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Acronym: SEEtheSkills

Grant Agreement Number 101033743

HORIZON 2020

Concept of Professionals and Companies Register

-Final-

Deliverable 3.4

Date: 24-9-2022

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EXECUTIVE SUMMARY

In this report the concept Professional and Companies Register for EE-Skills in the EU is presented; including an overview of experiences and existing registers the consortium has built on. The Concept of Professionals and Companies Register enables inclusion of lists of skilled professionals in each of the partner countries, categorized in groups regarding qualifications for different occupations. Including links to employing companies and functionality for companies. For recognition of skills the qualifications will be based on a harmonised approach on the composition of Unit of Learning Outcomes. These Unit of Learning Outcomes are the baseline of data entered in the Integrated register.

In selecting the best approach the team has described and discussed good practices of NEWCOM (ISSO) and TRAINEE (UKIM, ECM, BIM Academy) and several other EU projects that have already created digital registers of skilled professionals. Included in the concept are measures towards GPDR and functionality for linking with other parts of the Integrated repository and for data filtering, selecting and matching.

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1. Introduction

The project "Sustainable EnErgy Skills in construction: Visible, Validated, Valuable" is an EU funded project under HORIZON 2020 programme, topic: **Stimulating demand for sustainable energy skills in the building sector**.

The overall objective is: **Challenging market acceptance and acting towards 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**

- **V1** To make skills **VISIBLE** through whole value chain in building sector by implementing an Integrated register of energy skills as cloud repository on interregional level, based on good practices from ongoing and recently finalised projects, that will result with increasing the number of skilled building professionals and/or blue collar workers;
- **V2** To **VALIDATE** skills relevance to standardized EE construction and interventions in renovation, by matching and leveling skills and linking them to national and EU qualification standards, to enable mutual recognition;
- **V3** 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.

In this report the concept Professional and Companies Register for EE-Skills in the EU is presented; including experiences and existing registers the consortium has built on. This is part of Objective 1 (V1) to make skills **visible** through the whole value chain in the building sector. The Concept of Professionals and Companies Register enables inclusion of lists of skilled professionals in each of the partner countries, categorized in groups regarding qualifications for different occupations. Including links to employing companies and functionality for companies. In order to select the best approach the team has described and discussed good practices of NEWCOM (ISSO) and TRAINEE (UKIM, ECM, BIM Academy) and several other EU projects that have already created digital registers of skilled professionals. Included in the concept are measures towards GPDR, the best solution for linking a database with other parts of the Integrated repository and for data filtering, selecting and matching.

The content of this deliverable was created in 3 iterations.

1. Making an overview of good examples of professionals and company registers Before the Barcelona consortium meeting June 29-30, 2022. Results can be found in chapter 2. Good examples of professionals and company registers

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2. Defining the best approach and design of register for professionals and companies
   This iteration started during the Barcelona meeting in an interactive workshop with Powerpoint and Mentimeter.
   Results can be found in chapter 4. Design of register for professionals and companies
3. Development of the Concept Professional and Companies Register for EE-Skills
   Based on outcomes of the Barcelona design session and strategic decisions made a functional concept design of the Professional and Companies Register for EE-Skills is made.
   Results can be found in chapter 5. Development of the Concept Professional and Companies Register for EE-Skills

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2. Good examples of professionals and company registers

In this chapter an overview of good examples of professionals and company registers is compiled. This as preparation for making design decisions in the next chapter of this deliverable.

In order to create this overview the following actions have been performed.

1. A format for the overview of registers has been drafted
2. The consortium co-created an overview of professionals and companies registers we are aware of:
    a. The register created in H2020 NEWCOM is described by ISSO including an example of how this register is implemented in the Dutch 'ecosystem'.
    b. The register created in H2020 TRAINEE is described by UKIM including an example of how this register is implemented in the 'ecosystem' of North Macedonia.
    c. Several examples in other EU projects have been spotted and reviewed.
        i. NEWCOM
        ii. TRAINEE
        iii. CraftEdu
        iv. CEN-CE
        v. Construction Blueprint
        vi. Train4Sustain
    d. Registers relevant at national level
        i. The Netherlands
        ii. Slovakia
        iii. Slovenia
        iv. North Macedonia
        v. Spain
3. The consortium discussed the overview at the consortium meeting at the end of June 2022 in Barcelona and compiled a set of requirements and recommendations for the next step: the design of a European Professional and Companies Register for EE-Skills.

