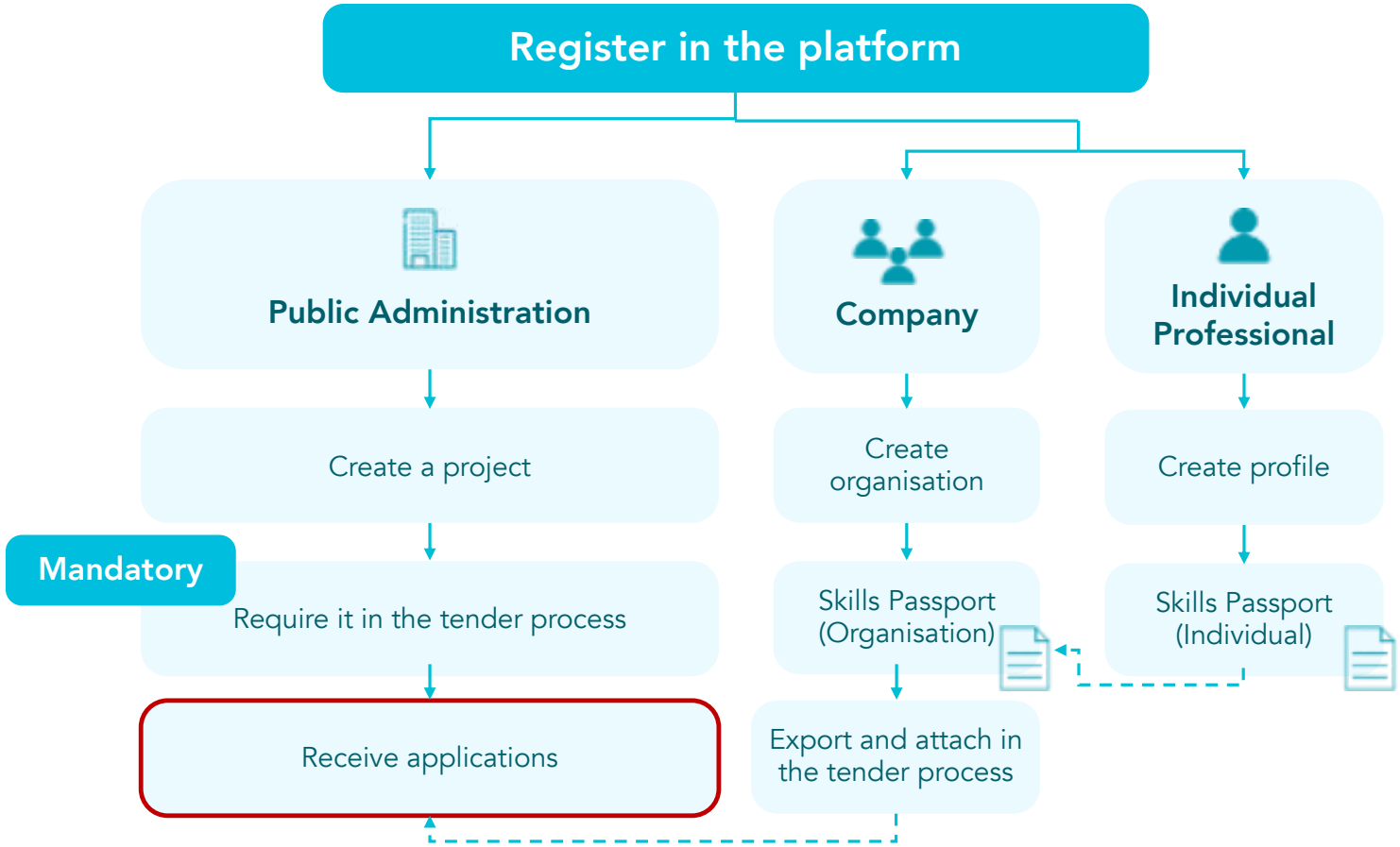
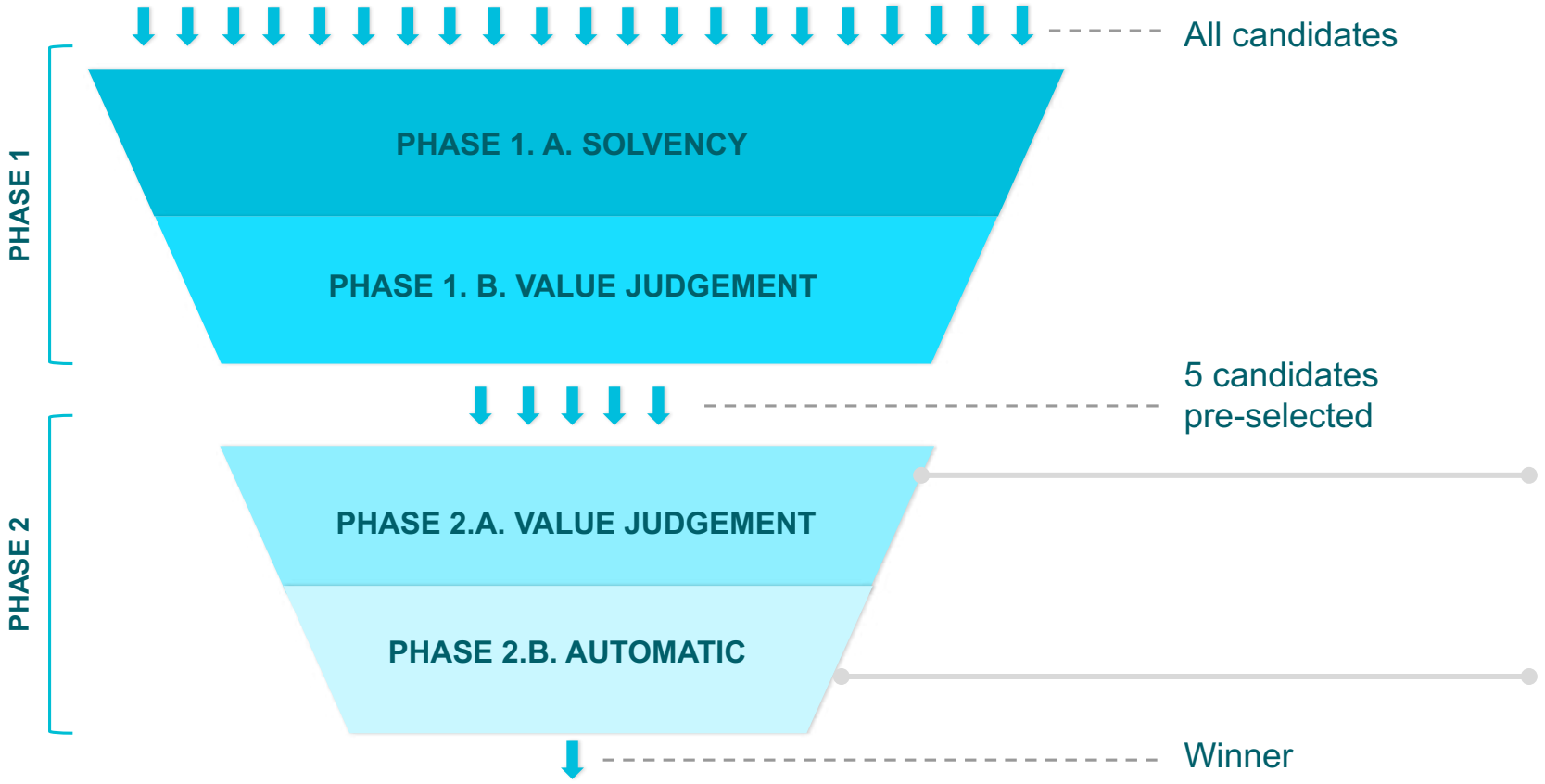
T4S Green Public Procurement



- GPP and ESR platform
  - Spanish pilot case study
  - Contracts needed
  - Tender announcement
  - Comparison and adjudication of applications
  - Influence of Skills Passport score

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S GPP process pilot case



2.A. Value Judgement (30 pts)
1.1. Adaptation of the proposal to the existing environment (8 pts)
1.2. Building Layout (10 pts)
1.3. Spatial quality of the housing typology proposal (8 pts)
1.4. Energy Stragegy (4 pts)

2.B. Automatic (25 pts)
1.1. Total built area/Usable area (10 pts)
1.2. Architectural criteria for energy efficiency. (7 pts)
1.3. BIM (1 pts)
1.4. Skills Passport (7 pts)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S Local training activities

TO WHOM ? The target group is represented by **staff of public bodies having experience in procurement processes for the construction and refurbishment of buildings** (civil servants, technicians, managers, decision-makers).

WHAT ? The objective of the course is to provide participants with the **knowledge and skills necessary to include and manage sustainable skills in GPP processes using the TRAIN4SUSTAIN tools and methodology**.

WHEN ? Courses will be delivered in each project partner country in the period **between 19th September and 7th October 2022**.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

T4S CEN Workshop Agreement (CWA)

The CWA is a **regulatory document** that **works as pre-standardization process**, leading to get a **technical deliverable** which **can be the basis for a European or international standard** at a later stage.

Title : "**TRAIN4SUSTAIN Competence Quality Standard**"

Final CWA should be delivered by **end of September 2022**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

Thanks for listening!

Check us out on
https://train4sustain.eu/

Watch us on YouTube
https://train4sustain.eu/news/3/train4sustain-video-is-out

LinkedIn
https://www.linkedin.com/company/train4sustain-project/

Twitter
https://twitter.com/Train4Sustain

Contact
uli.jakob@drjakobenergyresearch.de

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 894514.

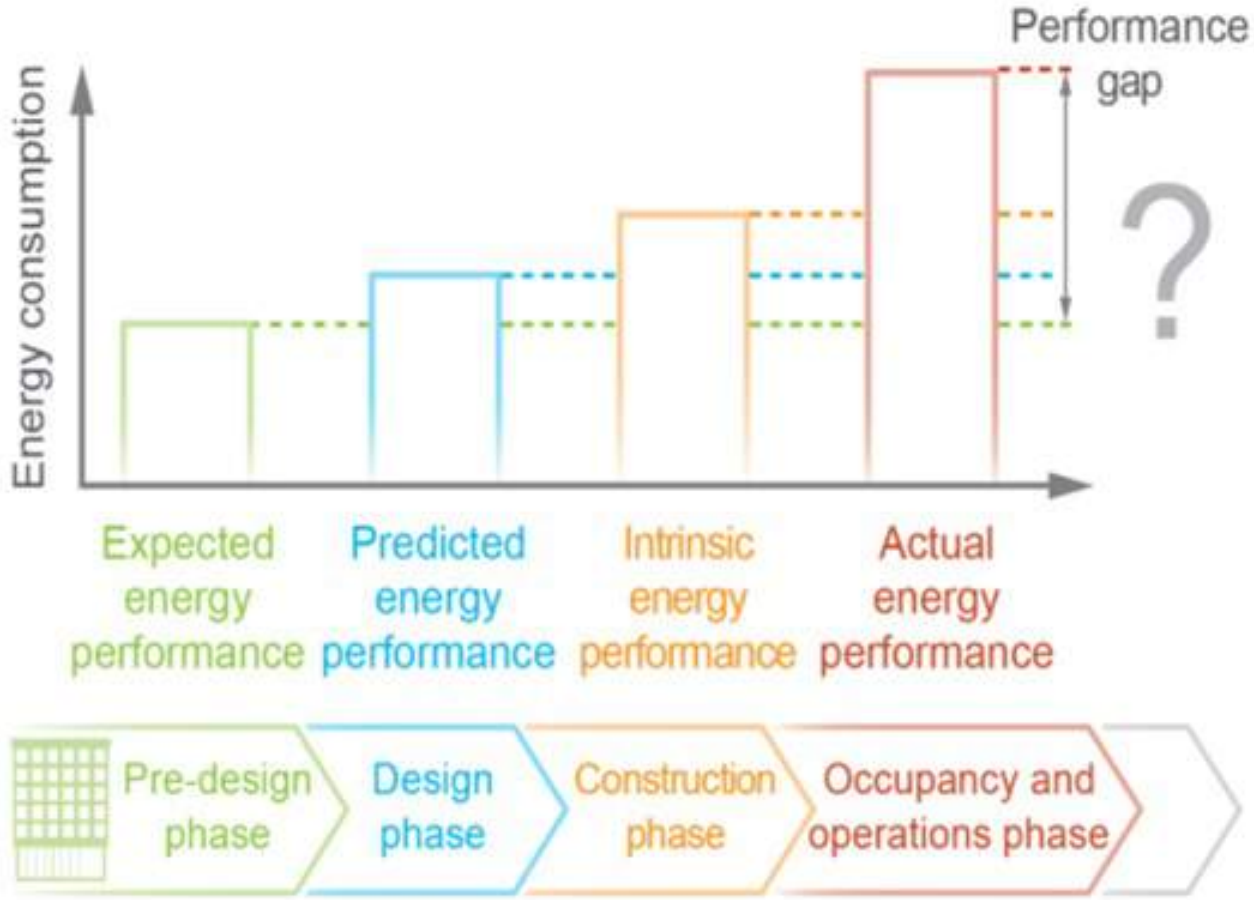
SKILLS
INSTRUCT
INSTRUMENTS
CONSTRUCTION

INSTRUCT – SP2022
Toward better energy efficieny

Łukasz Wilczyński, ASM research solution strategy

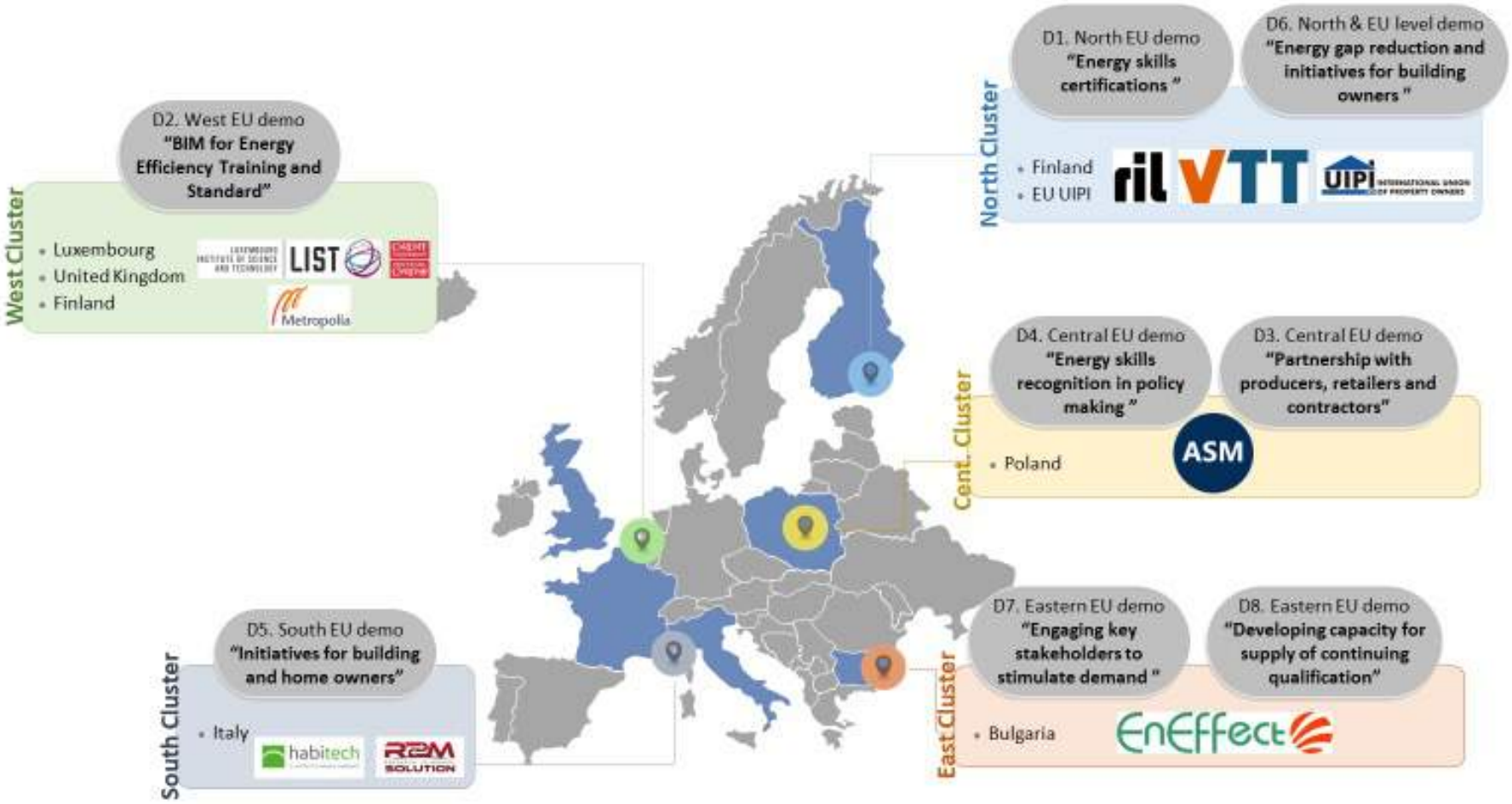
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 894756.

Main goal: reducing the energy gap.



Energy Performance Gap across Lifecycle

What we have done to reach our goal? Establishing clusters.

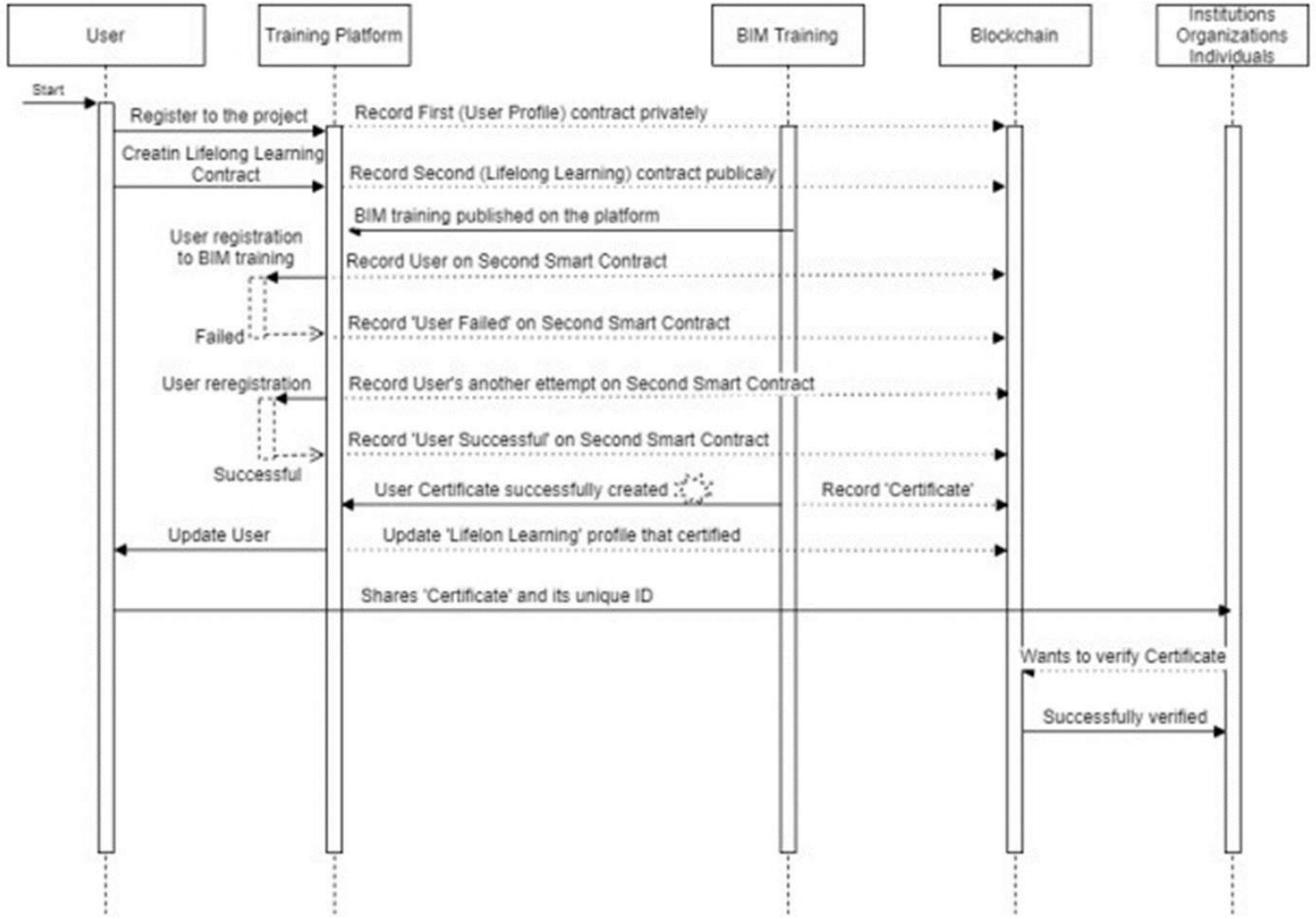


What we are doing to reach our goal? Research and Demonstrations.

- Organising workshops, presentations dedicated to each of our 8 Demos in each cluster
- Gathering reccomendations from different stakeholders
- Gatherind database of the good practice examlpes and use cases (currently on the platform we more that 60 UC’s)
- Building huge database in the platform

What we are doing to reach our goal? On-line platform

What we are doing to reach our goal? Innovation



What we are expecting? Results

- ❑ sustainable energy skills passports/registers
- ❑ new legislative frameworks, public procur. Practices
- ❑ Initiatives for home and building owners
- ❑ new partnerships with producers and retailers
- ❑ INSTRUCT tangible application already implemented in BIM4VET and BIMEET projects

- ❑ Guide for the establishment of energy skills passports, registers
- ❑ guidefor new legislative frameworks, public procurement
- ❑ Procurement methods for demanding energy skills in project
- ❑ INSTRUCT platform and database

PROJECT PARTNERS

INSTRUCT

ASM Market Research and Analysis Centre

R2M RESEARCH TO MARKET SOLUTION

ril

VTT

CARDIFF UNIVERSITY
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LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

www.instructproject.com

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 894756.