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H2020 NEWCOM register

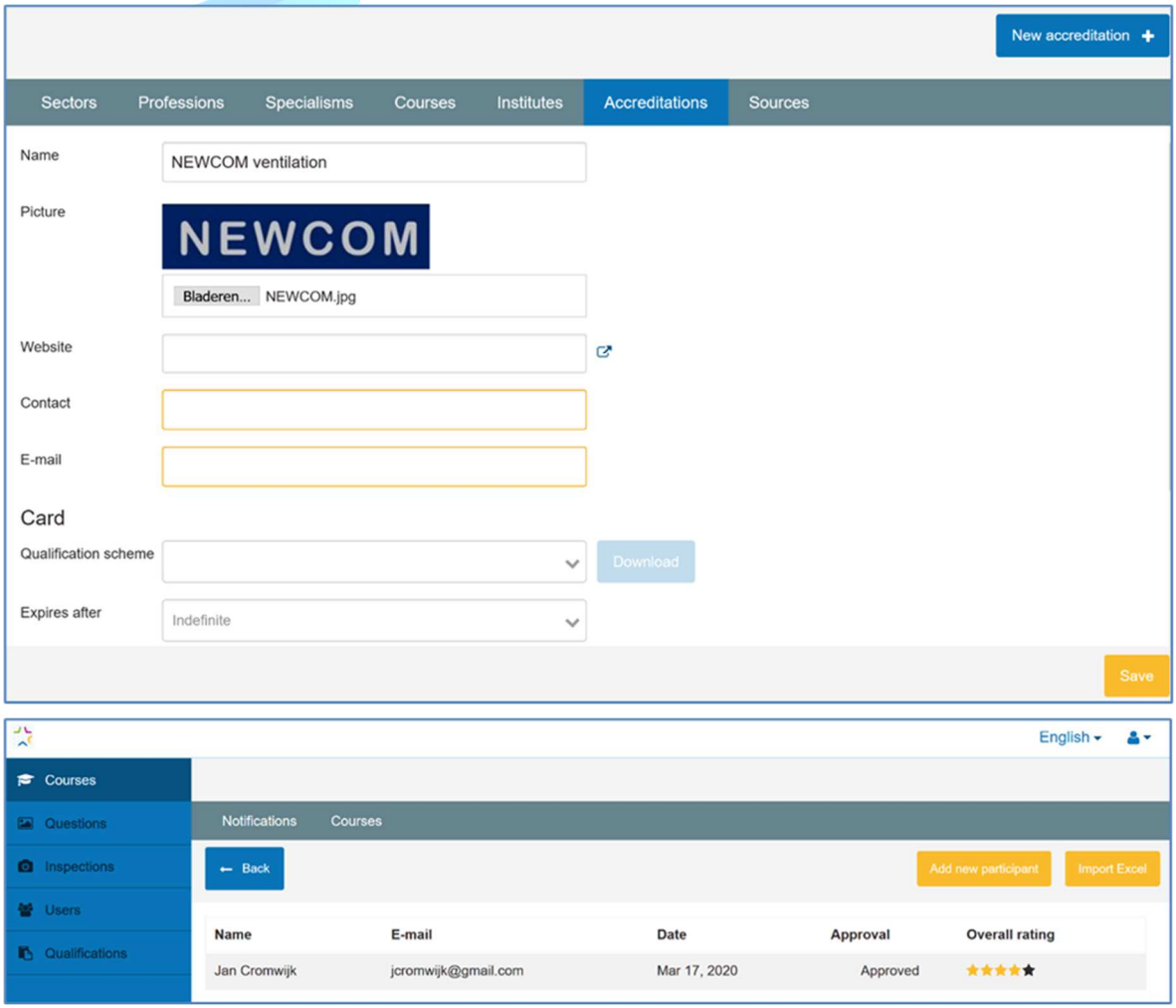
General information

Name of the register: NEWCOM register powered by the BUILD UP Skills advisor-app

Link to the test environment of the register:
https://testapi.buildupskillsadvisor.eu/expertSearch/index/3?language=en