BUS LEAGUE

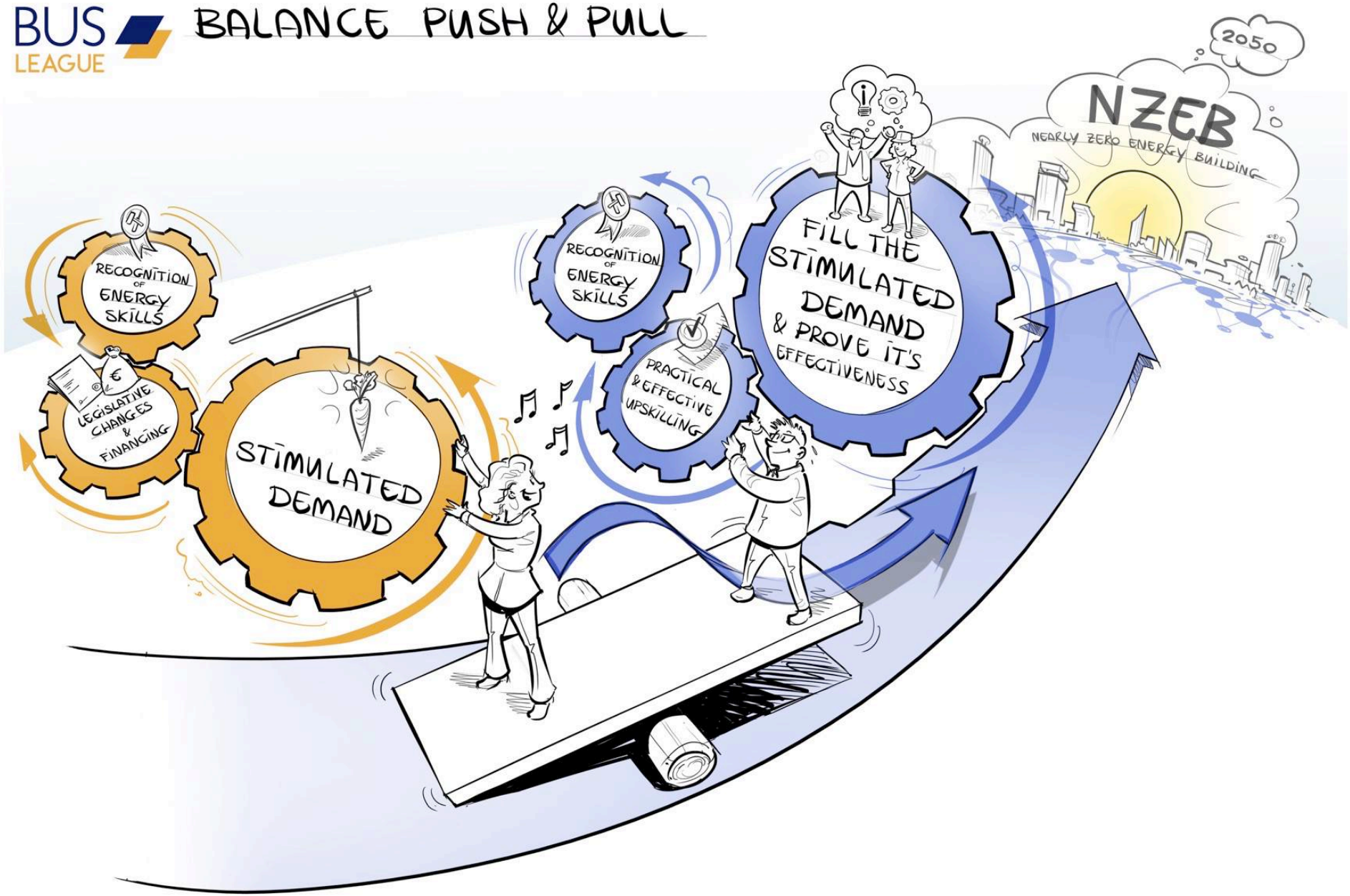
Experience from the Netherlands with task-based Unit of Learning Outcomes replicated on topic Installation of Heatpumps.

Sept 9, 2022, ISSO, Jan Cromwijk

ISSO

BUS LEAGUE

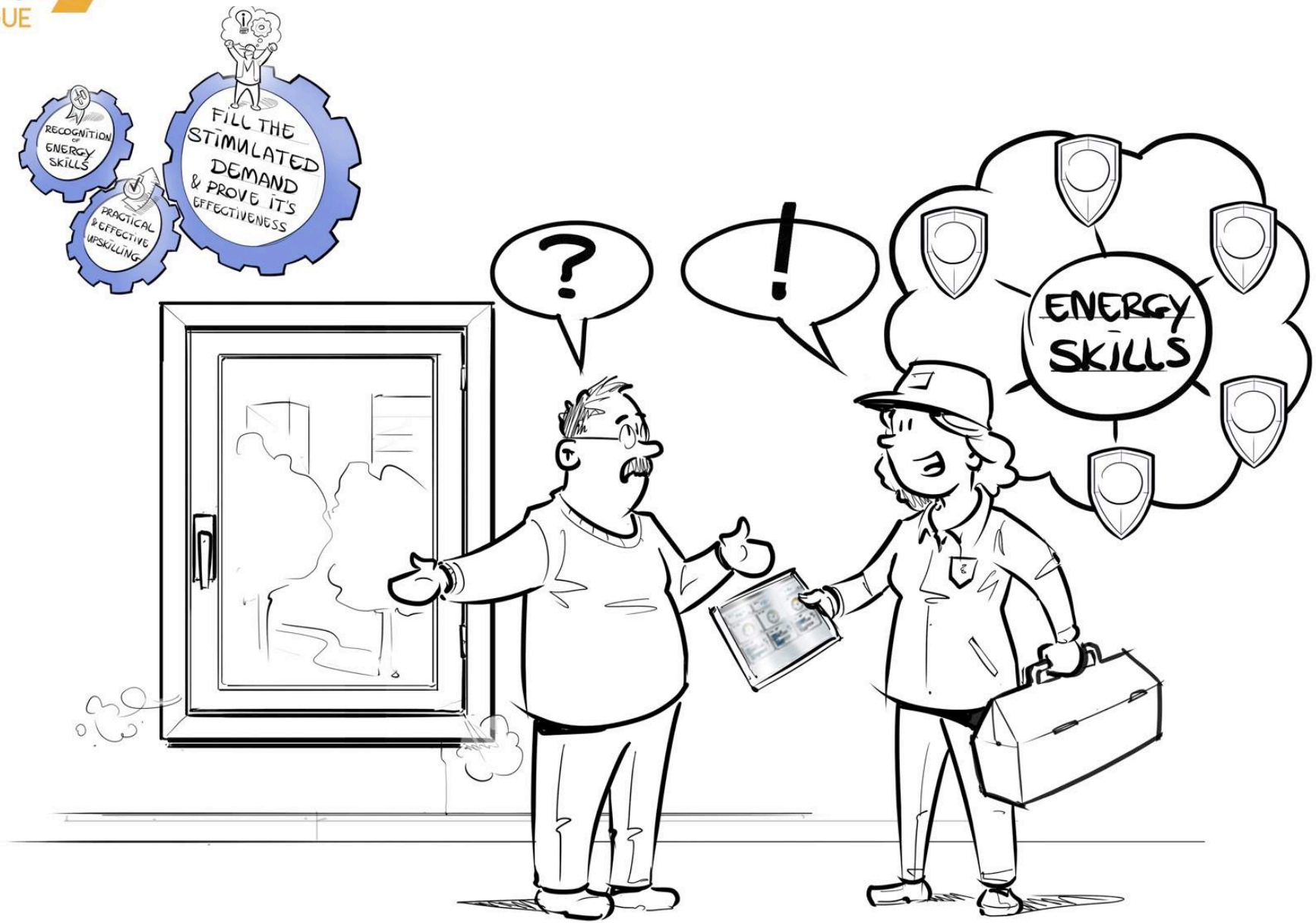
BALANCE PUSH & PULL



BUS LEAGUE


RECOGNITION OF ENERGY SKILLS
PRACTICAL & EFFECTIVE UPSKILLING
FILL THE STIMULATED DEMAND & PROVE IT'S EFFECTIVENESS
?
!
ENERGY SKILLS

BUS LEAGUE


RECOGNITION OF ENERGY SKILLS
PRACTICAL & EFFECTIVE UPSKILLING
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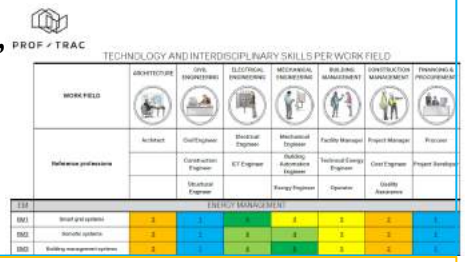
?
!
ENERGY SKILLS


BUS
LEAGUE
RECOGNITION OF ENERGY SKILLS
LEGISLATIVE CHANGES & FINANCING
STIMULATED DEMAND
PROJECT
RECOMMEND
BUS
LEAGUE
PROCUREMENT GUIDELINES

SCOPE of the BUSLeague EE-skills Qualification

1 **Fundamental** knowledge and skills – 'level based'
Focus on the 'Why' of sustaining the built environment.

And 'competence based'
Key Skills Craft and Construction Workers
Key Skills Professionals



2 **Cross-craft** – 'Task based'

Focus on shared knowledge, skills and responsibility With a focus on integral quality of nZEB and retrofitting towards nZEB. Including the use of digital means and innovative measurement technologies

NEWCOM New qualification schemes to build high quality

3 **Occupation specific** not in scope – link later
knowledge, skills, competence needed for professional practice
with a focus on a specific occupation

Examples: NSS Plastering from Ireland, Craft-Edu Windows installer

4 **Technology specific** not in scope – link later
knowledge, skills, competence needed to install/realise…
With a focus on application on a specific technology

Examples: NSS NZEB Ventilation assured, Heatpumps-RES,-NL SolarPV-RES-NL

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Impression of main tasks 1/4

Why [economy, project management, importance]

1. Explain the impact of EU climate change and energy policy on sustaining the built environment
2. Explain the characteristics of energy use in existing buildings
3. Explain in general how to improve the energy efficiency of a building
4. Explain the value of energy renovation in relation with the building users' needs
5. Provide adequate information to building occupants in achieving adequate levels of ventilation, lighting, acoustic and thermal comfort
6. Explain the consequences of having poorly insulated pipes, vessels and ducts which transport or store heated water or air

Impression of main tasks 2/4

How [Generic Cross-craft skills]

1. Perform a careful inventory as input for an integrated improvement process
2. Design and apply step-by-step retrofit plans
3. Ensure achievement of ecology and sustainability criteria
4. Ensure comfort, health and safety requirements in buildings
5. Analyse cost effectiveness of energy efficiency improvements
6. Engage with other crafts to meet design demands - Work together onsite to achieve quality low energy buildings
7. Ensure quality of work
8. Interpret thermographic images (both for building and installation issues)
9. Provide the homeowner with information needed to ensure that the building is operated and maintained to its optimum

Impression of main tasks 3/4

What [Building envelope - from cross-craft point of view]

1. Reduce heat loss through the building envelope (as a responsibility, not the actual isolation activity)
2. Identify and prevent common air leakage points
3. Address potential thermal bridges during construction / maintenance / retrofit
4. Address potential airtightness issues

Impression of main tasks 4/4

What [Building services - from cross-craft point of view]

1. Identify when adjustment on the type of ventilation system is needed
2. Install necessary electrical services without compromising the effectiveness and continuity of the insulation layer
3. Install necessary plumbing / ventilation services required without compromising the effectiveness and continuity of the insulation, airtightness and vapour control layer
4. Minimise heat losses from the heat source and distribution pipes
5. Identify and prevent poor hot water circulation systems
6. Ensure proper functioning of the heating system
   (Question: is this occupation specific / is generic understanding needed?)
7. Keep an eye on the importance of windows in relation to thermal protection, solar gains and ventilation
8. Keep an eye on the need for or effectiveness of shading systems and passive solar systems

Impression of some Key subtasks

Key BUSLeague subtasks [Linked to several of the Main tasks]

1. Subtask: Identify key information presented on both a CE label and in the associated Declaration of Performance
2. Subtask: Identify if insulation materials are fit for purpose
3. Subtask: Identify and label insulation layer(s) in construction details
4. Subtask: Identify and label airtightness layer(s) in construction details
5. Subtask: Repair and / or reinstate of insulation where it has been damaged or removed
6. Subtask: Apply techniques and types of materials that are commonly used to create the airtight layer
7. Subtask: Apply correct taping approaches and materials to create a permanent airtight connection

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IN STORE
TEST
LEARNING CENTER
THIS IS A GOOD IDEA!
QUESTION 1 OF 3
Geluidsdemper aanwezig?
Choose the photo that best fits your installation:
2050
NZEB
COOPERATION HARDWARE STORES

Why task-based Unit of Learning Outcomes

ULOs are statements regarding what a learner knows, understands and is able to do (including responsibility) on completion of a learning process, which are defined in terms of knowledge, skills and responsibility (attitude).

Practical perspective on required skills in the valuechain & required overlaps between actors

Increased recognition of learned skills

Clear Learning outcomes for development of training materials

Flexible for future improvements such as alternative refrigerants

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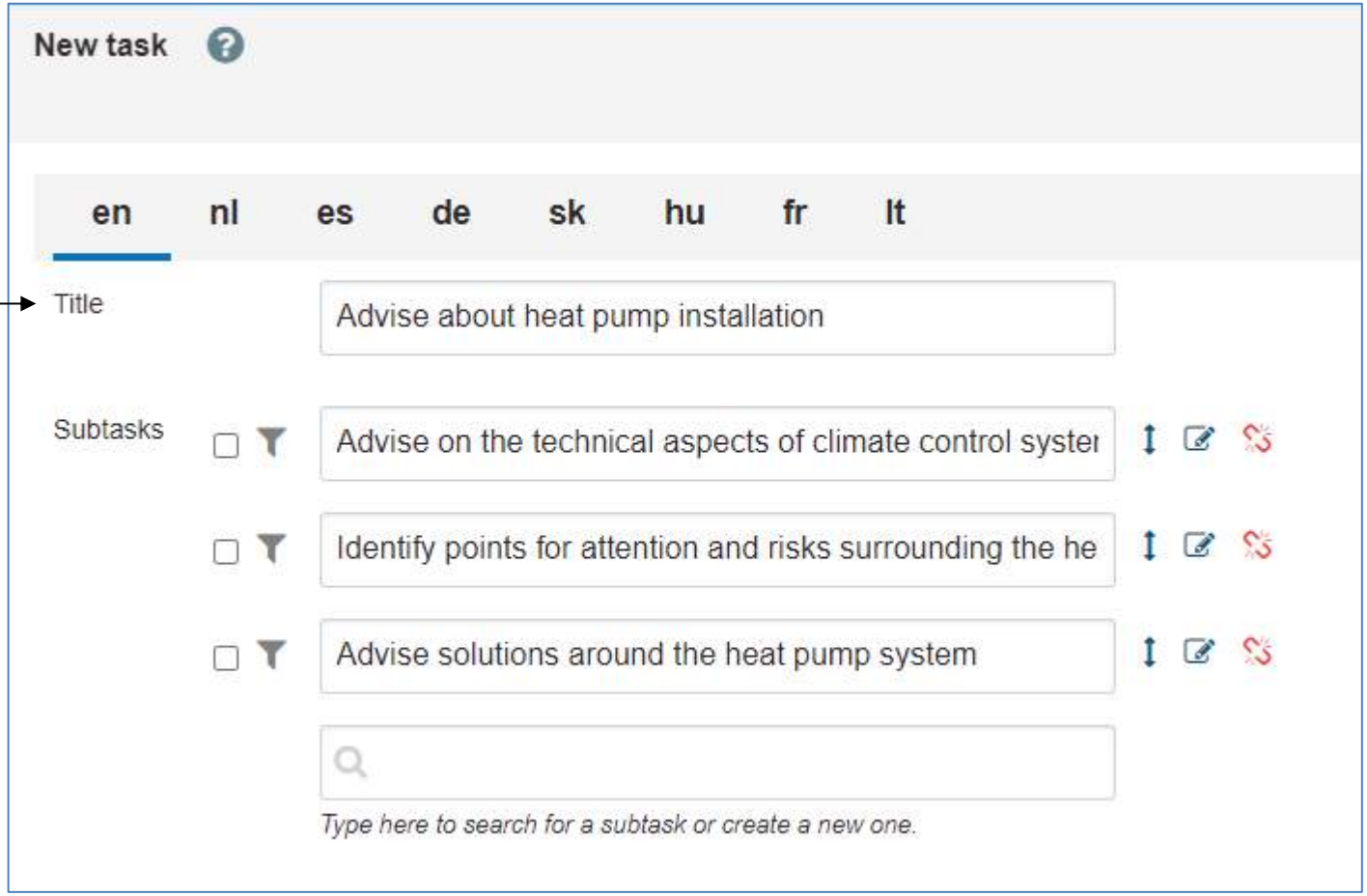
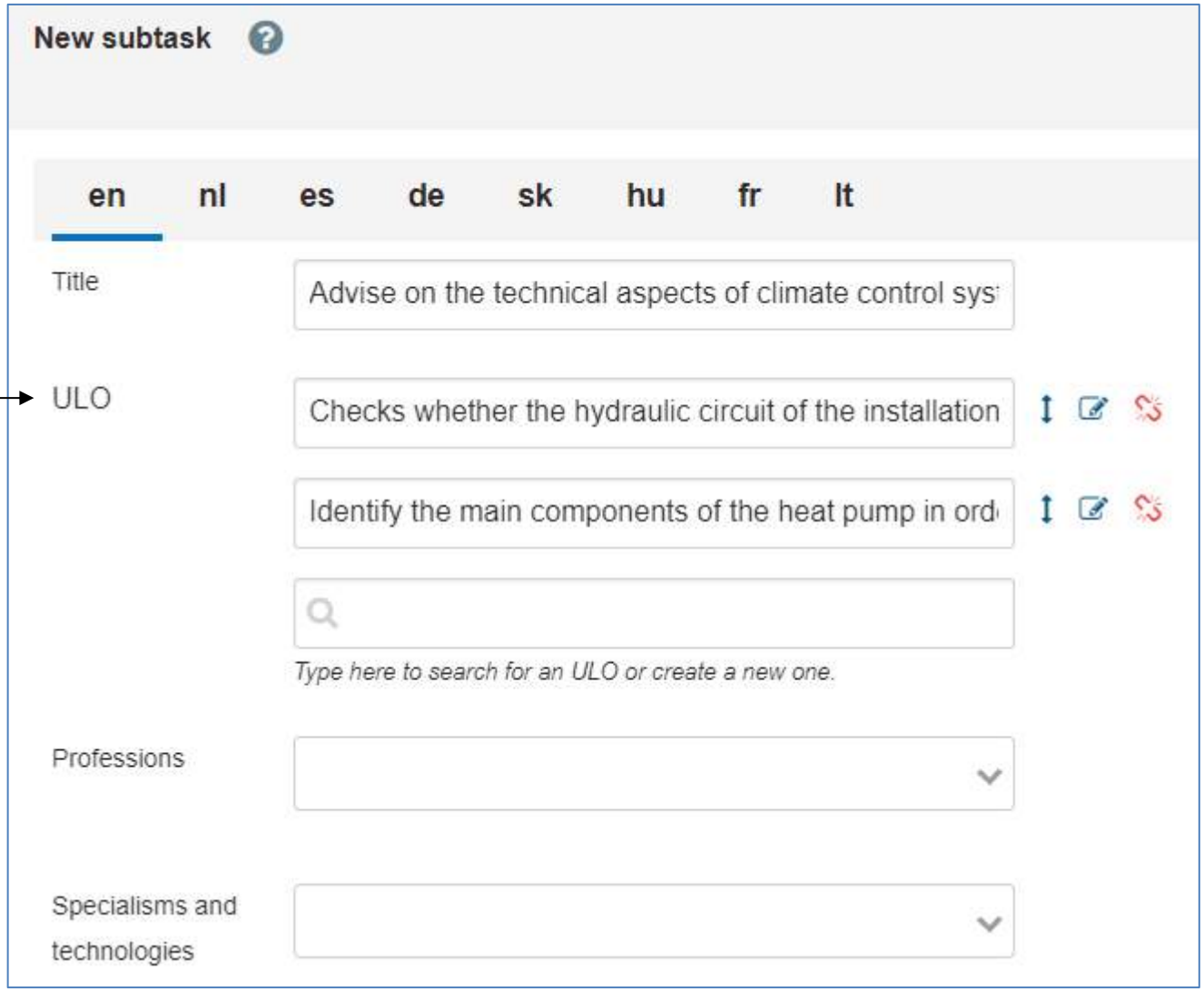
How do task-based learning outcomes work?

Tasks and subtasks addressing all phases in construction covering the whole valuechain



How do task-based learning outcomes work?

Learning goals related to the subtask

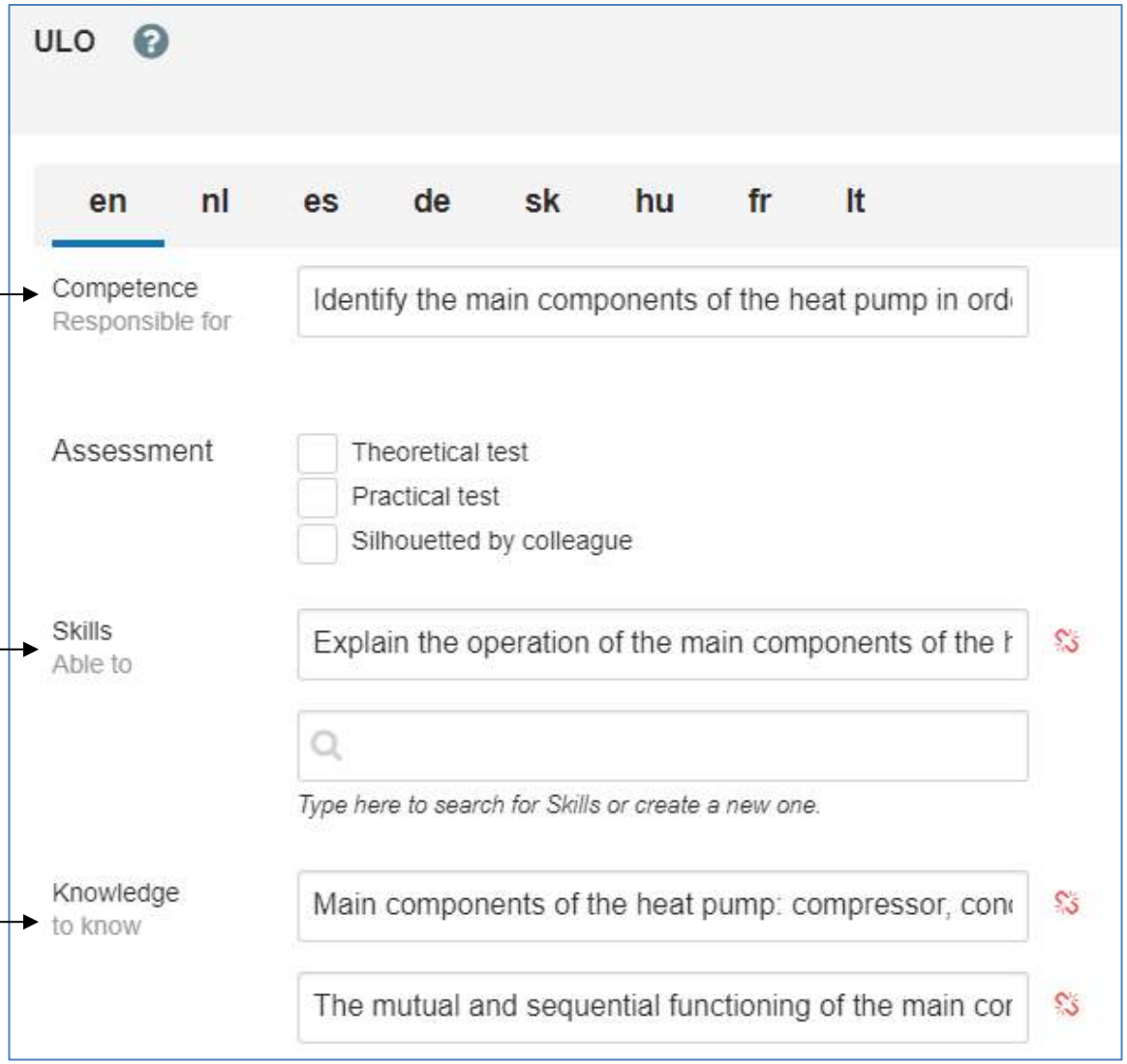


How do task-based learning outcomes work?