Description of the register: The Horizon 2020 European Union funded project NEWCOM provides solutions to improve and maintain energy efficiency in the building sector. Professionals were tested and recognised against the developed and agreed ULOs (Units of Learning Outcomes). The certified professionals are offered to register in the European Database of Professionals implemented through the BUILD UP Skills advisor app.

Several screenshots



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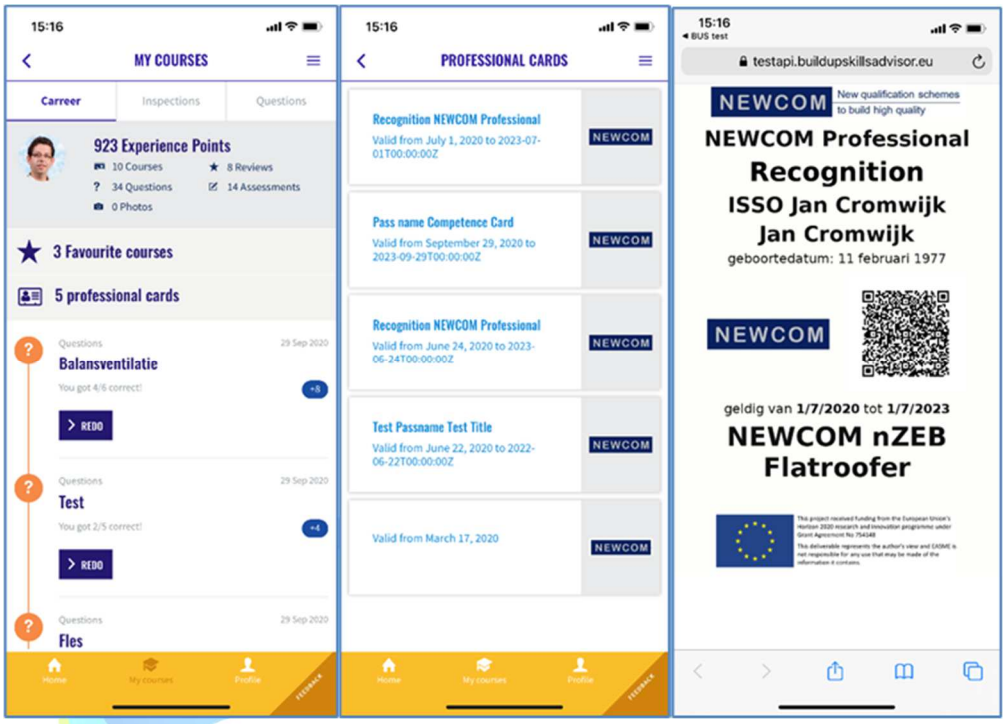
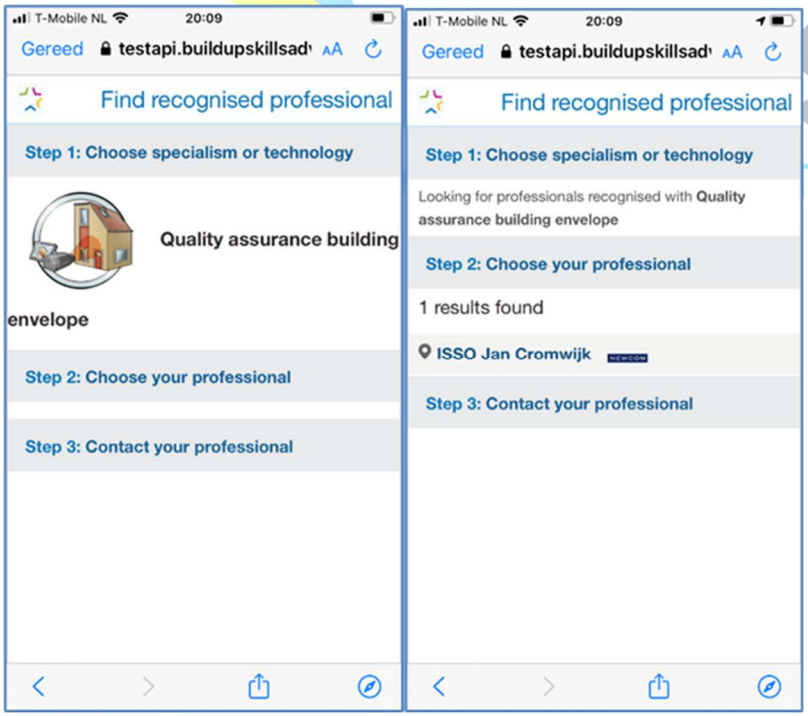