What competence is expected for performing the subtask?

What skills does one need to be competent in the subtask?

What Knowledge does one need to apply skills for showing competence with regards to the subtask?



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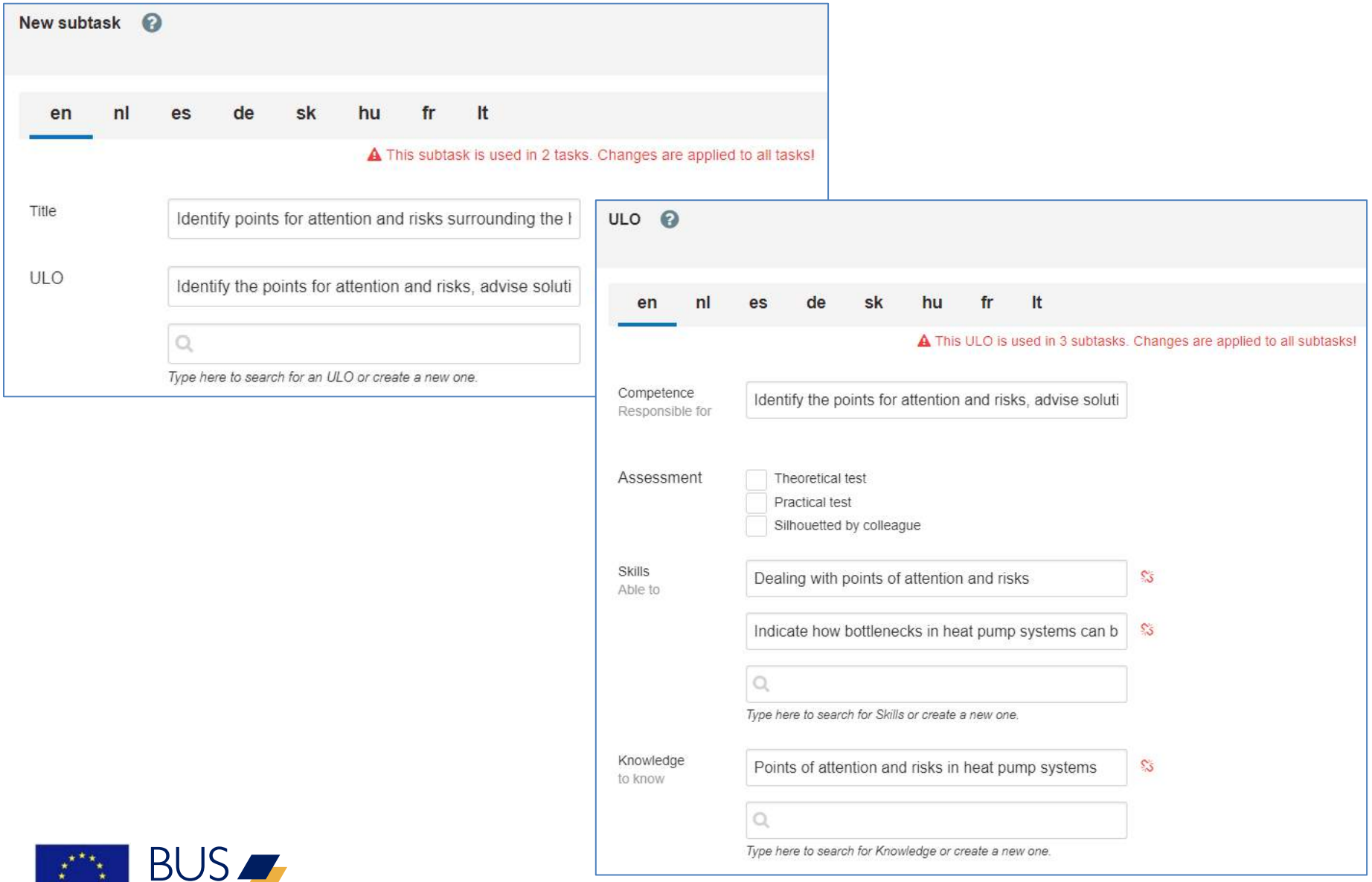
How do task-based learning outcomes work?



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What do you get as result?

Tasks	Sub-tasks	ULO Nr.
Advise about heat pump installation		
	Advise on the technical aspects of climate control systems	4;5
	Identify points for attention and risks surrounding the heat pump system	6
	Advise solutions around the heat pump system	6
Advise on the heat pump installation (work manager)		
	Advise on the operation and interaction of different types of heat pumps and their areas of application	1;2;7;8;9
	Advise on the technical aspects of climate control systems	10;4;11
	Advise on the technical feasibility of a heat pump system	1;2;3;12
	Identify points for attention and risks surrounding the heat pump system	6
	Advise solutions around the heat pump system	1;6;13;21
Advise on the heat pump installation - preconditions (work manager)		
	Apply the applicable legislation and regulations (soil energy systems)	14;15
	Applies the applicable laws and regulations (other)	16;14
	Determine energetic and economic feasibility of the heat pump system	17
	Determine and recommend about the energy performance and monitoring	18;22
	Determine and advise on the critical parameters (construction and comfort) of the home/object	1;19
Designing and dimensioning the heat pump installation/ heat pump system (work manager)		
	Determine the structural situation and collects necessary data about the space required by the installation, the necessary measures regarding noise, ventilation and supply temperature	19;7;20

Unit of Learning Outcomes (ULOs)

BUS LEAGUE

What do you get as result?

ULO Nr.	Id	Competence	Skills	Knowledge
1	1115522	Determine which heat pump system is suitable for which architectural and technical preconditions	Estimate the feasibility for a heat pump system;Assess the general Program of Requirements on aspects relevant to the heat pump installation	Operation of the different types of heat pumps including physical principles
2	1166680	Investigates in the event of complaints (not hot, high energy consumption) whether a heat pump system is suitable	Estimating feasibility for a heat pump system ;Advise the client on the actions to be taken in relation to the maintenance of a new or existing heat pump installation	Possibilities of the different heat pump systems and field of application ;Operation of the different types of heat pumps (air-water, water-water) including physical principles ;Difference in application in the architectural situation (insulation values, gap sealing), new construction, existing construction
3	1166815	Explain the design and/or functioning of individual heat pump installations	Explain the operation of the different types of heat pumps (air-water, water-water) including physical principles	Possibilities of the different heat pump systems and field of application ;The operation of the different types of heat pumps (air-water, water-water) including physical principles ;Difference in application in the architectural situation (insulation values, gap sealing), new construction, existing construction
4	1197223	Checks whether the hydraulic circuit of the installation concept is satisfactory	Reading and interpreting technical drawings of the hydraulic integration of the heat pump installation	Possible hydraulic circuits for delivery/distribution and generation ;Preconditions and limitations for every hydraulic circuit
5	1197322	Identify the main components of the heat pump in order of operation and briefly explains their operation	Explain the operation of the main components of the heat pump	Main components of the heat pump: compressor, condenser, evaporator, expander, protections ;The mutual and sequential functioning of the main components of the heat pump
6	1197408	Identify the points for attention and risks, advise solutions and how bottlenecks can be solved	Dealing with points of attention and risks ;Indicate how bottlenecks in heat pump systems can be solved	Points of attention and risks in heat pump systems

What competence does one need for performing the subtask?

What should one be able to **do** in order to gain competence?

What is prerequisite knowledge to become competent?

How can you take them in use?

Publish qualification scheme

Country: Choose country

Profession: Choose profession

en | nl | es | de | sk | hu | fr | lt

Name: Heat pumps

Select the tasks, subtasks and ULOs to be included in this publication:

- [x] Advise about heat pump installation
  - [x] Advise on the technical aspects of climate control systems
    - [x] Checks whether the hydraulic circuit of the installation concept is satisfactory
    - [x] Identify the main components of the heat pump in order of operation and briefly explains their operation
  - [x] Identify points for attention and risks surrounding the heat pump system
    - [x] Identify the points for attention and risks, advise solutions and how bottlenecks can be solved
  - [x] Advise solutions around the heat pump system
    - [x] Identify the points for attention and risks, advise solutions and how bottlenecks can be solved
- [x] Advise on the heat pump installation (work manager)
  - [x] Advise on the operation and interaction of different types of heat pumps and their areas of application
    - [x] Determine which heat pump system is suitable for which architectural and technical preconditions
    - [x] Investigates in the event of complaints (not hot, high energy consumption) whether a heat pump system is suitable

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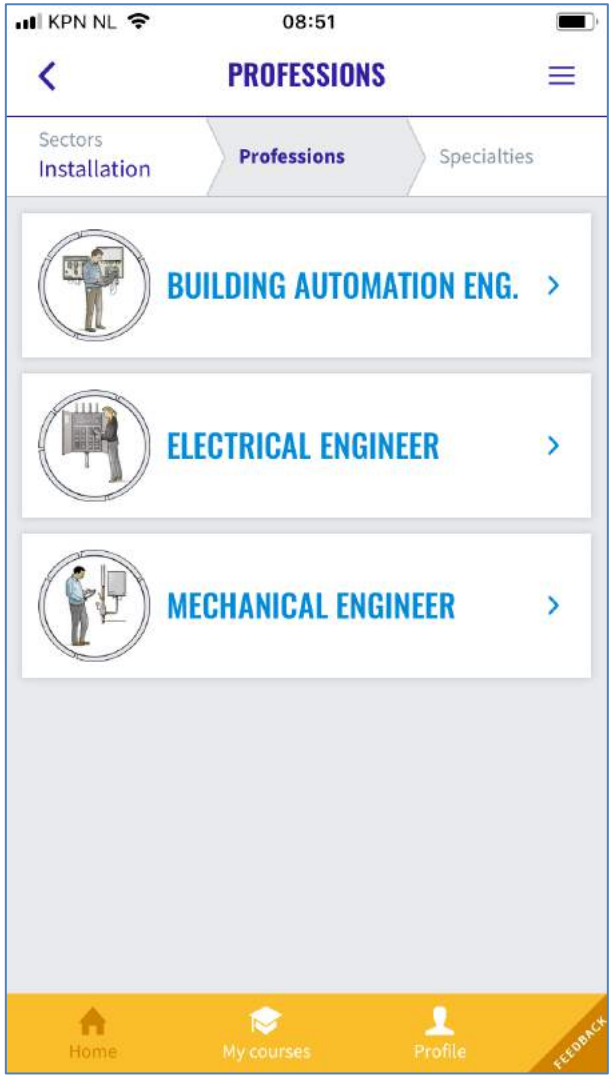
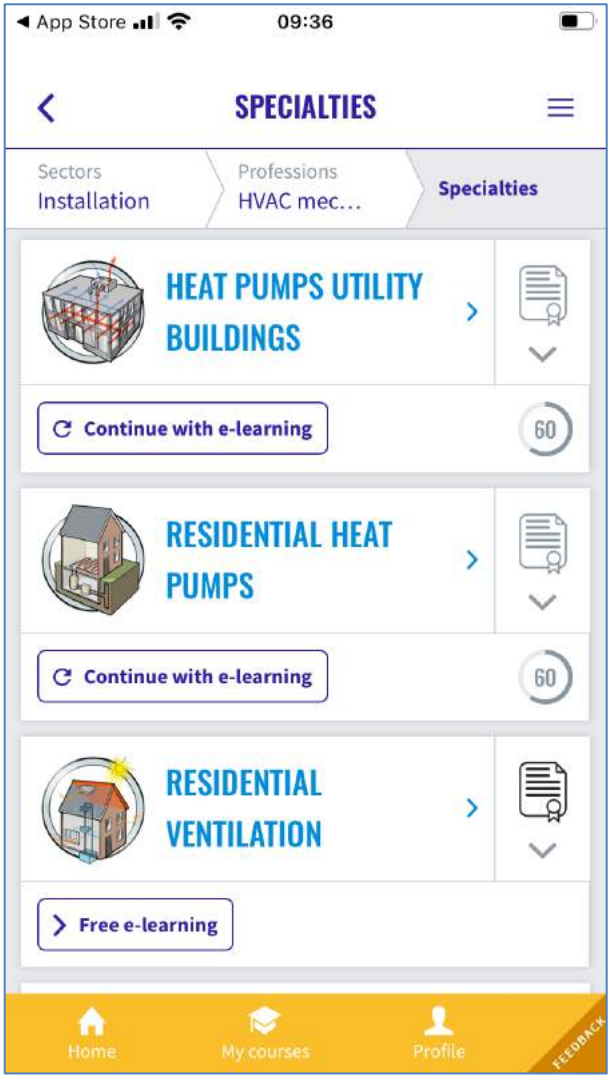
ULO's power advice on suitable upskilling content





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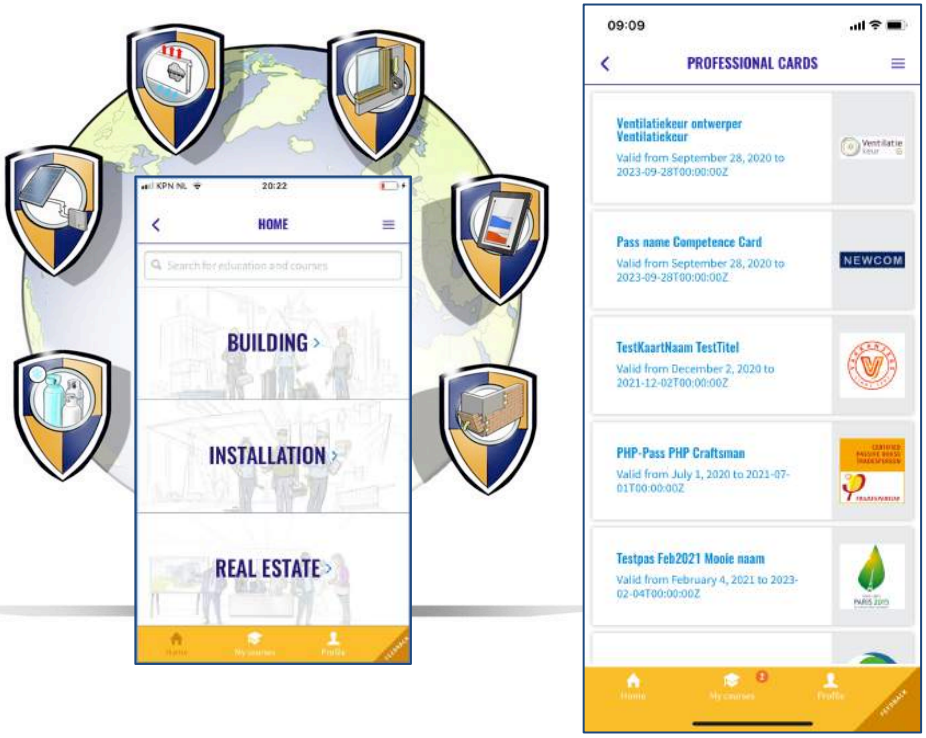
ULO's power Personal recognition



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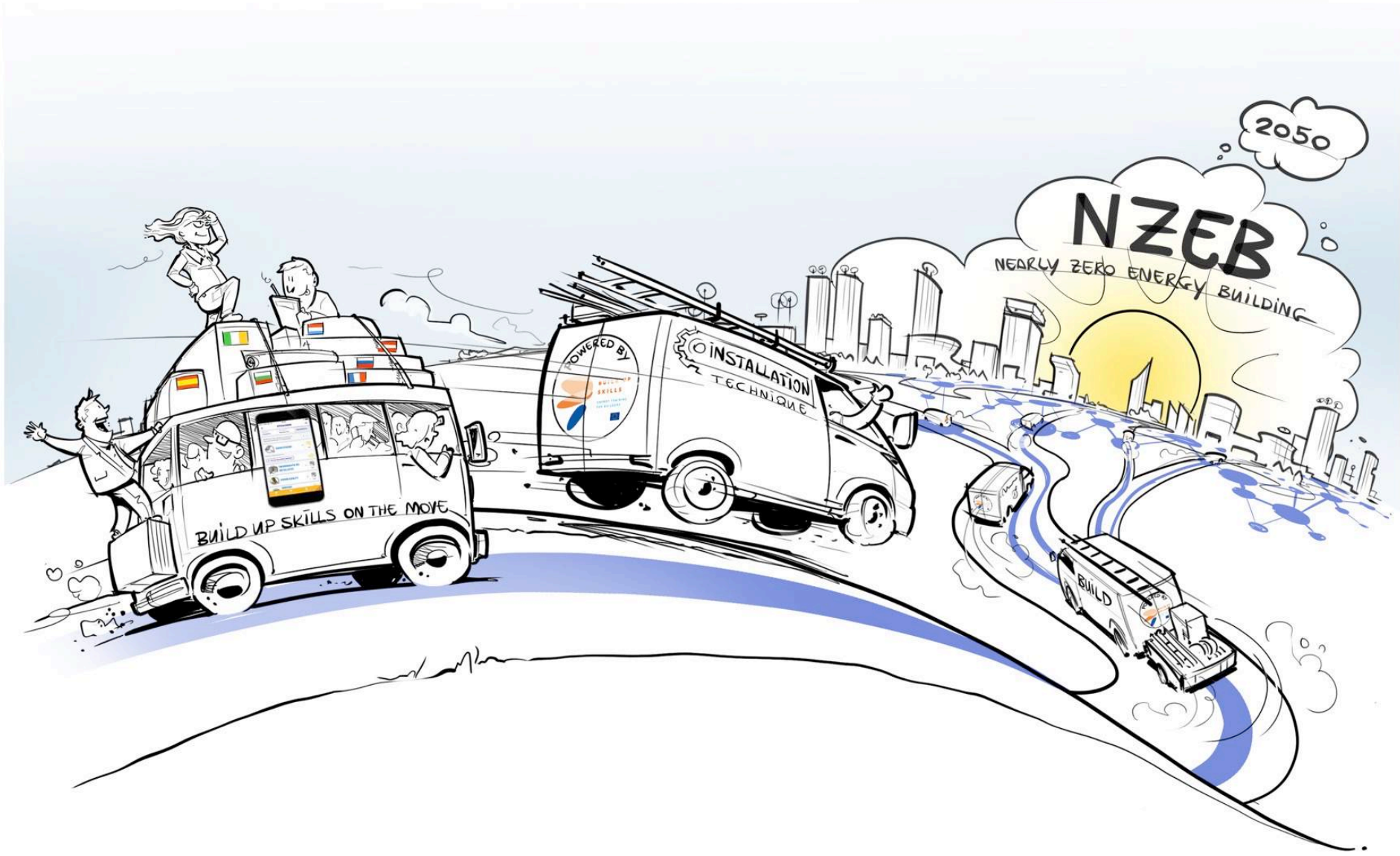
& LifeLong Development

BUS LEAGUE

ON THE MOVE!



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THE NZEB ROADSHOW

The nZEB Roadshow: Stimulating demand for skilled workers in the building sector

Horia Petran, NIRD URBAN-INCERC | Pro-nZEB Cluster

WORKSHOP Sustainable Energy Skills in the Construction Sector 3.0 | September 9th, 2022

Logic of the action

Topic:
Stimulation the demand for nZEB-relevant construction skills

Thesis:
No skills demand without demand for quality buildings

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

Goal:
To increase the understanding of the benefits of nZEB and skilled labour within the stakeholders' groups shaping the real estate market

Main results: mobile demo units

Design and build mobile housing units aiming at training visitors about: energy efficiency, materials and comfort;

Offer visitors the possibility to directly experience the high internal comfort;

Demonstrate real-time energy efficiency performances.

Main results: MUZA project, Croatia

Main results: gamification

Simplify the idea of nZEBs through games

Communicate and explain the basic principles of energy design of buildings

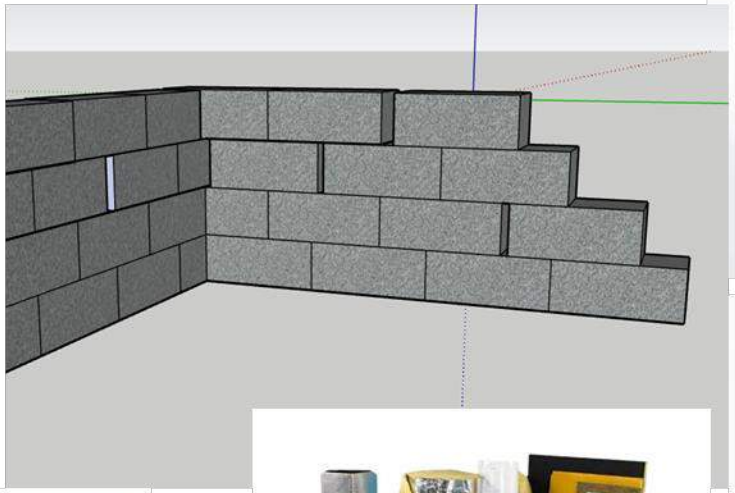
Get a rough result on savings comparing measurable data

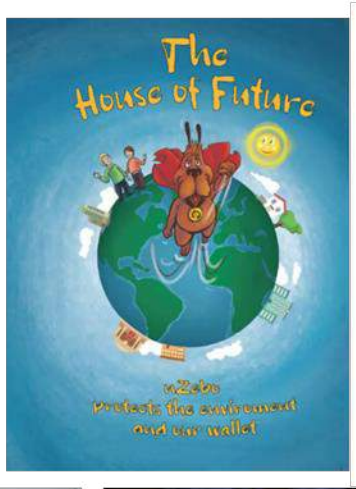
Explain how the buildings affect the environment

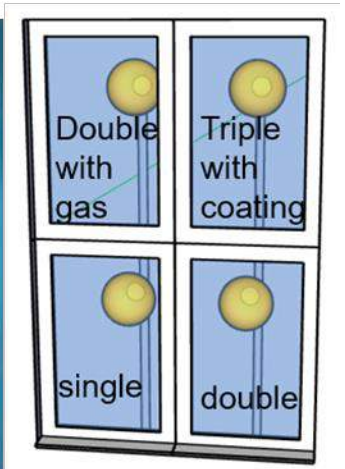
Main message: nZEBs are easy and achievable for everyone

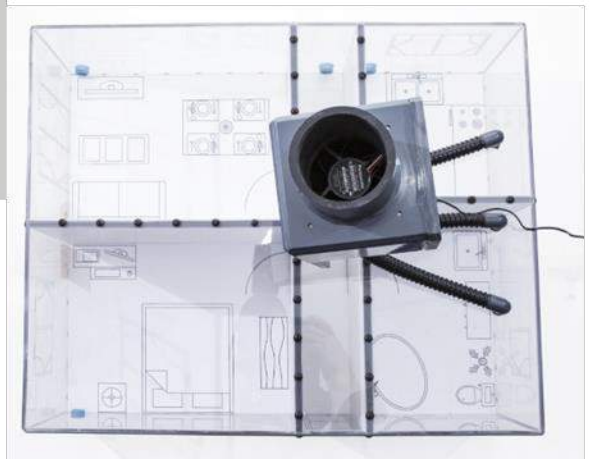
Main results: gamification

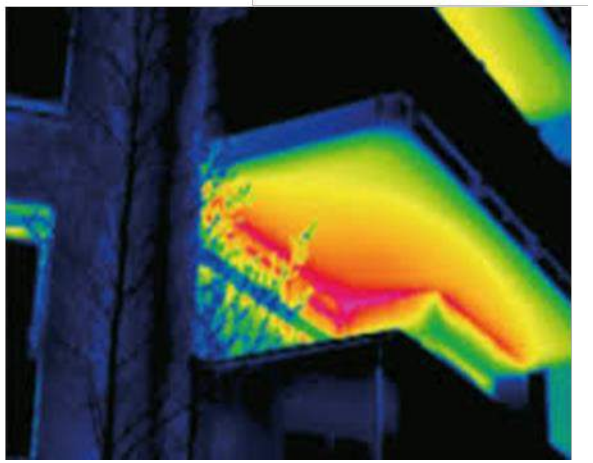
Mockups based on safe materials to give the opportunity to children to play with.











Main results: nZEB days

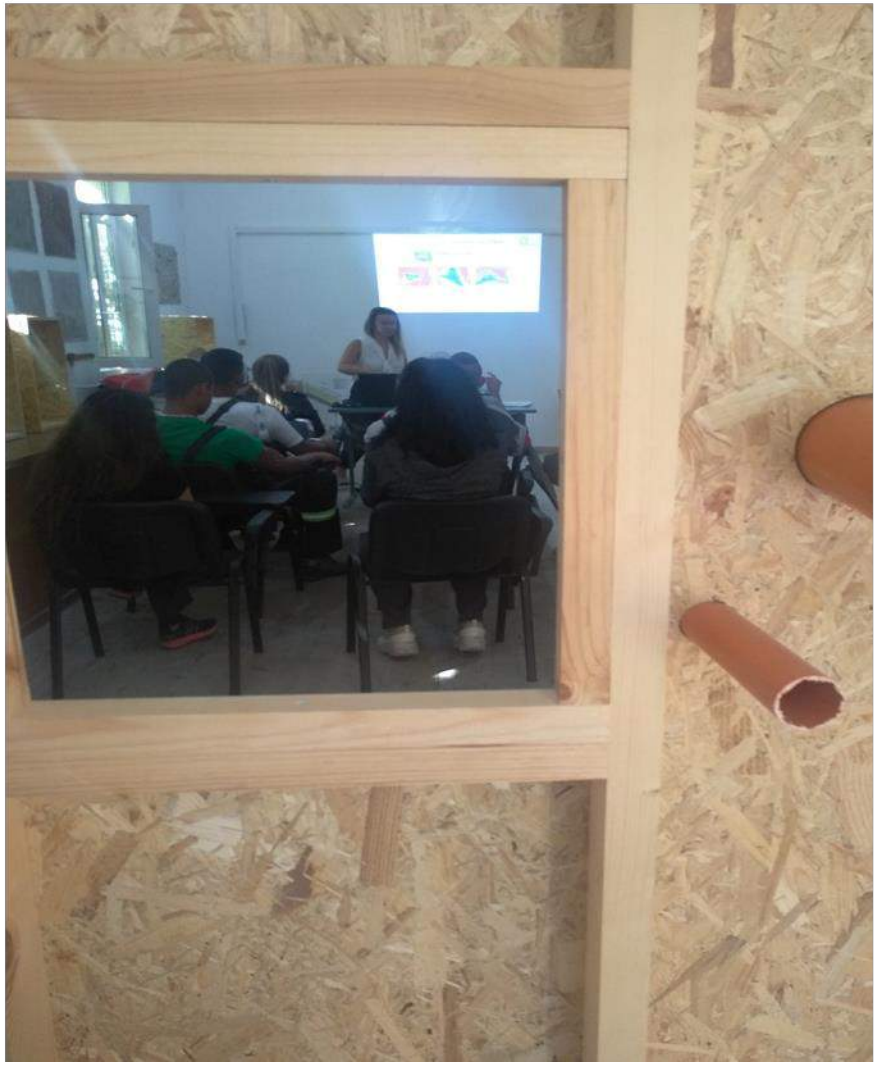
Coordinate the execution of the marketing and stakeholder engagement strategies

Rigorously apply the monitoring and evaluation scheme

Document and develop case studies of the national cases

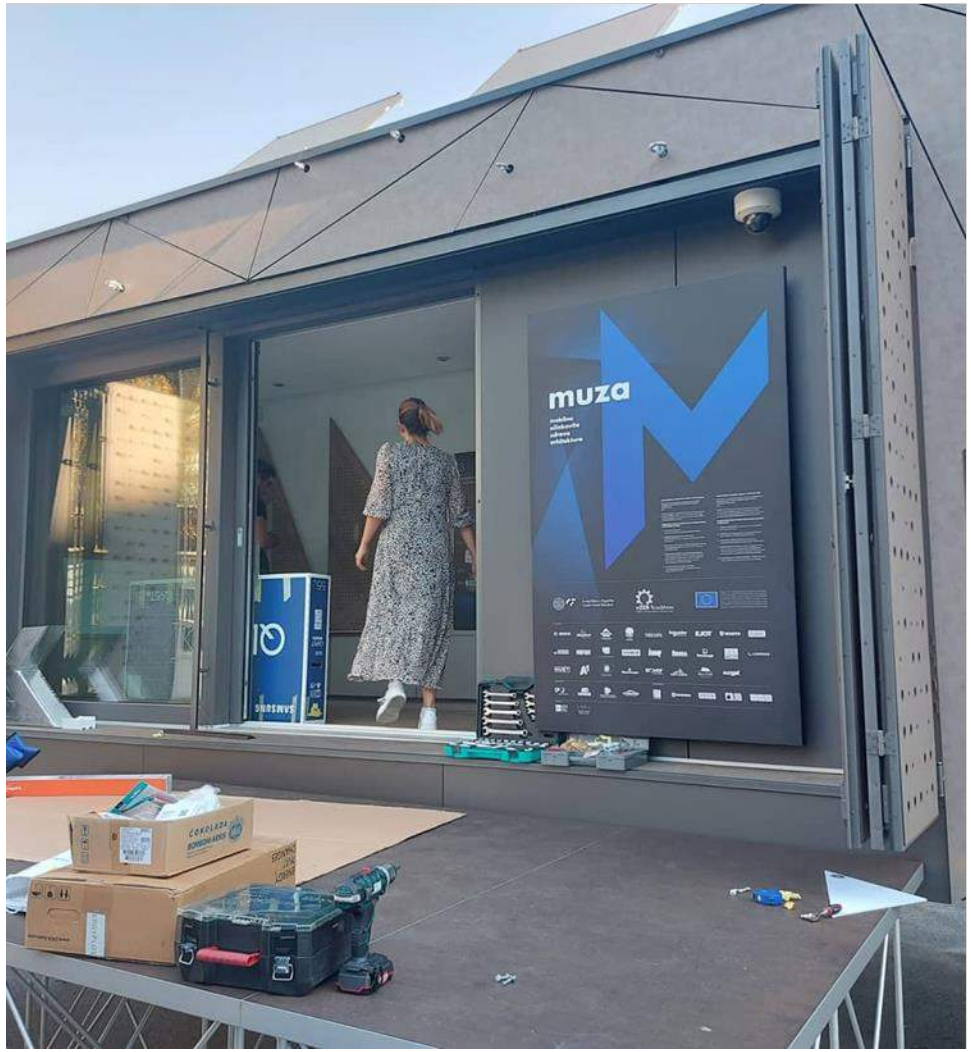
Deliver a monitoring report with recommendations for replication of the campaigns

Main results: nZEB days Bulgaria

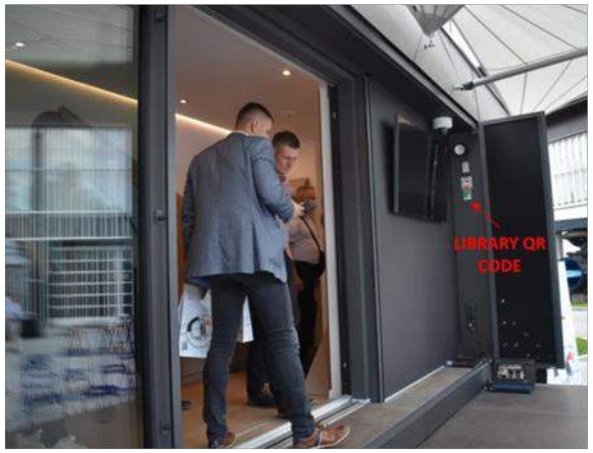


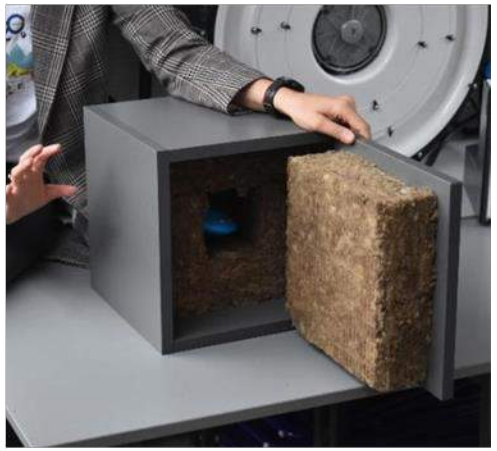
Main results: nZEB days Bulgaria

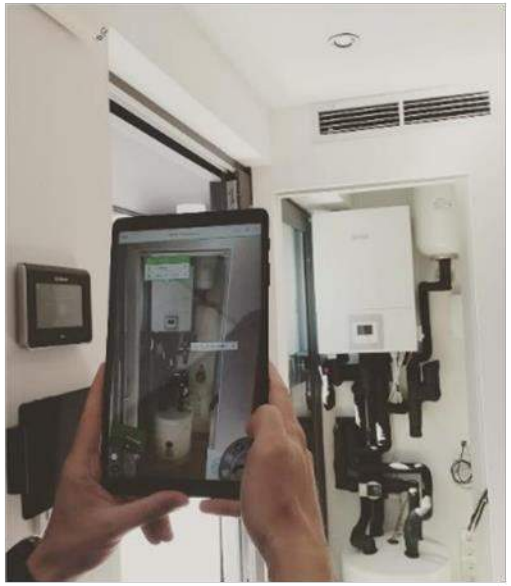
Main results: nZEB days Croatia



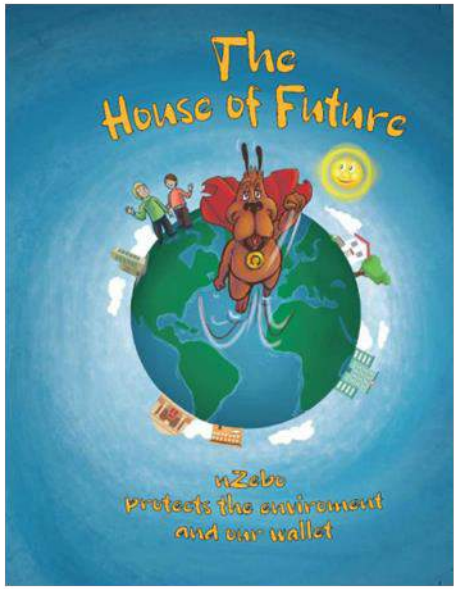
Main results: nZEB days Croatia

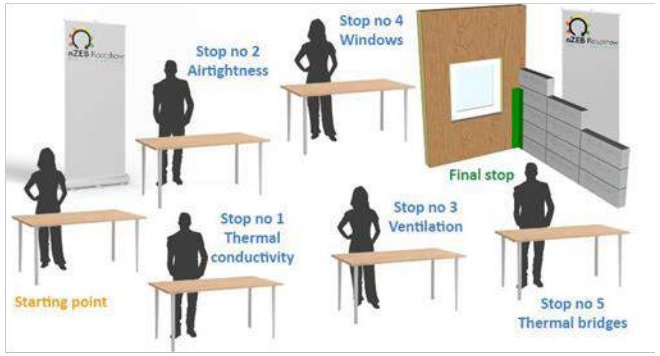




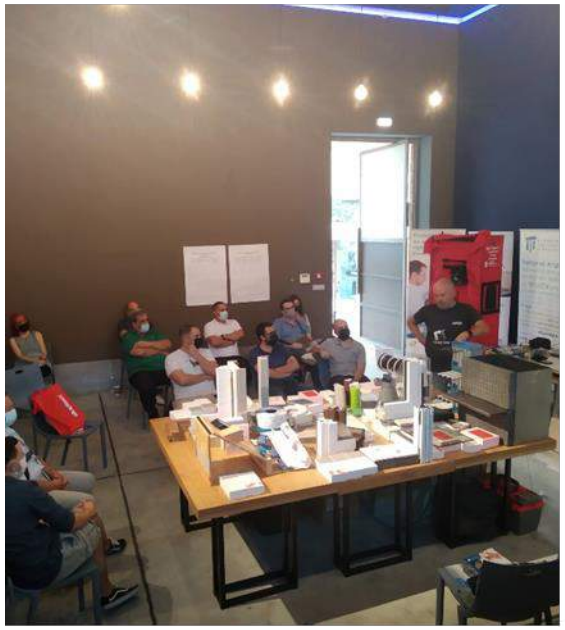


Main results: nZEB days Greece



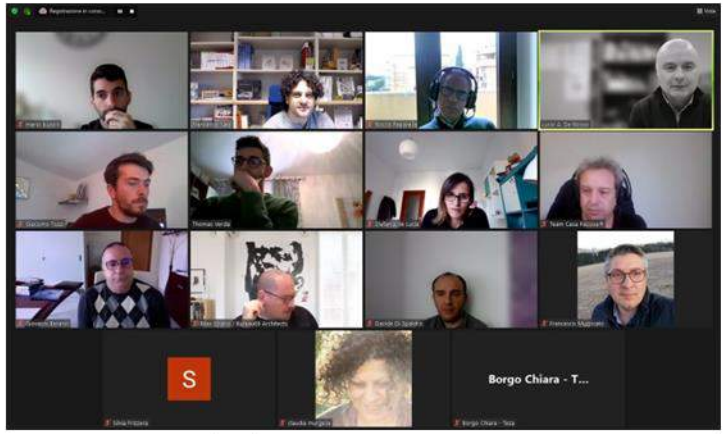


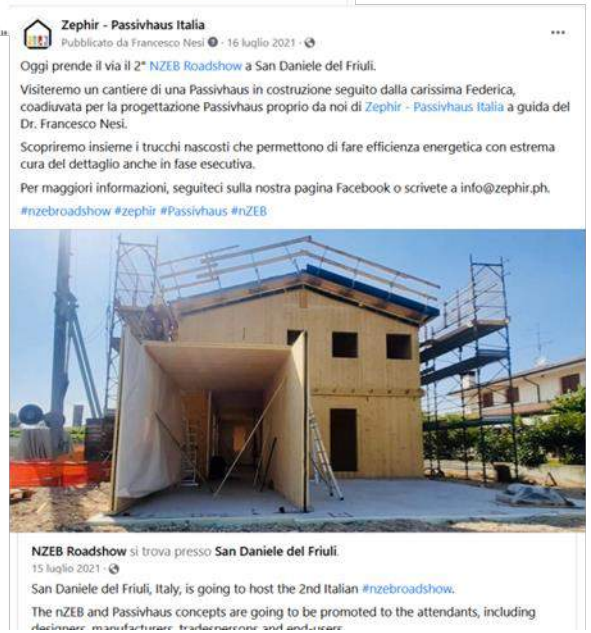
Main results: nZEB days Greece



Main results: nZEB days Italy

Main results: nZEB days Italy





Main results: nZEB days Romania

Main results: nZEB days Romania

Main results: nZEB days Romania

Main results: nZEB days Romania

Main results: nZEB days Romania

Main results: personal engagement

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Thank you for your attention!

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COORDINATOR:

PARTNERS:

Coffee break

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Sustainable Energy Skills in the Construction Sector Workshop 3.0

"Energy Efficiency Competencies and Qualifications: Sharing expertise, lessons learned and developed methodologies" - Project SEEtheSkills insider view

Prof. Lihnida Stojanovska-Georgievska,
University Ss Cyril and Methodius - UKIM, North Macedonia
SEEtheSkills, Project Quality Assurance Manager
lihnida@feit.ukim.edu.mk

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SEEtheSkills' - actions toward sustainability of construction

Topics covered:

- ✓ Where is SEEtheSkills now with realization of project objectives
- ✓ Lessons learned from so far actions
- ✓ Defining specific approach for further activities
- ✓ Planed innovative products

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SEEtheSkills' - actions toward sustainability of construction

First in-person meeting of the team, Barcelona 29-30 June 2022
Visit of a site for preparation of concrete from recycled construction material

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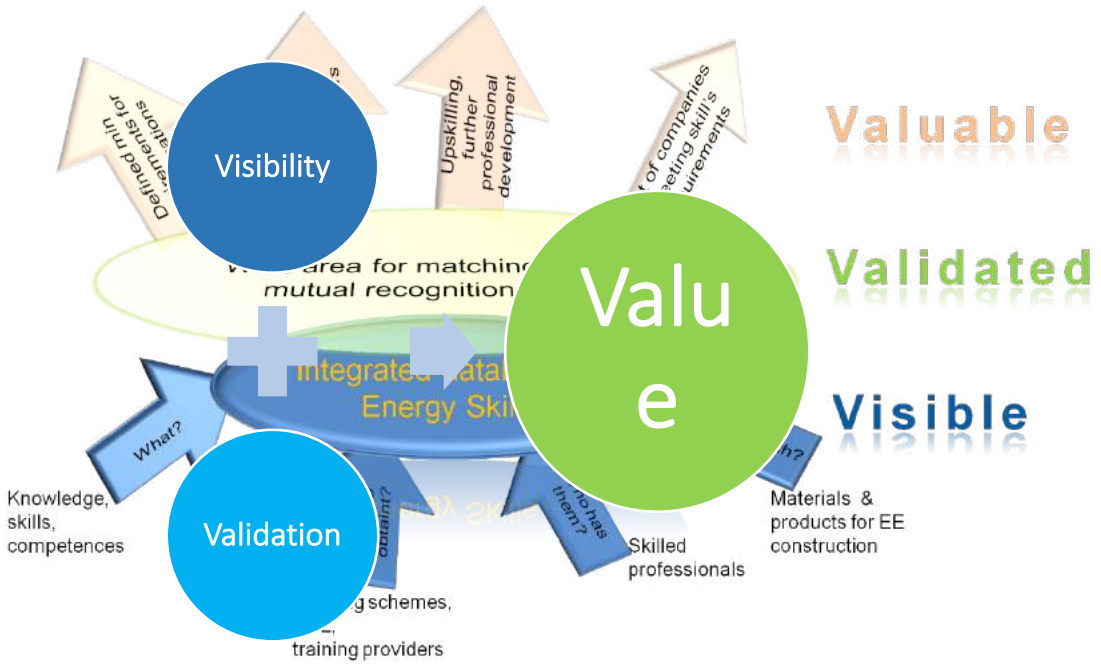
Connecting the three SEEtheSkills objectives

The 3V approach



O1 To make skills **VISIBLE** through whole value chain in building sector by implementing **Integrated register of energy skills**

O2 To **VALIDATE** skills relevance to standardized EE construction and interventions in renovation, by matching and levelling skills and linking them to national and EU qualification standards, to **enable mutual recognition**

O3 To emphasize skills **VALUE** in order **stimulating market demand for energy skills** in design, construction and maintenance of buildings and manufacturing and installation of EE construction materials

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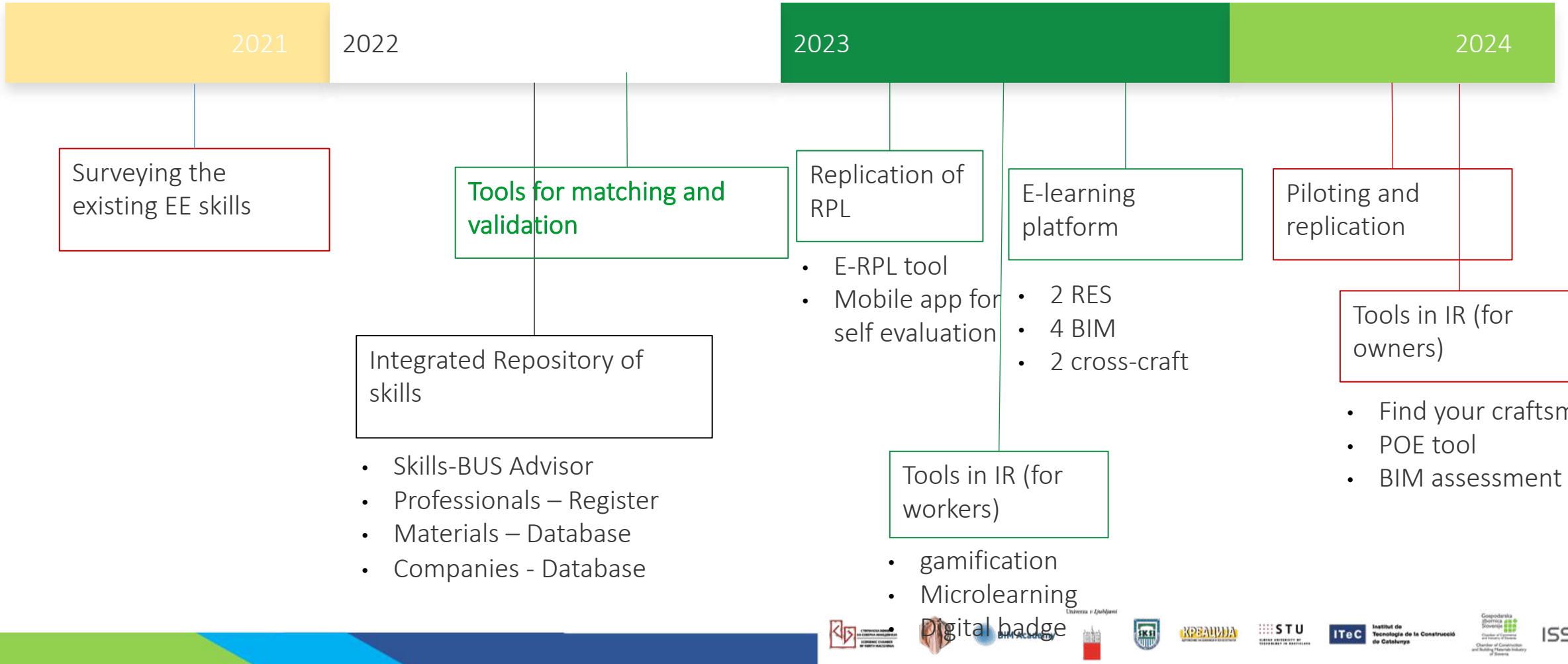
SEEtheSkills now – the timeline of realization of actions