1. Adding an accreditation and a skills card design
2. Approving persons following exams linked with the accreditation
3. Showing your personal recognition card in the BUS-app
4. Finding a recognised person or company in the open register



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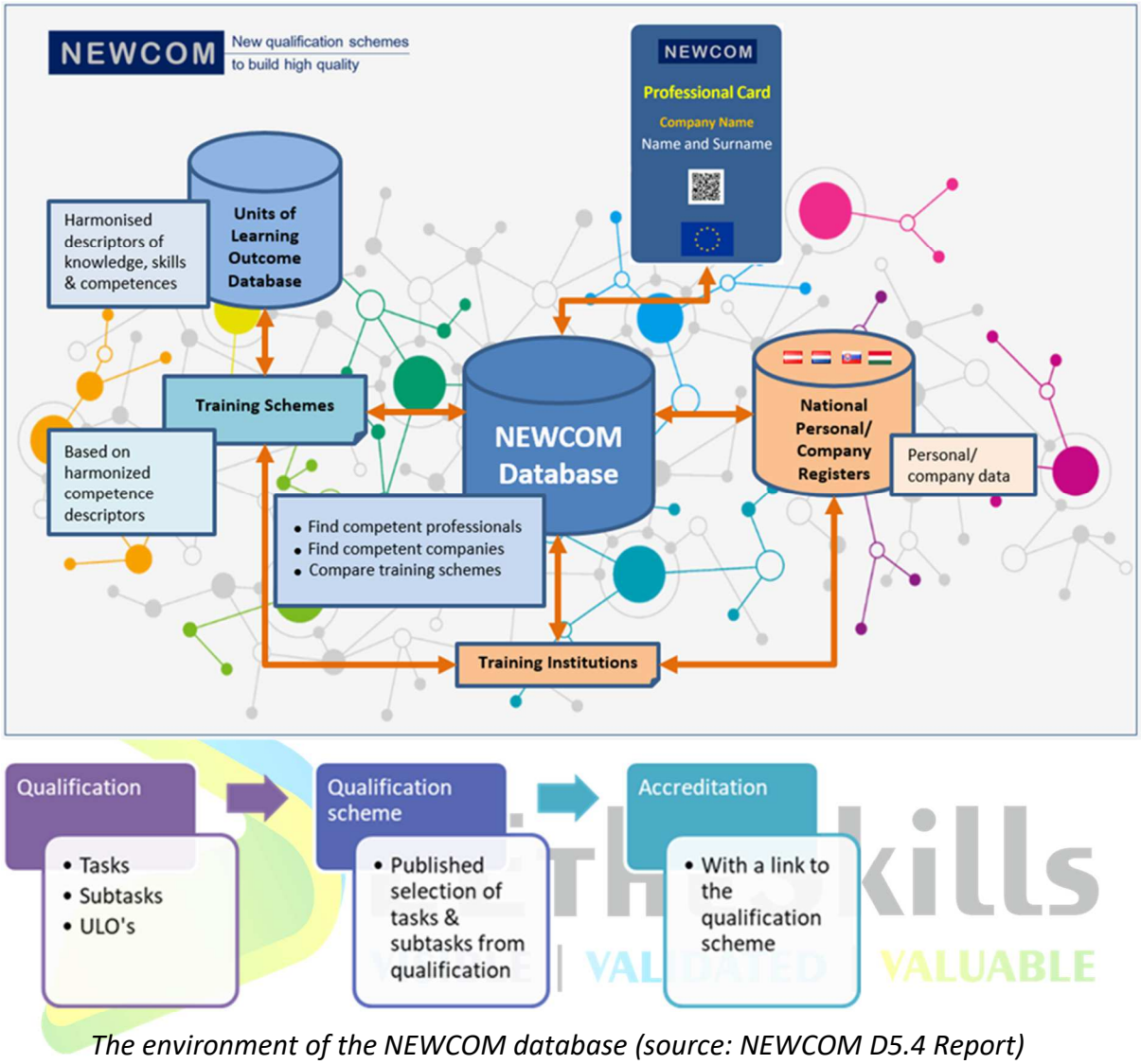
How the register works technically