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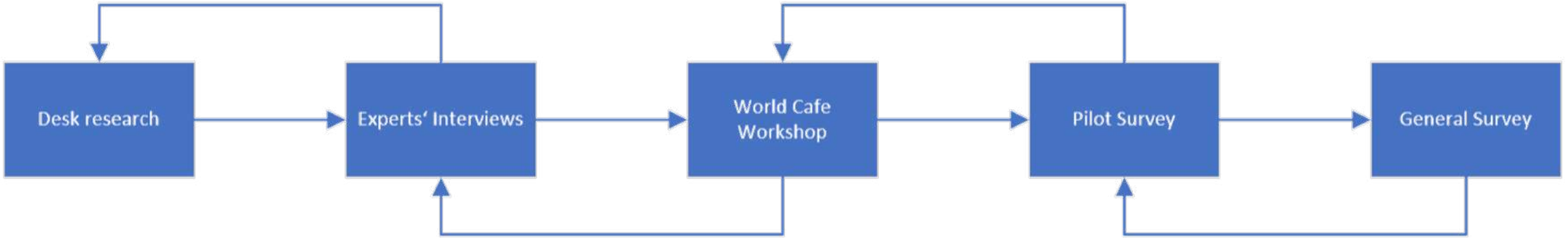
Lessons learned from surveying EE skills - -methodology for research



The key areas the research were focused on:

- Skills defined in national roadmaps
- Skills developed as part of previous BUS projects
- The developed training schemes
- The number of trained workers and professionals
- Companies who design and produce EE materials
- Status of Recognition of Previous Learning (RPL)
- Status of demand for energy skills
- Level of awareness of energy skills
- Available certifications
- Legal obligations promoting use of energy skills and their timelines
- Predictions for future development of energy skills

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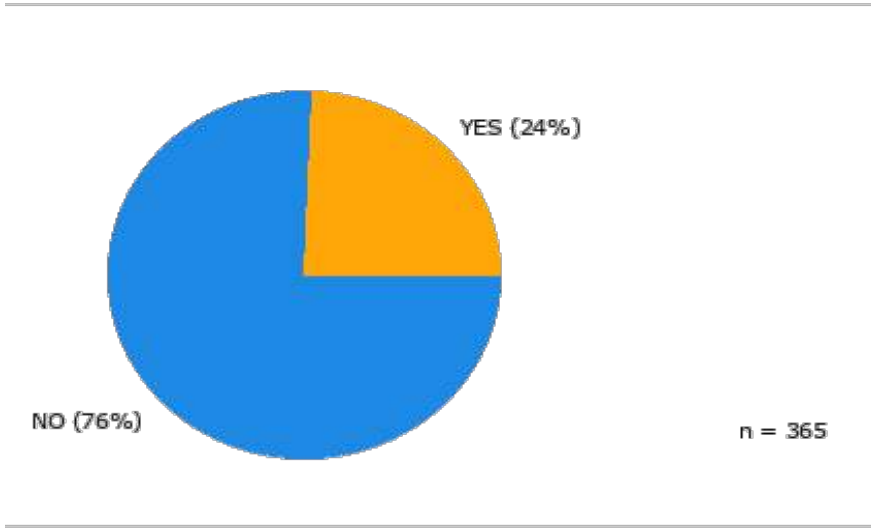
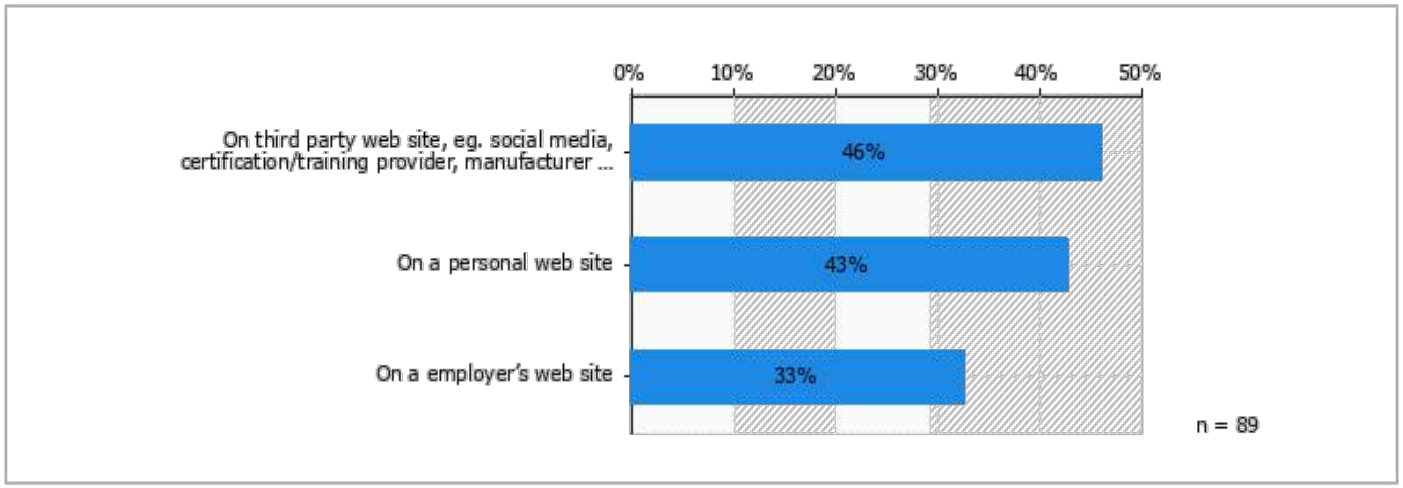
Lessons learned from surveying EE skills

- Lack of registers of skilled person – the need for VISIBILITY



Are your skills publically visible?



Where are the skills listed/announced?

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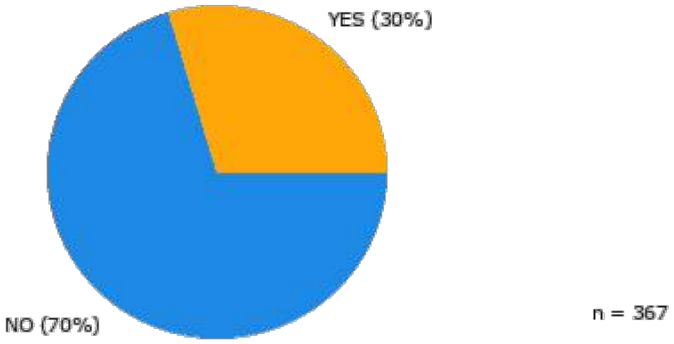
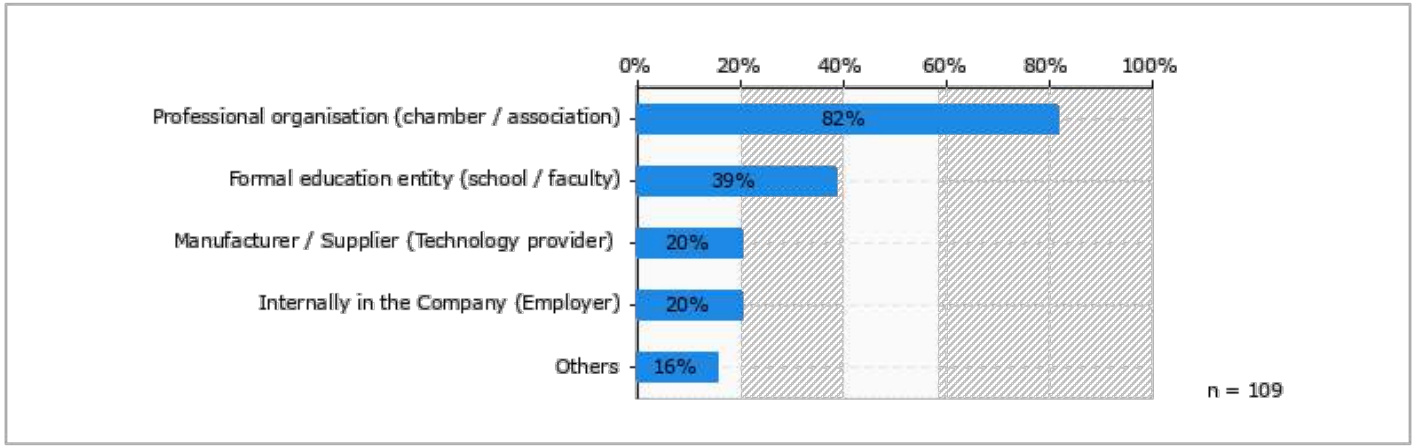
Lessons learned from surveying EE skills

- Lack of formal certification of skills– the need for VALIDATION



Do you have certificate for your skills?



Where do you build your skills?

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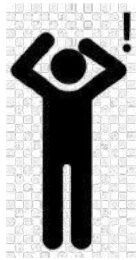
Lessons learned from surveying EE skills

- Crucial actions are needed to increase the AWARENESS of the VALUE of skills



When lacking EE and digital skills

-Only 33% will reskills existing employed workers
-Only 11% will redeploy existing workforce
-More than 50 % will hire external experts (skilled professionals)

Supporting the long term vision for supplying skills and skilled professionals

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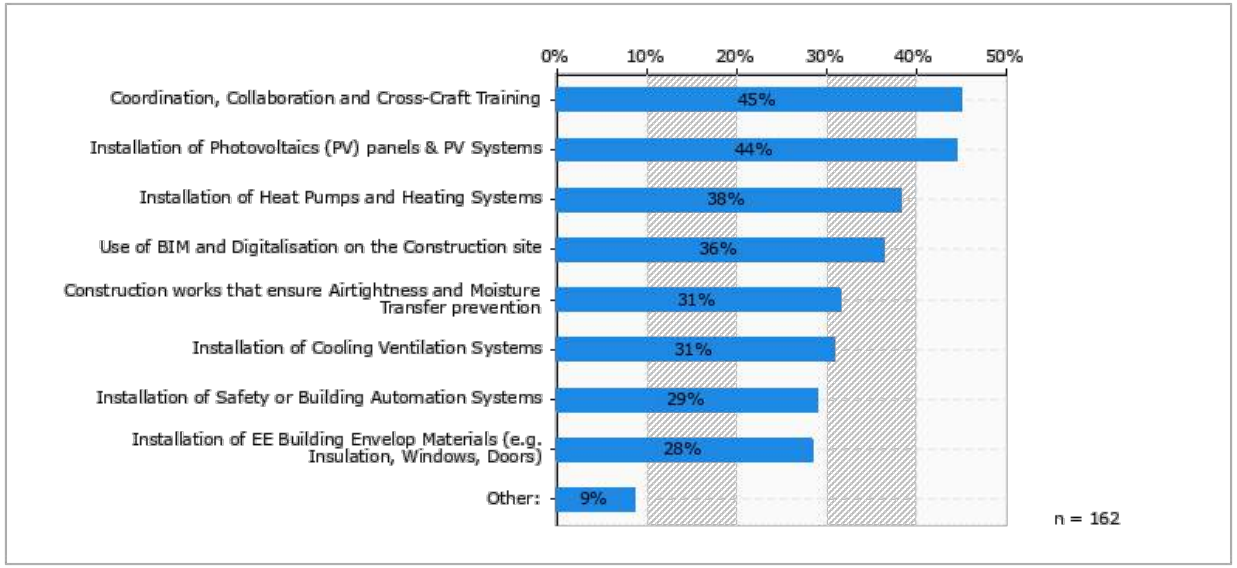
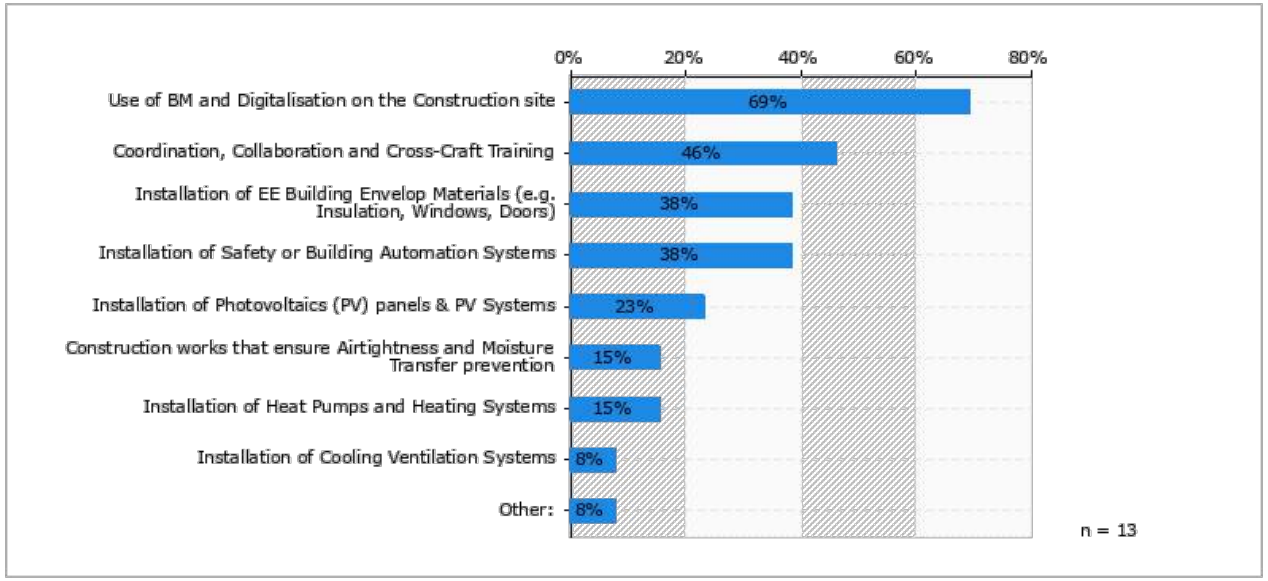
Lessons learned from surveying EE skills

- Identified scope of skills' need





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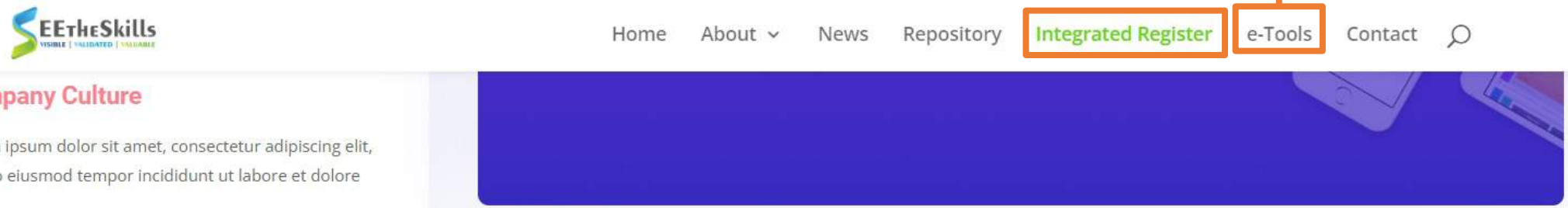
Developing Integrated Repository of EE Skills

Tool box



DATABASES

→ Go to Integrated Search Platform

Databases

Professionals

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VIEW DETAILS

Companies & EE materials

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VIEW DETAILS

Training Schemes

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VIEW DETAILS

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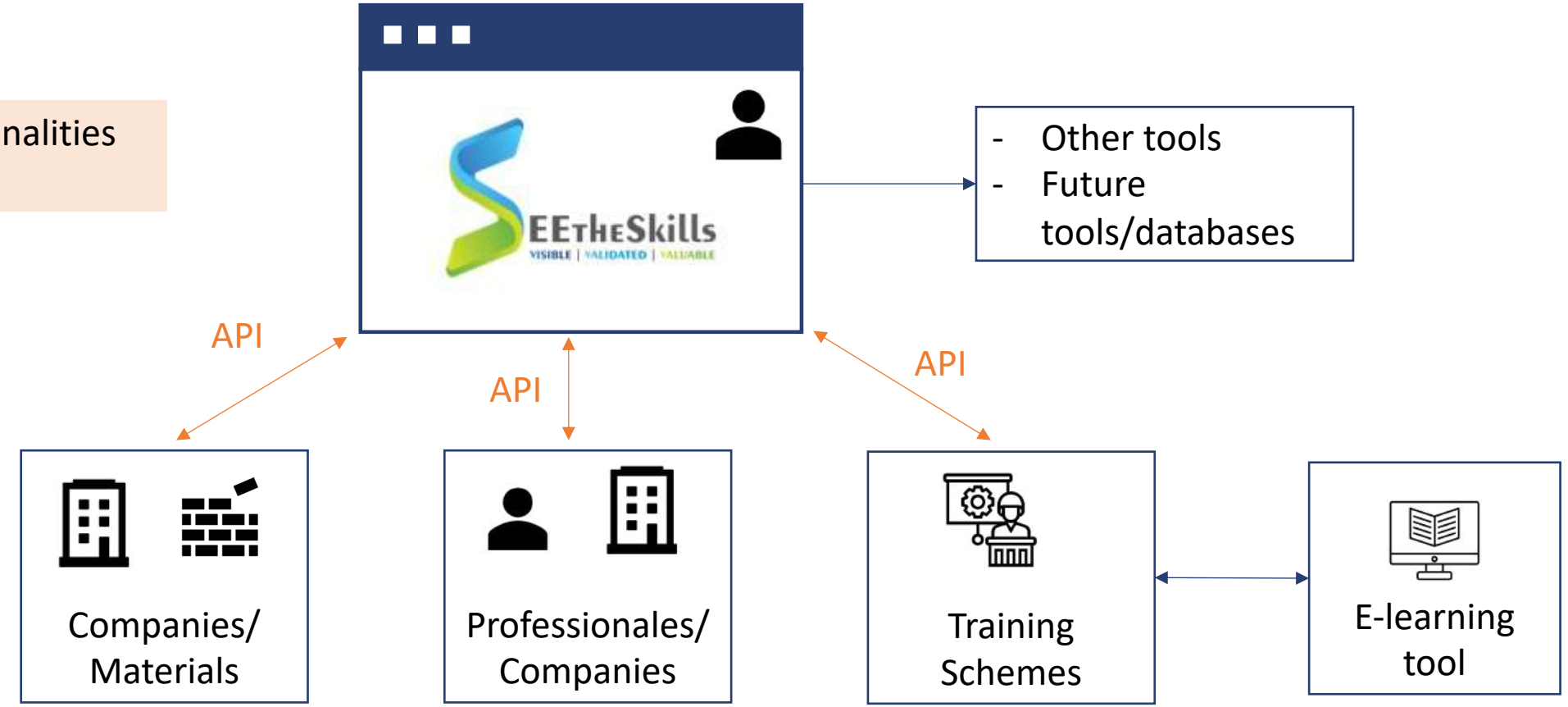
Developing Integrated Repository of EE Skills

Main functionalities in STS web



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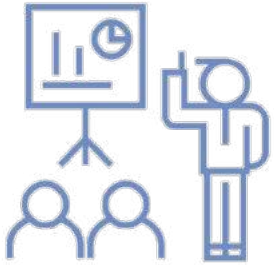
Defined approach for matching and leveling of skills

Defined procedure for mutual recognition,
comparison and leveling of **EE SKILLS OF PROFESSIONALS,**
based on achieved ULOs, by comparing with the **standard of minimum requirements**



Defined procedure for comparison of **different TRAINING COURSEs**
and matching the resulting qualifications,
based on planned ULOs, by proposed methodology for **mutual recognition of qualifications**

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Defined approach for matching and leveling of skills

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Two different approaches for skills validation

- **e-learning platform**, that will include the following e-trainings in form of webinars created by project partners:
  - -2 webinars on RES qualification
  - -2 webinars on BIM qualifications for blue collars
  - -2 webinars on BIM qualifications for white collars
  - -2 webinars on cross-craft skills qualifications

- **Creation of e-RPL tool.** The process of recognition of previous learning RPL, based on defined steps of identification, documentation, evaluation and certification adjusted as on-line process, including:
  - communication to identify the necessary skills
  - submitting documentation for evaluation
  - evaluation of submitted documents and
  - issuing certification

realized through web-based platform for e-learning. Besides the necessary documents to be filled by the applicants, the tool will include guidelines for explaining the process to ensure successful applications.

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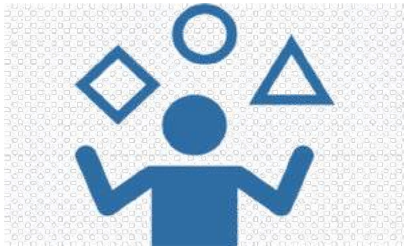
Further actions: The link between energy skills and the quality of construction

It can be easily presented by conducting case studies for measuring reduction of performance gap



Proper implementation of proposed EE measures with SKILLED workers

- proper insulation,
- avoiding thermal bridges,
- proper installation of dwellings,
- integration of RES in buildings
- sustainable design …..

Measurable energy savings

Promotion of the **value of energy skills**

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Further actions: The value of energy skills

The tools used to express these benefits are usually digital tools like BIM

By using BIM modelling, different scenarios for reduction of performance gap while implementing EE measures can be proposed.

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SEEtheSkills outputs with innovation potential

No	Innovative solution
I1	Integrated repository of energy skills a) Database of training schemes b) Database of skilled workers c) Database of EE materials
I2	e-RPL tool
I6	POE web tool

HORIZON RESULTS BOOSTER

SEEtheSkills
VISIBLE | VALIDATED | VALUABLE

SUSTAINABLE PLACES 2022
Sep. 6 - Sep. 9, 2022 | Nice, France

SUSTAINABLE ENERGY SKILLS IN THE CONSTRUCTION SECTOR WORKSHOP 3.0

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INTENSE PROMOTION !!!

INCREASED VISIBILITY !!

EASY UPTAKE OF RESULTS !

VALUABLE IMPACT

BIM Academy · STU · ITeC Institut de Tecnologia de la Construcció de Catalunya · ISSO

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Thank you

www.seetheskills.eu

info@seetheskills.eu

SEEtheSkills – EU Project

@seetheskills

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SP2022 | ENERGY SKILLS WORKSHOP 3.0

"ENERGY EFFICIENCY COMPETENCIES AND QUALIFICATIONS: SHARING EXPERTISE, LESSONS LEARNED AND DEVELOPED METHODOLOGIES".

Paul McCormack

9th September 2022

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033864.