The environment of the NEWCOM database (source: NEWCOM D5.4 Report)

The NEWCOM register makes use of the BUILD UP Skills advisor-app platform. The cornerstone of this register is the Unit of Learning Outcomes (ULO) database. The Unit of Learning Outcomes are task-based and collected in bundles called Qualification Schemes. Subsets of these schemes can be published as static sets suitable for accreditation of courses and recognition of persons. These accreditations are linked to a design of a digital skills card. In the Content catalog an exam for skill recognition can be linked with an accreditation. When a person proves to be competent the exam provider can enter and approve the personal data required for issuing the digital skills card. The BUS-app platform is delivered as Software As A Service (SAAS).

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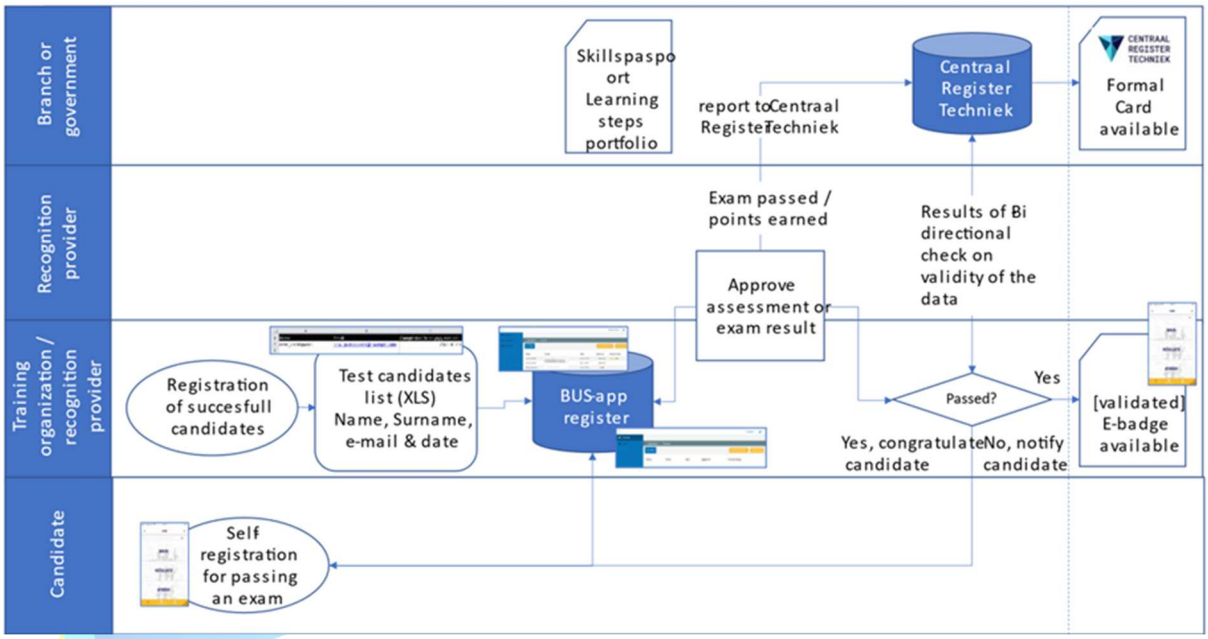
How the register is implemented in the dutch ecosystem



In the Netherlands several routes are available to get personal recognition.

The first route is provided by self-registration of the person in the BUILD UP Skills advisor app. This recognition needs to be approved by the exam institute where the person successfully proved his/her competence. The digital skillscard is generated after approval. This is an informal recognition.

The second route is provided by registration by for example a training provider / a test center / a recognition provider. When this route is followed the digital skillscard is directly generated. This is an informal recognition.

As a final step registered persons can be reported to Centraal Register Techniek. This organization governs all formal recognitions in the Dutch installation sector.

Possibilities for communication with registers at national level

A technical proof of concept is available that showed that by using a secure Application Programming Interface exchange of recognition data between the NEWCOM register and a national data supplier (Paragin - MyPortfolio empowering Vakmanschap Techniek) to Centraal Register Techniek was possible. In order to further implement this a formal agreement with the governing body of Centraal Register and some IT-extensions to implement the API's are needed. Further research is needed to deliver this API in such a way that it is also suitable for use to connect with national registers in other countries, regions and sectors.

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Example of linking learning goals to learning content in the BUS-app and sharing results with MyPortfolio.

Step 1 Linking the learning Goals

Step 2 Showing passed learning goals

Usability for delivering a sustainable EU-wide concept register

In ongoing sister project BUSLeague the usability of the BUILD UP Skills advisor-app (BUS-app) powered register like the NEWCOM register has been assessed. In conclusion, the BUSLeague consortium has found that a mutual recognition system based on the BUS app would be appropriate for BUSLeague (LINK). With regards to functionality for EU wide implementation within BUSLeague all functionality is available. Although for proper communication with databases at national level or at EU level extension of especially the API functionality will be needed. Another point raised is the level of market adaption needed for successful applicability and sustainability on the longer term. Both on EU and national levels the BUS-app implementations need to be more mature in the sense of training and exam providers using the BUS-app for marketing of their courses and registration of participants. Current implementations are proof of concepts and niche implementations. For real uptake the BUS-app needs to become broadly adapted (at branch, national and/or regional level).

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TRAINEE register

General information

Name of the register: Register of certified professionals

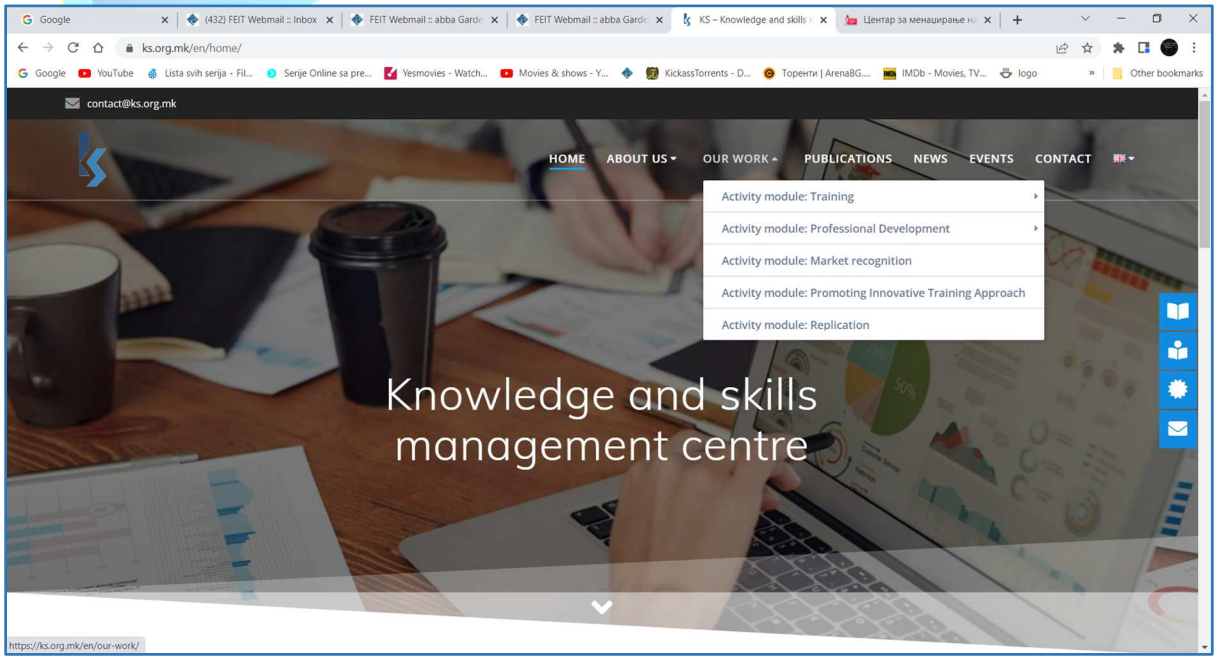
Link to the test environment of the register: https://ks.org.mk/en/public-search/