AGENDA

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- Digitalisation of construction why?
- Digitalisation approach
- Digitalisation transition
- Construction transformation
- Skills exchange mechanism
- Task based skills
- Benefits
- Challenges

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DIGITAL CONSTRUCTION

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Digital skills – and digital technology – are the future of the construction sector

Why? By embarking on a digitalisation journey, companies can automate and have integrated data that saves significant time, enables workers and delivers increased return on investment.

Construction companies are able to link processes across the entire value chain, integrate data and remove old silos. The result, it delivers much needed visibility across the entire construction process

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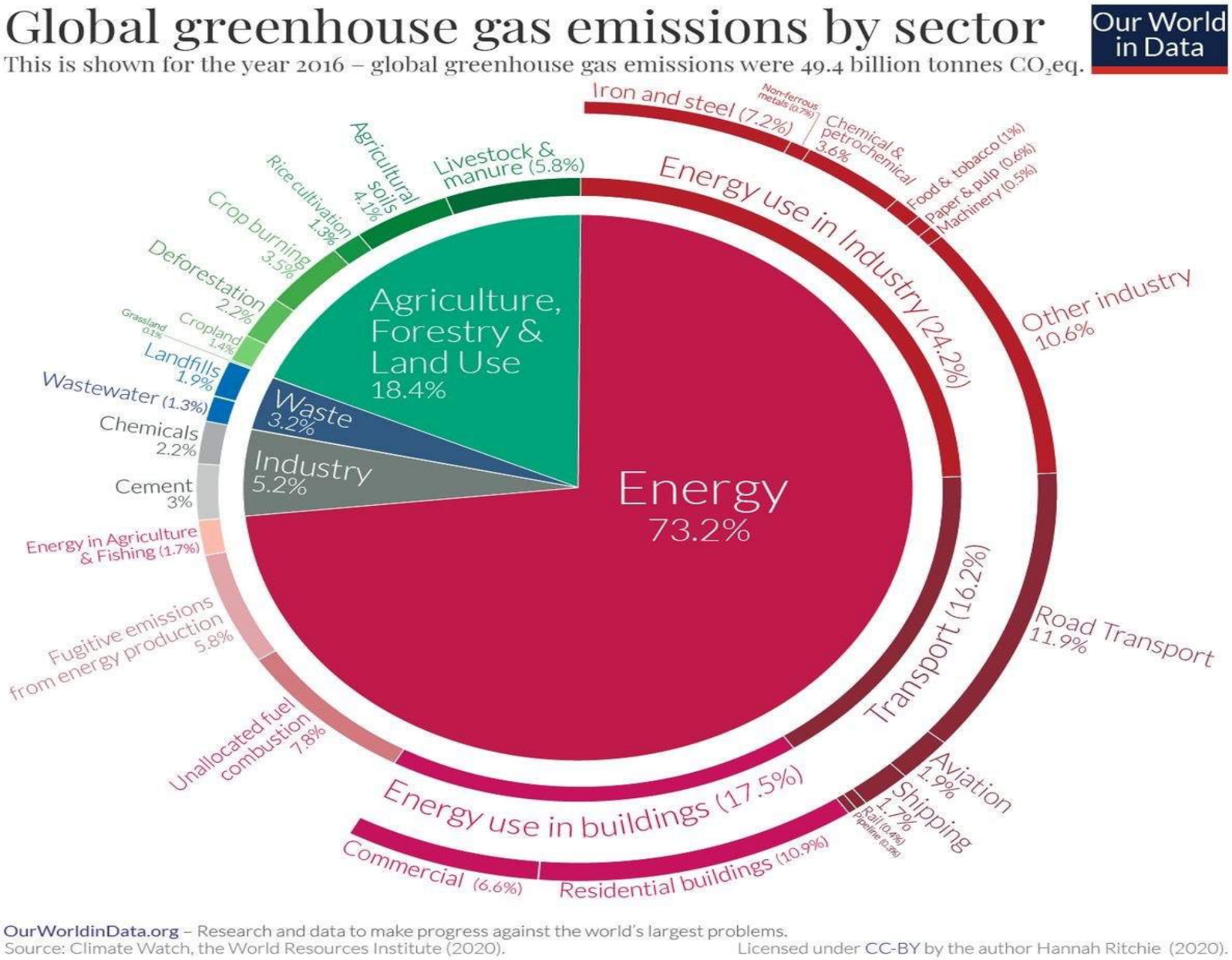

Global Challenge

In order to achieve climate neutrality by 2050, the design and construction workforce must be up-skilled to deliver comfortable, energy efficient and high quality buildings, while evolving in digitalising their work.

DIGITALISATION APPROACH

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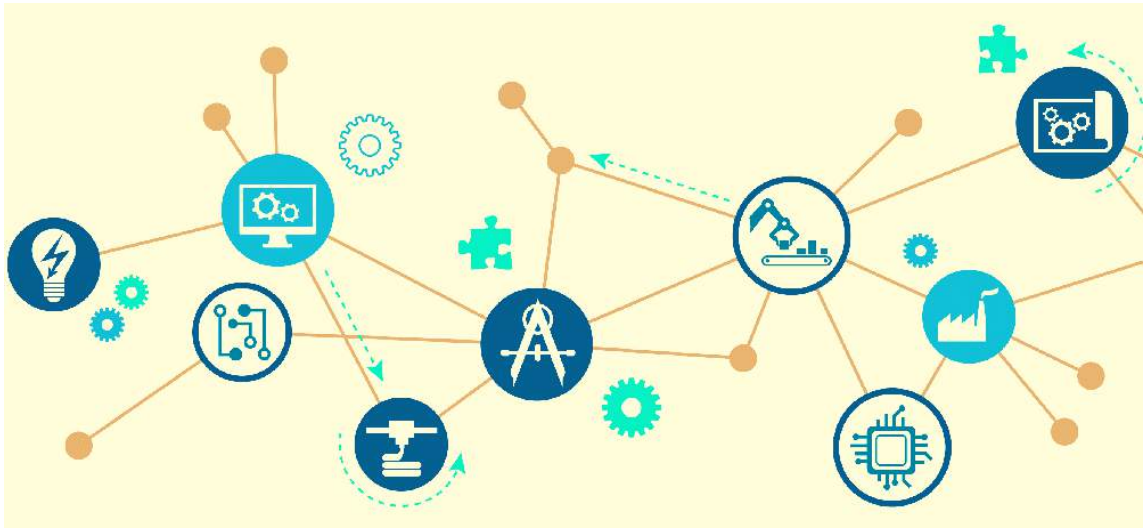
1. Energy efficiency - is no longer matter of why, but how –
2. **Digitalization as the unavoidable and necessary tool to leverage clean transition of the energy sector, reshaping it towards the future targets and expectations**
3. How do we get there : SKILLS - we need to have all stakeholders upskilled in digital supporting sustainable energy, in a triple helix model - synergy of public administration, industry, society.
4. ARISE Union of over 100 partners from 24 countries, having over 10 years of experience; digital delivery of micro modules, individual learning accounts, digital passports, international transferability and appreciation of skills, field tested and confirmed measurable (GWh, EUR) impacts, in: increased energy performance (cost effective reduced consumption in all life cycle phases), improved share of energy generated from clean renewable sources, reduction of gap between designed and achieved and maintained performance of buildings.



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DIGITAL UPSKILLING

- Energy transitions in the construction sector are primarily driven by a skilled workforce
  - digitalisation can be harnessed to stimulate and empower all workers in the built environment.
  - a learning interface of micro modules, segmented accreditation and digitalised individual learning accounts will provide accelerated access to learning for the education sector
  - a dual pathway of reward exchange of certification and/or recognition will increase the vocational mobility and opportunity for workers in the sector

Digitalisation Transition

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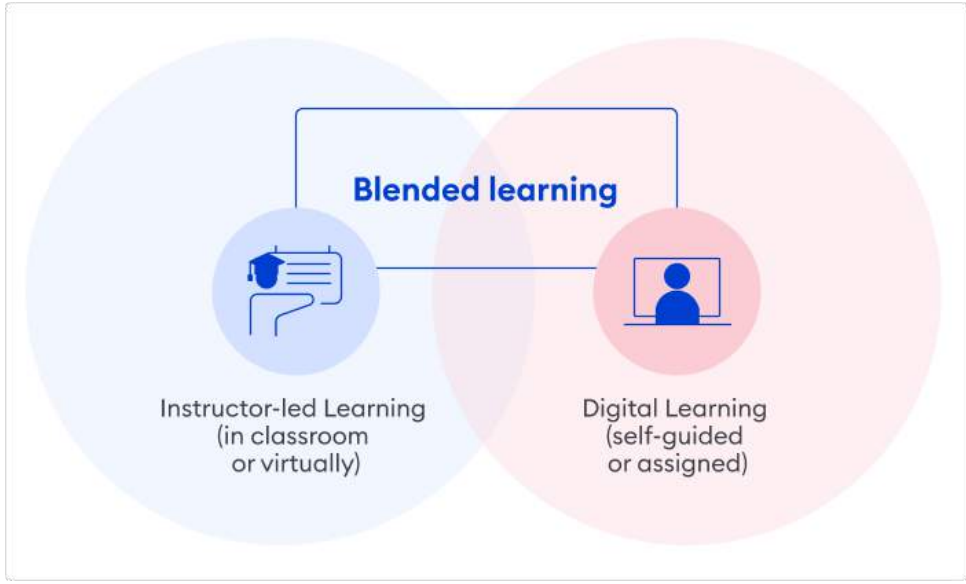
The ARISE methodology utilizes a structured blended accreditation and digital delivery/certification model for vocationally excluded building professionals with a specific focus on the engagement of those caught in the skills/qualifications void.

Using segmented course content, ease of access and innovative delivery and a choice of recognition and/or accreditation is a genuinely innovative circular approach to delivering training and raising the skill levels for those beyond traditional learning access routes.



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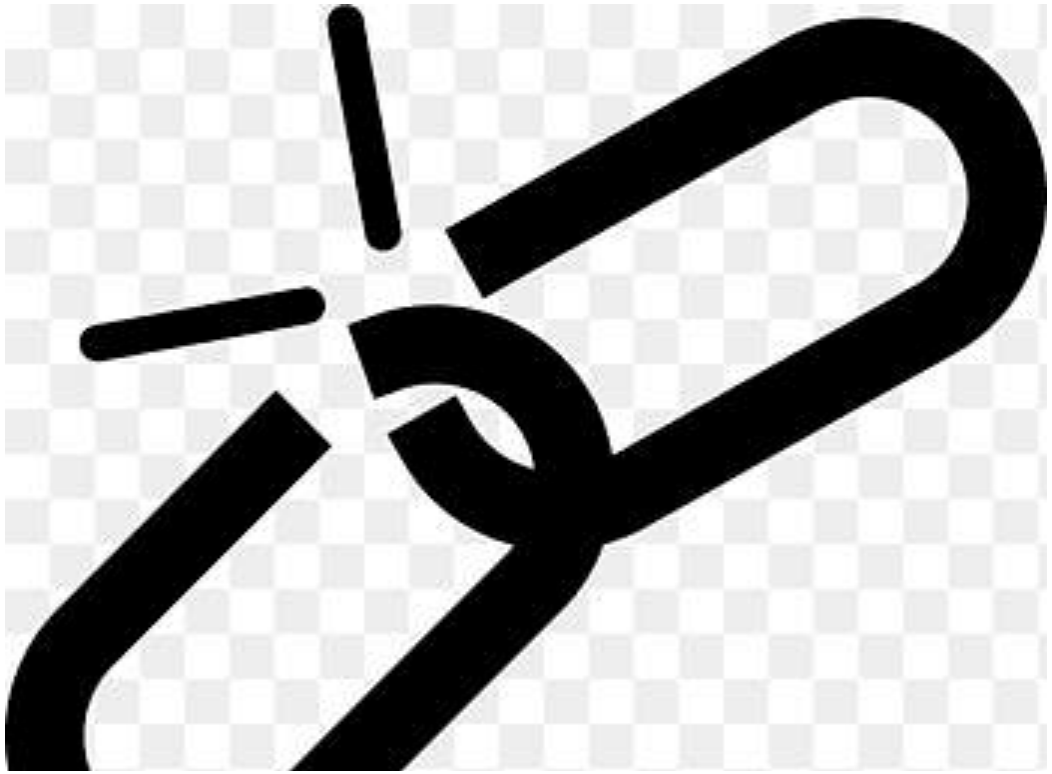
DISCONNECTION



- Despite significant progress in digitalisation at planning and design stages of built assets, activities on-site have frequently not evolved. This results in ongoing low productivity, high costs, and energy-related inefficiencies. The same failure has also led to the ‘disconnection’ of Blue-Collar and No-Collar construction workers from the evolution of the industry.

DIGITAL DISSONANCE

- Digital information is essentially the wavelength of construction
- But is currently beyond the ability of the majority of the construction workforce because they lack the opportunity, skills and digital vision to detect, interpret and use in their work.
- Digital Literacy is key

Skills Innovation

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Through a highly innovative approach the projects are deploying system coupling methodologies and approach encompassing;

1) Skills delivery method;
2) Learning accounts transaction and recognition;
3) Matrix of skills maturity, leading to new qualifications and jobs,
4) Profession –based learning content,
5) Impacts of skills on buildings' energy performance,
6) New market and regulatory models of skills demand and
7) Stimulation of investments in high energy performance buildings.

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Construction Transition

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- Building Information modelling (BIM) involves the production, development and management of digital 3D construction models in collaborative work flow involving designers, contractors and facilities managers.
- Whilst the UK government introduced a mandate for the use of BIM on its construction projects in 2016, the benefits of BIM are recognised across the industry with increasing uptake.
- Central to the BIM process is the development and exchange of information models within a Common Data Environment (CDE), an online space of storing, sharing and managing information. Whilst the skills required to develop the information models are discipline specific, all members of the construction process will be required to access the CDE.

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Skills Exchange Mechanism

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- Digitalisation in construction from the 4 projects;
- utilise a circular economy approach specifically utilising digital skills stimulation and delivery across the entire building life cycle and assets to decarbonise the complete energy cycle.
- This approach harnesses the market drivers from the demand side and matches these with impact targeted strategies and objectives required to achieve comprehensive success.
- This plural approach represents a multi faceted approach to tackle the carbon footprint of the construction sector.
- Pioneering training scheme and a powerful socio-economic cross sectional influencer, affecting the multiple sectors of education, industry, market and policy by delivering a dynamic training and market uptake model."

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Digitalisation Skills Exchan

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Digitalisation of Skills is;

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

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

3. Changing 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 - *CERT*coin – the innovative currency of skills and learning of the construction sector embracing today's digital transformation benefits.

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THE CONNECTIVITY IMPERATIVE

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- Skills connectivity is key, ensuring workers are equipped, informed and skilled to deliver energy efficiency across the building sector. Connectivity will stimulate and inspire the demand for sustainable energy skills, augment access to appropriate upskilling transactions, recognition of upskilling, enhance smarter work practices and develop transformational competences.

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SKILLS PATHWAY -
delivering the internal and external connectivity

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- The skills exchange
- Skills quantification
- Skills energy quantum
- Energy algorithm
- *digi*CONEX

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OUR CHALLENGES?

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- The **purpose** of this event is to facilitate an interactive discussion between policy makers, academics/ educators and students/ professionals from the design and construction industry by encouraging them to reflect on accomplished EU projects on capacity building.

1. How can construction education be influenced to contribute to climate neutrality and digitalisation at the same time?
2. What does it really take to bring everyone on board and accomplish the green deal together?
3. What did we learn from past projects and what do students and professionals need to thrive?

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TIBL -LEARNING

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Digitalisation and need has ensured that training and learning constantly neds to evolve

Task and impact based learning

Current tradition learning methodologies do not allow us to predict or guarantee what the students will learn.

Ultimately a wide exposure through task and impact based learning is the best way of ensuring that students will acquire knowledge efficiently and effectively..

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KEY RECOMMENDATIONS

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Training that is supported by digital platforms, gamification, and quality interventions support better delivery toward delivery against climate targets.

- Digital is the New Normal
- Digital has become central to every interaction, forcing both organizations and individuals further up the adoption curve almost overnight.

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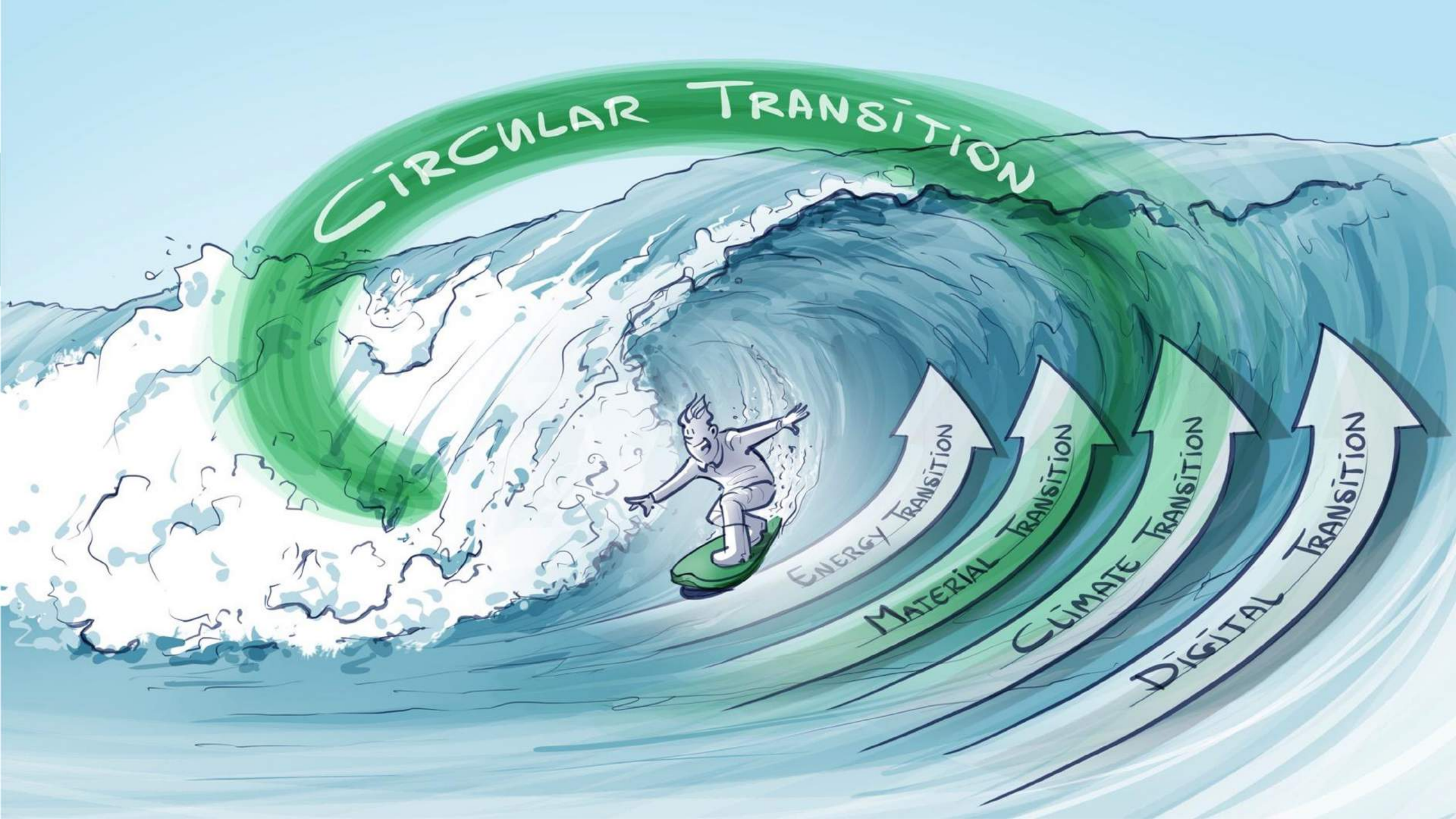
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033864.

ISSO

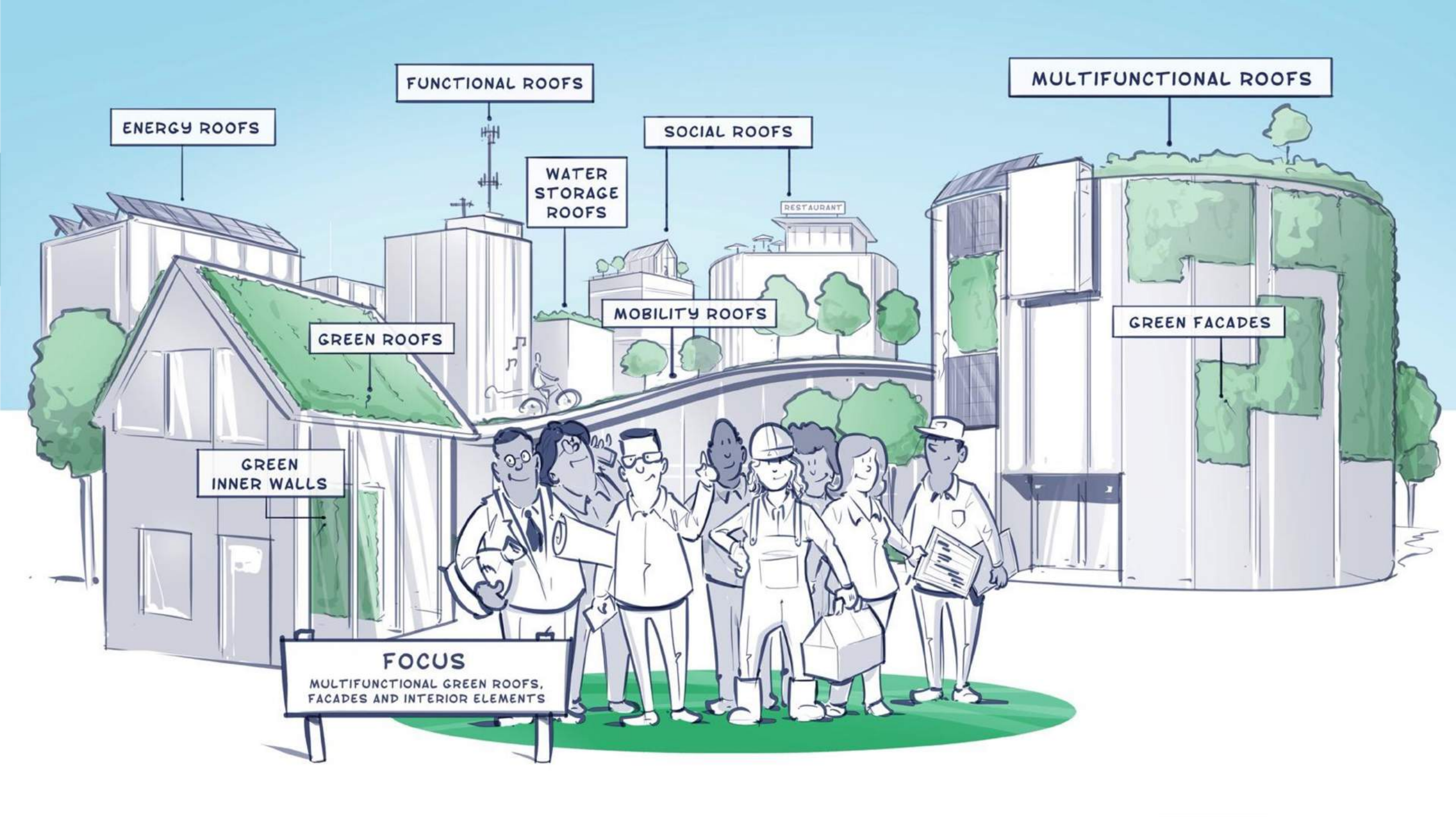
Jan Cromwijk, Project Coordinator

BUS GoCircular

Shaping a **Circular Sustainable Future**


Circular Transition
Energy Transition
Material Transition
Climate Transition
Digital Transition


FOCUS
MULTIFUNCTIONAL GREEN ROOFS,
FACADES AND INTERIOR ELEMENTS


ENERGY ROOFS
FUNCTIONAL ROOFS
WATER STORAGE ROOFS
SOCIAL ROOFS
MULTIFUNCTIONAL ROOFS
RESTAURANT
GREEN ROOFS
MOBILITY ROOFS
GREEN FACADES
GREEN INNER WALLS
FOCUS
MULTIFUNCTIONAL GREEN ROOFS, FACADES AND INTERIOR ELEMENTS


CHAIN COLLABORATION
RETHINK THE BUSINESS MODELS
DIGITALIZATION
STRETCH THE LIFETIME
RECOGNIZE & MEASURE
HIGH QUALITY REUSE
DISMOUNTABLE & MODULAR
STRENGTHEN KNOWLEDGE


CERTIFICATE
DEVELOPING A CIRCULAR CONSTRUCTION SKILLS QUALIFICATION FRAMEWORK

Skills Mapping

Why?

- Skills mapping to **better understand the skills gap** existing within the construction industry in relation to Circular Economy and MGRFIE.

How?

- By **interviewing frontrunner professionals** and asking them to rate their **current and future skills levels** based on a skills levels table and a skills table.

Professions and trades

Step 1 – create a list of professionals which relate to sustaining the built environment while applying circular principles.

- Circular Economy for sustaining the built environment

Reference Profession / Trade	Enter national name for profession / type of profession	Definition of the professions (proposal, change if necessary)
Architect	Architect / building designer, project manager, building construction manager, director of the execution of the works, urban architect, structures' calculist, health and safety coordinator, Building Energy Auditor, Building Energy Chief Auditor) technical architect	Architects investigate, design and oversee the implementation of buildings taking into account functional, architectural, aesthetic, structural, technical, regulatory, cost and contextual requirements with due regard to public health and safety.
Civil Engineer	Designer, Mechanical engineer, Electronics engineer , Electrical engineer, Structural/Building/Installations engineer, Energy engineer, Management engineer, technical engineer	Designer of materials and structures, considering the limitations imposed by practicality, regulation, safety, and cost. Specialization is possible on topics like construction safety, thermal performance, acoustics, building physics.
Mechanical Engineer	Energy engineer, Multifunctional use for solar PV / Urban wind turbines	Designer of materials and systems for HVAC and sanitary equipment, considering the limitations imposed by practicality, regulation, safety, and cost.
Electrical Engineer	ICT engineer, Building automation engineer, Sensoring and Building Management Systems	Designer of power, lighting, data and or communication installations, considering the limitations imposed by practicality, regulation, safety, and cost. Designer of building automation systems, system engineer / system integrator, considering the limitations imposed by practicality, regulation, safety, and cost.

Skills

Step 2 – Create a list of skills

These skills have been split into:

- Circular Economy for sustaining the built environment specific skills
- Skills relating to sustaining the built environment when working towards circularity
- Skills relating to Multifunctional Green Roofs Facades and Inner Elements when working towards circularity

Skills relating to sustaining the built environment when working towards circularity

	Not specific to Circular Economy	Including all relevant skills involved in Circular Economy but not necessarily specific to CE within the construction industry.
	Preserve and extend what is already made	
PE1	Maintenance of building components	Share information and knowledge on how to maintain building components e.g. DIY painting. Knowledge specific to maintenance work.
PE2	Upgrade of building components	Use expertise to upgrade elements. Knowledge specific to maintenance work.
	Use waste as a resource	
UWR5	Grey Water Collection and Use	Understanding/use of closed and open loop knowledge of water (Closed loop - all resources created or used are kept within a continuous cycle. Open loop - not all resources created or used are kept within a continuous cycle)
UWR6	Rain Water collection and use	Rainwater harvesting to be used for certain applications e.g. washing, toilets, gardening.

Circular Economy for sustaining the built environment specific skills

	Specific to Circular Economy	Table including all relevant Circular Skills either solely related to Circular Economy or prominently related to CE.
DF	**Design/Build for the future**	Designing for building adaptability and to design for extended future use.
DF1	Design/Build for Reuse	Designing for easy dismantling and re-use of built elements, equipment or materials.
DF2	Design/Build for repurpose of materials	The use of Circular materials. Reuse, recycle and repurpose of all materials in construction.
DF3	Apply material passports	Apply material passports to enable more timely upgrading and life-time extension.

Skills relating to MGRFIE when working towards circularity

	Circular Economy specific to MGRFIE	To include all relevant CE skills which relate directly to MGRFIE specifically.
MF	**Multi-functional Green Roofs Facades and Interior Elements**	The design, construction and maintenance of MGRFIE.
MF1	Solar power systems for electricity generation	Installation, maintenance and electricity production.
MF2	Solar thermal systems for domestic hot water and/or heating generation	Installation, maintenance and heat production.
MF4	Insulation Installation	More efficiently use thermal energy e.g. insulation and draught-proofing, The use of building materials with lower thermal conductivity coefficient ideally with reused, recycled, regenerative or bio-based materials.
MF5	Establishing the cooling and heating function of green roofs	In depth understanding of cooling and heating systems (Micro Climate) in regard to MGRFIE.
MF6	Horticulture	Plant and soil understanding and expertise in relation to heating and cooling, insulation, shading, weight distribution, water collection and use.

Skills Levels

Step 3 – The skills level is based on responses from professionals working within the construction industry. Ask each of your professional frontrunner experts to rate their current and future skills levels in relation to these levels.

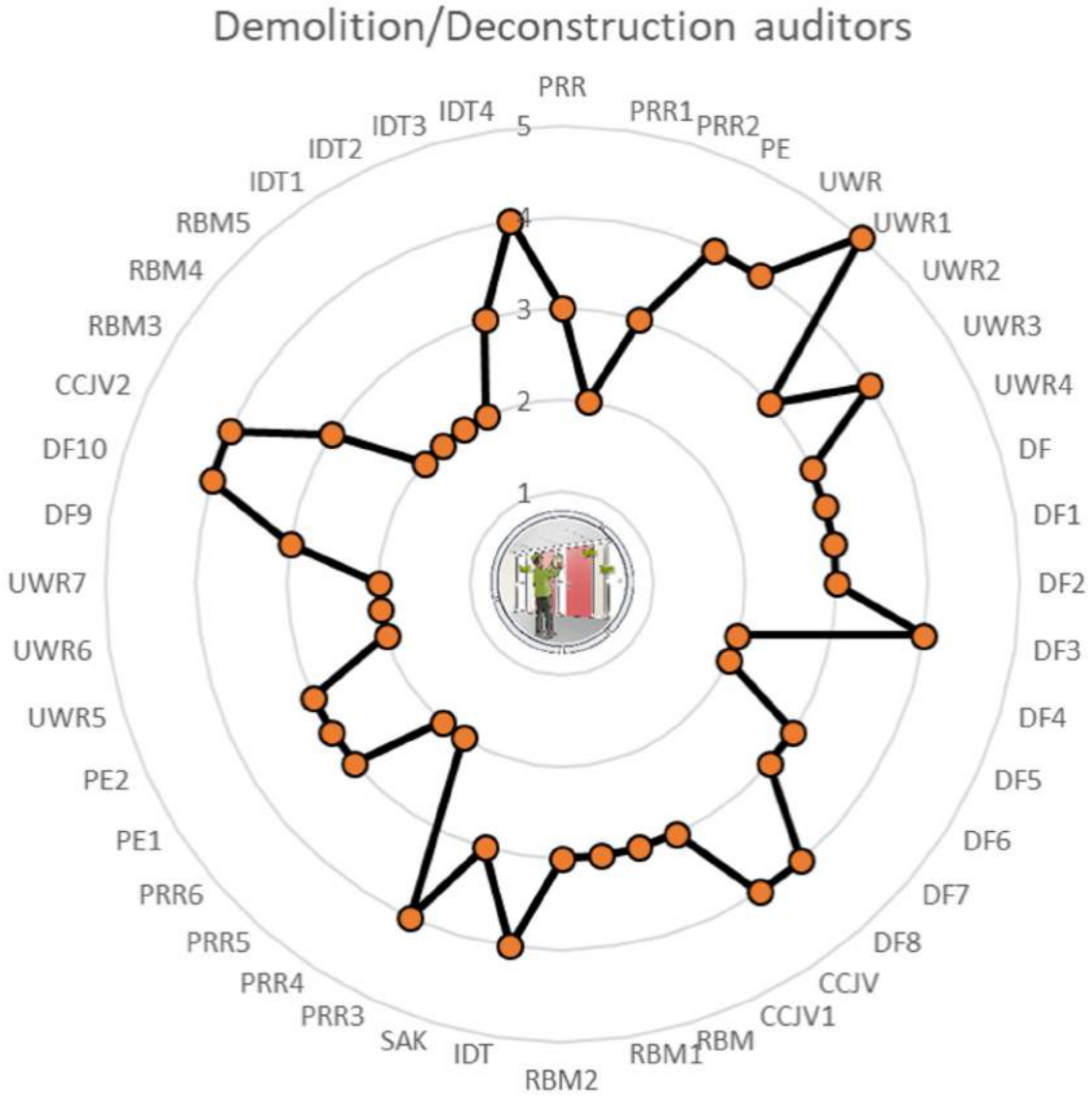
0	Not applicable / no knowledge and skills required
1	Has little knowledge and skills with respect to the relevant field / technology
2	Understands basic knowledge and has practical skills within the field, is able to solve problems by selecting and applying basic methods, tools, materials and information
3	Has comprehensive, factual and theoretical knowledge, is capable of solving problems within the field
4	Has advanced knowledge involving a critical understanding of theories and principles and skills, required to solve complex and unpredictable problems in the field and is aware of the boundaries
5	Has specialised knowledge and problem-solving skills, partly at the forefront of knowledge in the field, in order to develop new knowledge and procedures and to integrate knowledge from different fields

Skills Gap

- Once you have collated a European average the skills gap can be noted. As seen here with Landscape Architect a jump from a current skill of 2 to a desired skill of 4 can be seen for Priorities Regenerative Resources.

CODE	TECHNOLOGY, INTERDISCIPLINARY SKILLS AND PROFESSIONS	Landscape Architect C	Landscape Architect F
	Specific to Circular Economy	C	F
PRR	Prioritise regenerative resources	2	4
PRR1	Bio-Based and regenerative material application	2	4
PRR2	Reusable material application	2	4
PE	Preserve and extend what is already made	2	4
UWR	Use waste as a resource	3	4
UWR1	Deconstruction for reuse	3	3
UWR2	Material Innovation	2	3
UWR3	Reclaiming Energy	1	3
UWR4	Continuous reuse of energy with little or no waste	2	4
DF	Design/Build for the future	3	4
DF1	Design/Build for Reuse	3	4
DF2	Design/Build for repurpose of materials	2	4

Visualise


Demolition/Deconstruction auditors
PRR
PRR1
PRR2
PE
UWR
UWR1
UWR2
UWR3
UWR4
DF
DF1
DF2
DF3
DF4
DF5
DF6
DF7
DF8
CCJV
CCJV1
RBM
RBM1
RBM2
IDT
SAK
PRR3
PRR4
PRR5
PRR6
PE1
PE2
UWR5
UWR6
UWR7
DF9
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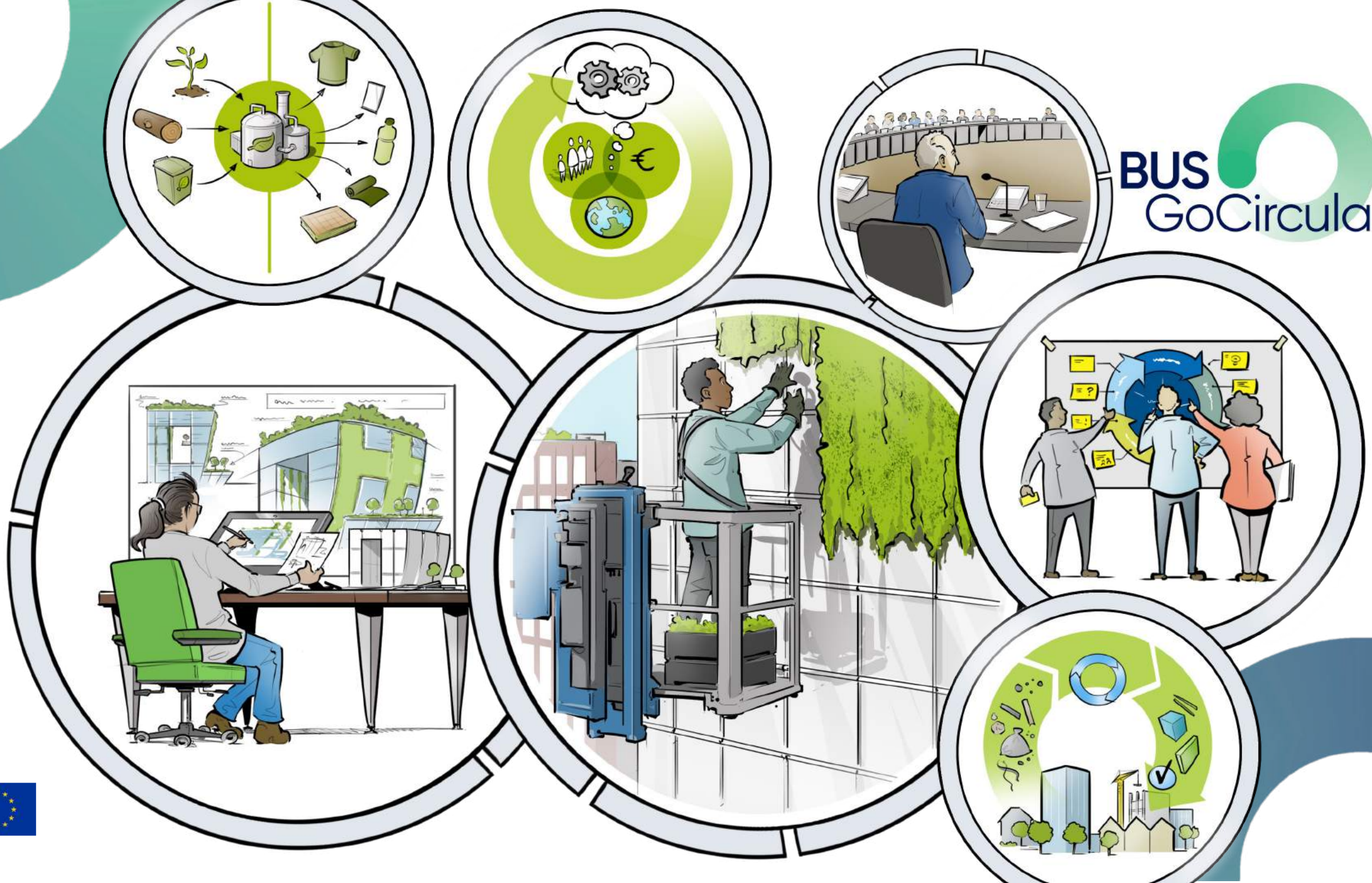

BUS GoCircular

Scope of the BUS-GoCircular Circular construction skills qualification

Included

- **Integrating circular principles** in existing work activities
- Focus on working as a member of the construction **value chain**
- Including **interdisciplinary skills**:
  - Collaboration
  - Research and evaluation
  - Education

Not included

- Detailed skills and knowledge
- Technology specific (e.g. details of installing heat pumps, specifics of designing pre-fabricated structures)

Principles addressed

Prioritise Regenerative Resources

Stretch the Lifetime

Use Waste as a Resource

Design for the Future

Rethink the Business Model

Incorporate Digital Technology

Team Up to Create Joint Value

Strengthen and Advance Knowledge

Task 2

2	Design for the future		81
2.1		Design to reduce waste during production and use	2, 26, 27, 28
2.2		Design with materials that enable multiple uses	5
2.3		Design buildings and installations that are made to last and to ensure longer use	31
2.4		Design products and building structures to enable reuse and recycling	29
2.5		Design products and building structures that make repair accessible	30
2.6		Design with use of pre-fabricated solutions	26
2.7		Design modular construction solutions	28
2.8		Design using secondary materials not initially intended for reuse	1, 14, 20, 23, 55, 78
2.9		Design to use and store energy more efficiently in buildings	24
2.1		Compile and provide deconstruction / demolition specifications at the commissioning stage	59

Task 3

3	Assemble/construct for the future		15
3.1		Install energy efficiency measures in buildings	56
3.2		Install renewable energy systems in buildings	63
3.3		Reduce waste during production and construction	58
3.4		Build modular structures	60
3.5		Build with bio-based, reusable, non-toxic and non-critical materials	68

Task 7

7	Incorporate digital technology		
7.1		Employ digital marketplaces to improve circular allocation of resources between stakeholders	48
7.2		Employ material passports throughout each phase of the building/project	47
7.3		Employ technologies to gather and analyse data to provide and gain insights on resource use (procure, operate, end of service life)	46, 47
7.4		Trade secondary materials and products on digital marketplaces	16, 48, 79
7.5		Use drones to collect data about building and analyse building for renovation	84

What’s next?...


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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033740

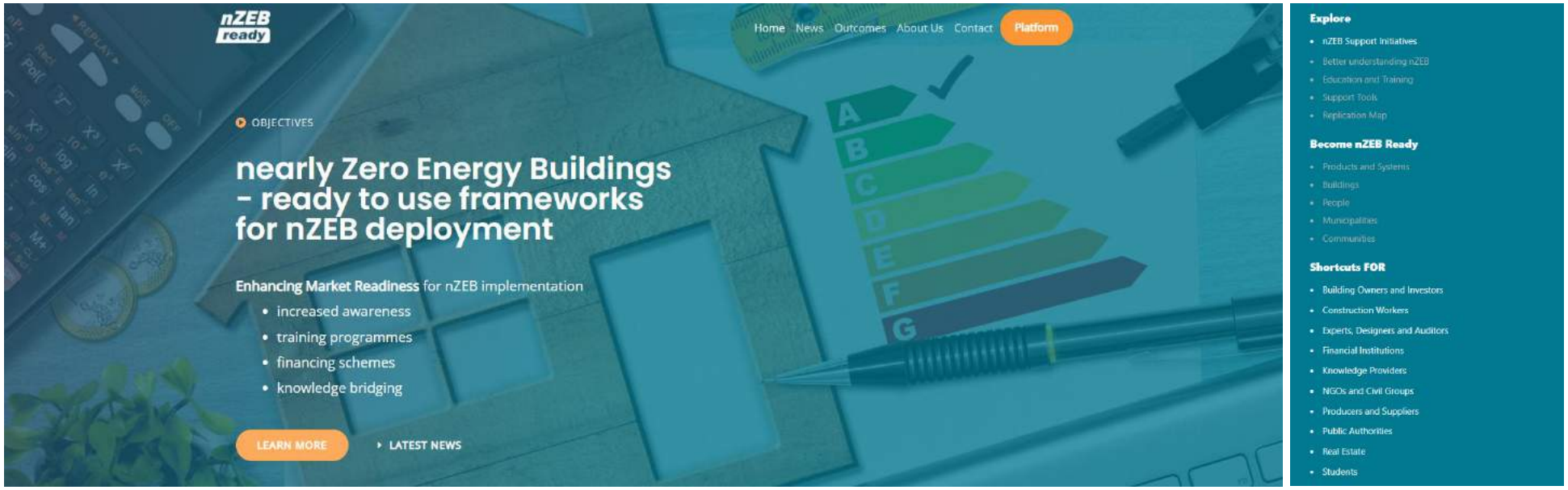
Colophon

BUS GoCircular

Partners

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033740

nZEB Ready – Enhancing Market Readiness for nZEB Implementation

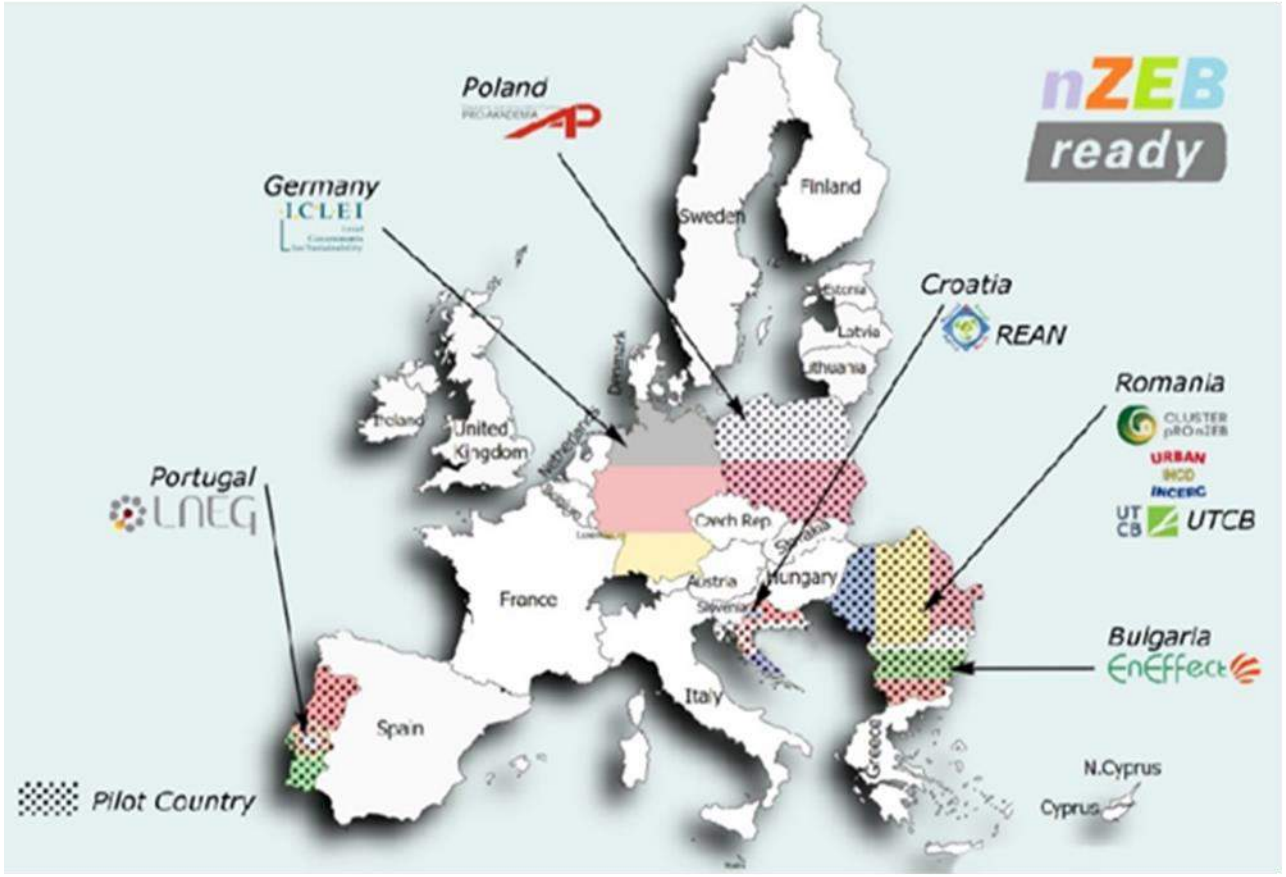


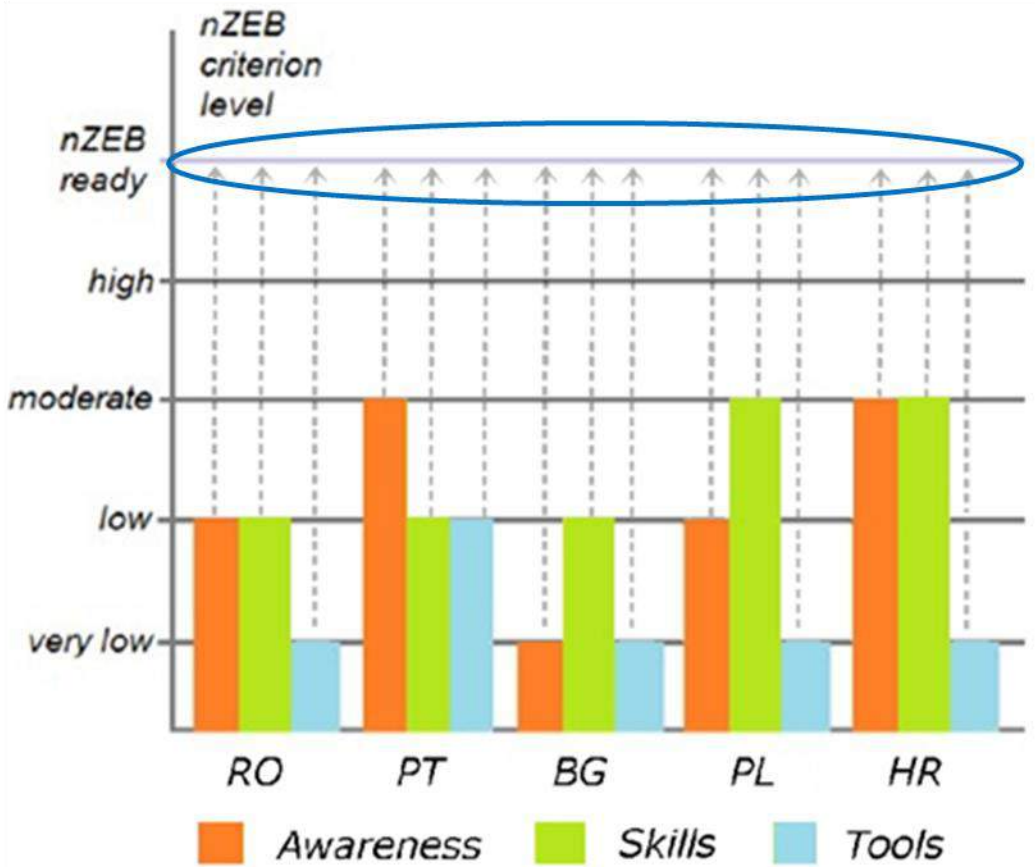
Horia Petran, NIRD URBAN-INCERC | Pro-nZEB Cluster

WORKSHOP Sustainable Energy Skills in the Construction Sector 3.0 | September 9th, 2022

ENHANCING MARKET READINESS FOR NZEB IMPLEMENTATION

September 2021 – August 2024





Horizon 2020: Stimulating demand for sustainable energy skills in the construction sector

nZEB ready

ENHANCING MARKET READINESS FOR NZEB IMPLEMENTATION

September 2021 – August 2024

"Why nZEB?"

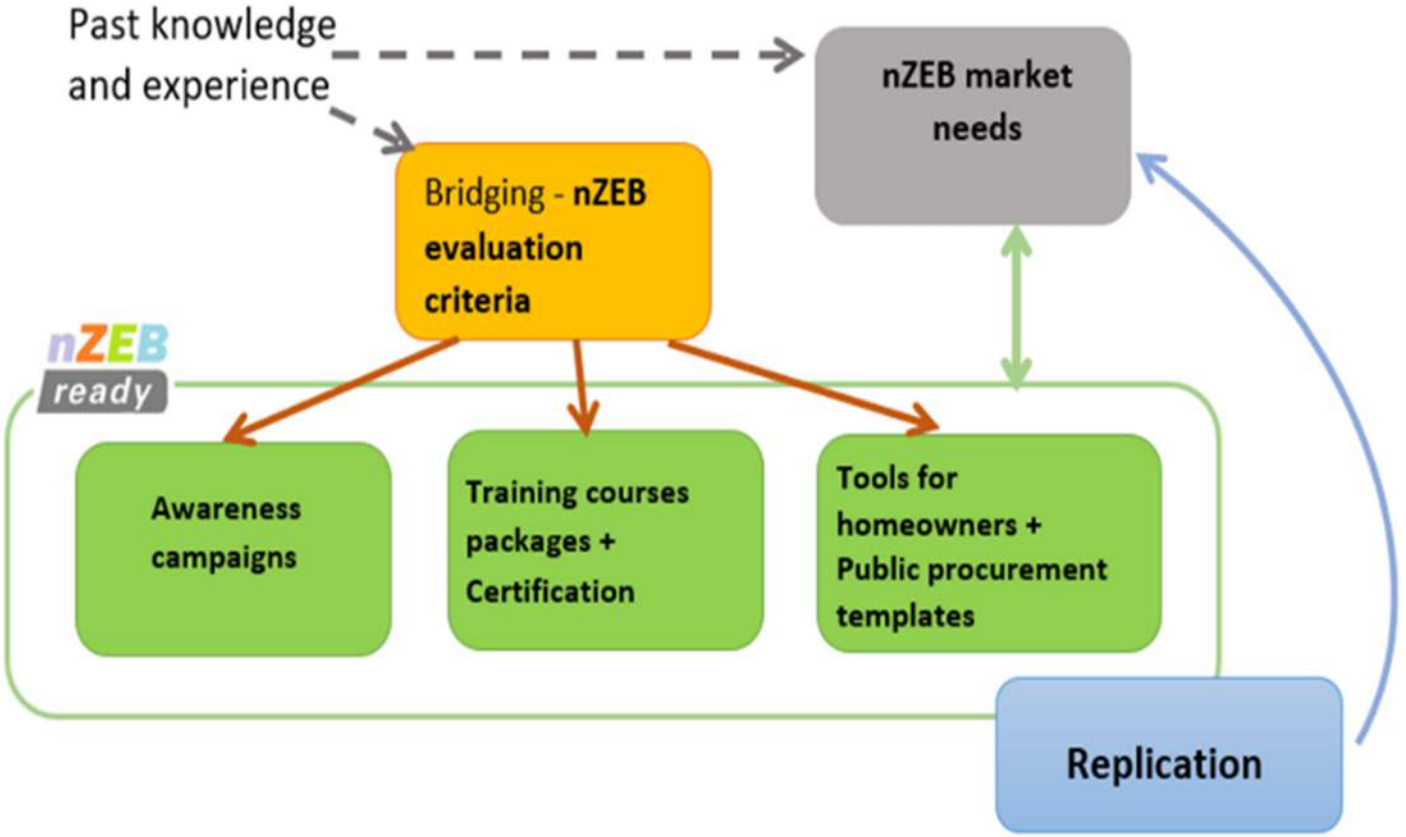
"Who can provide nZEB?"

"How to reach nZEB"

Prepare **ready to use frameworks** to answer the needs related to lack of awareness, lack of skilled professionals and lack of support instruments, implementing the **nZEB ready labelled procedures** in **5 pilot countries (BG, HR, PL, PT, RO)**

Overarching goal

To support the increase of the market readiness for an effective nZEB implementation and to stimulate the demand for energy related skills



Impact

10 municipalities trained for municipal projects (procurement procedures)

840 upskilled (nZEB) energy auditors, designers and execution engineers

300 new key nZEB specialists trained (Blower-door tester / Thermal bridges evaluator / Infrared inspector)

> 2 new certification schemes defined (on-site training and validation of skills)

25 MoUs signed with nZEB product suppliers
50 documented joint actions
15 national & local authorities involved

Reduced gap between designed and actual energy performance (measured airtightness)

nZEB Awarenes

- Needs identification of key target groups to become nZEB ready
- Awareness campaign for new generations - university and high school students: “Why nZEB?”
- Extensive awareness campaign for beneficiaries’ engagement: “How to go nZEB?”
- Extensive awareness campaign through testimonials: “Who is nZEB?”
- National nZEB brokerage events – bringing together all process chain participants under nZEB Marketplace umbrella
- nZEB Ready platform web content development: Creating and developing awareness content tailored for different target groups and stakeholders specific for each country

nZEB Training

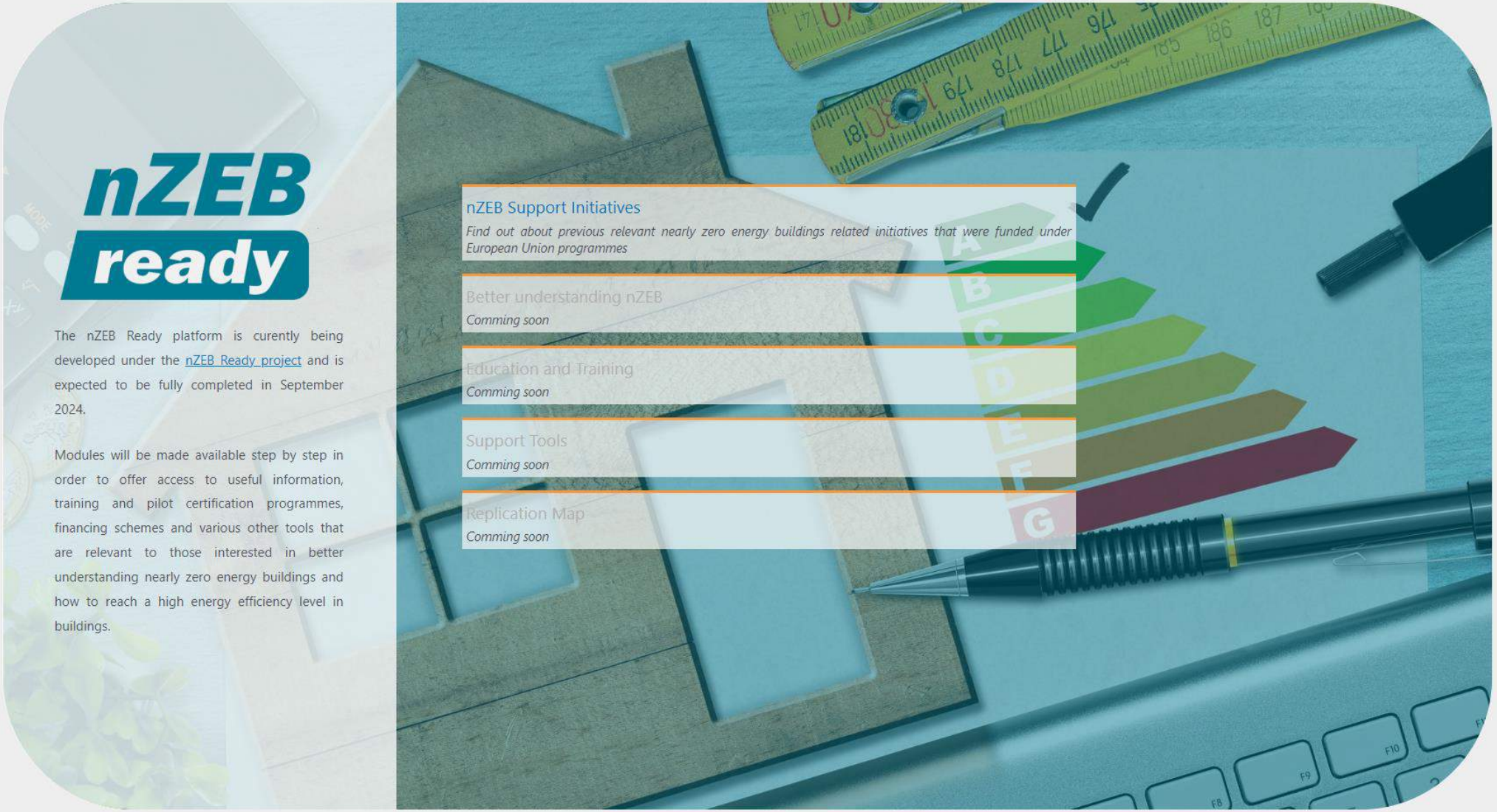
- Strategic Professionals: Continuous Learning Training and Certification Program for Mutual Recognition
- Training courses for specialisation, general 12-16h, microcredits

Target Category		Learning Program
White Collars	1. Designers (Architects and Engineers) 2. Energy Auditors and Assesors	*Thermal bridges calculation*
		Mechanical ventilation system with heat recovery
		Building air tightness evaluation
		Solar shading systems
		Bioclimatic design
		Renewable energy sources
	Execution Engineers	*Civil eng. Skills for nZEB Execution*
		MEP Skills for nZEB Execution
Public Authorities		*nZEB Concept in practice*
Key specialists for nZEB Certification		*Blower-door tester*
		Thermal bridges evaluator - infrared evaluator
Blue Collars		*General skills related to nZEB construction*
		General skills related to nZEB MEP

nZEB demand-side support tools

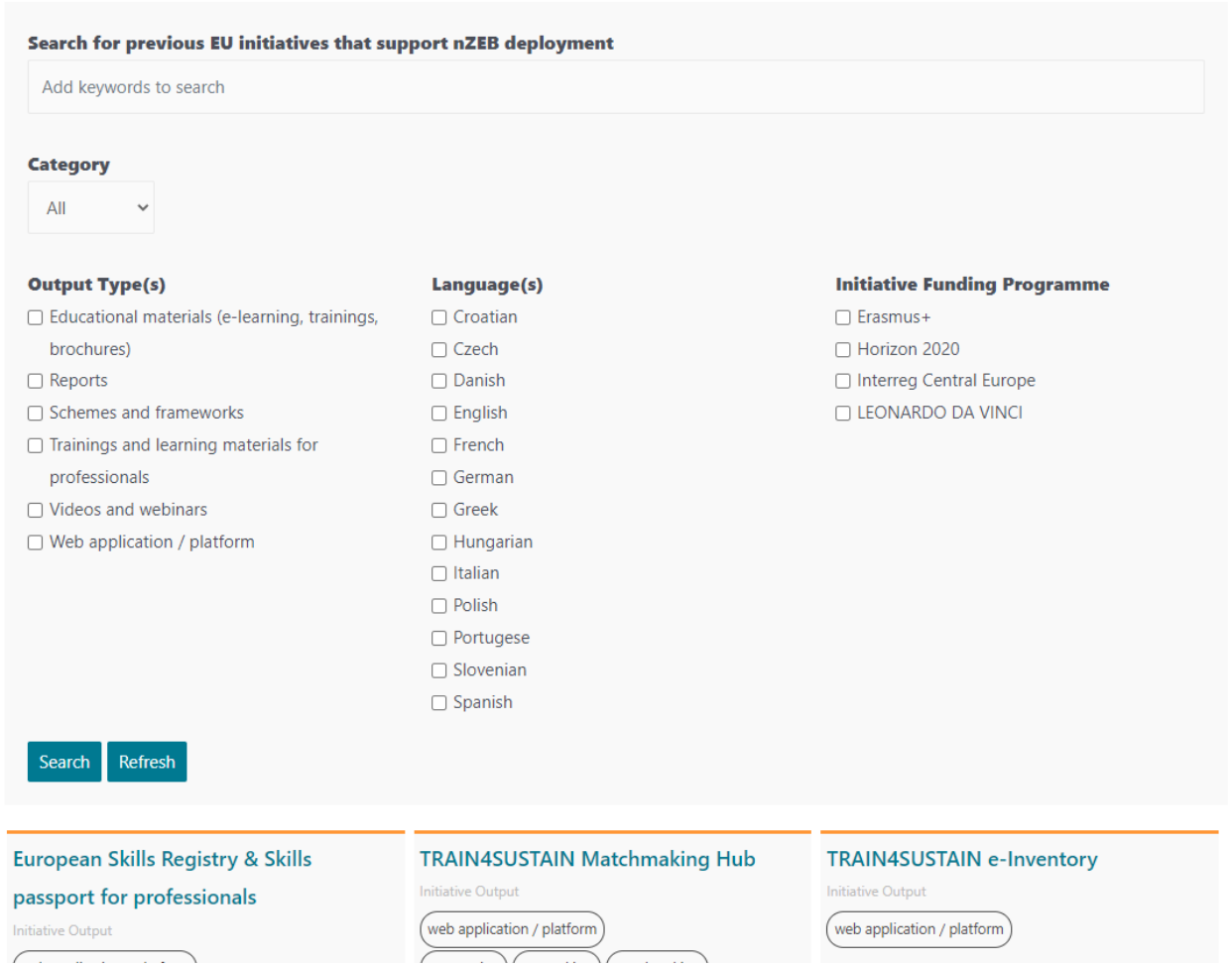
- Development of tools and instruments for use of public sector actors to stimulate market demand for nZEB skills in construction projects.
  - ✓ special focus on local authorities' (public) procurement actions
  - ✓ other policy and regulatory levers for boosting demand for nZEB skills further within private construction projects - including financing
- Facilitate peer to peer learning on best practice between public owners of nZEB
- Stimulate demand of skilled nZEB key professionals as a requirement or award criteria in public procurement for nZEB works
- Promote use of skilled nZEB professionals by public authorities, both through their role as construction client and through urban management and regulation
- Establish and develop key guidance and tools to give direct support for implementation of nZEB projects, specifically targeting remaining barriers
- Integrate developed tools into the all-in-one platform to enable their use by public authorities across Europe.

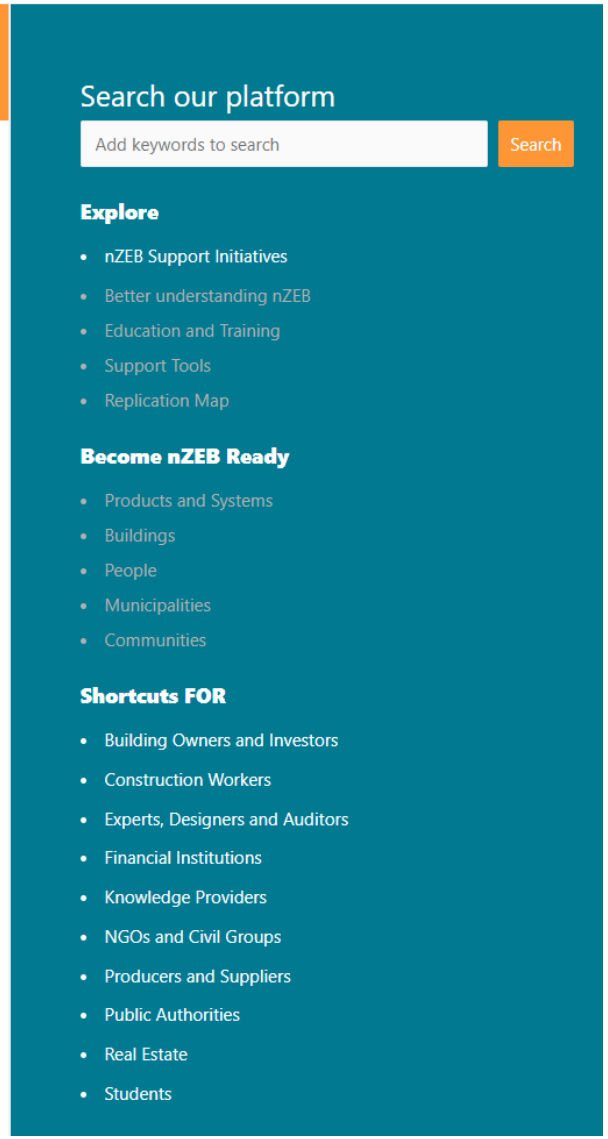
nZEB Platform



nZEB Platform – Module 1

Previous Initiatives





online repository with:
- 19 bibliographical notes of previous initiatives,
- 43 linked outcomes.
(further initiatives and additional information are welcomed)

users can filter the database to find relevant materials

https://platform.nzebready.eu

Coordinator: URBAN INCD INCERC

Partners:

Thank you for your attention!

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ENERGY SKILLS IN CONSTRUCTION

Q&A

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LIFE CET Call 2022

- Deadline 16 November 2022
- EUR 98m available for grants
- 18 policy-driven, prescriptive funding topics with detailed guidance
- 95% co-funding rate (no infrastructure cost, mostly labour)
- Apply electronically via the EC's Funding & Tender opportunities portal
- 2 scopes under LIFE-2022-CET-BUILDSKILLS
  - Full topic text available here

European Commission

BUS Scope A: Rebooting the BUILD UP Skills National Platforms and Roadmaps

- Expected project duration: **18 months**
- Indicative EU contribution/project: **EUR 0.4 million**
- Expected: **single-country applications - one action per country**
- Proposals may be submitted by a **single applicant from an eligible country**

Objectives (extracts)

Not legally binding

- 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 […]

Note: Provided the contracts are successfully signed, and projects start in Autumn 2022, the update of the BUILD UP Skills national roadmap for the following countries will already by covered: Austria, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Ireland, Lithuania, the Netherlands, Poland, Romania, Slovakia, Spain.

Scope B: Upskilling and reskilling interventions enabling a decarbonised building stock

- Indicative EU contribution/project: **EUR 1 million**
- “Applications by a single applicant or applications covering a single eligible country are not considered appropriate under scope B. Therefore, the Commission considers relevant that consortia gather a minimum of 3 applicants from 3 different eligible countries.”

Develop new and/or upgrade existing **training and qualifications** for all types of professionals involved in the building value chain ('blue collars' and/or 'white collars')

Addressing **one or several** of the following focus areas:

Deep renovation

(nearly) Zero Energy Buildings

RES + efficient heating and cooling technologies; heat pumps

Whole life carbon, circular construction, resource efficiency, **Level(s)**…

Digital skills (e.g. BIM)

Building smartness (e.g. SRI, sensors, building controls and building management systems)

Not legally binding

European Commission

Thank you

Thank you

SUSTAINABLE PLACES 2022