Description of the register: The database register of certified professionals is created in the frame of the project TRAINEE (785005 H2020-EE-2016-2017/H2020-EE-2017-CSA-PPI), in order to create visible list of certified professionals, that will enable easy access, searchable features, listing, filtering and creating reports based on the data incorporated in the database, as web-based software tool.

It is embedded into the webpage of the training platform of the established Knowledge and skills management centre K&S, aslo a product of TRAINEE, www.ks.org.mk.

Several screenshots

It is a part of the Knowledge and skills management centre website.



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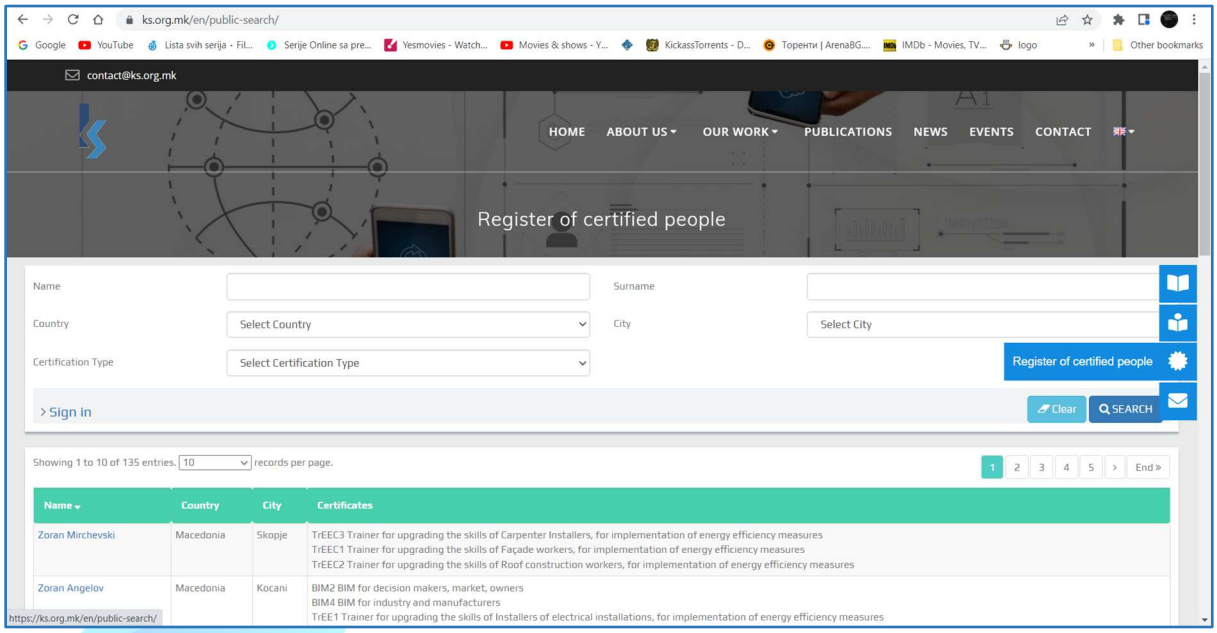

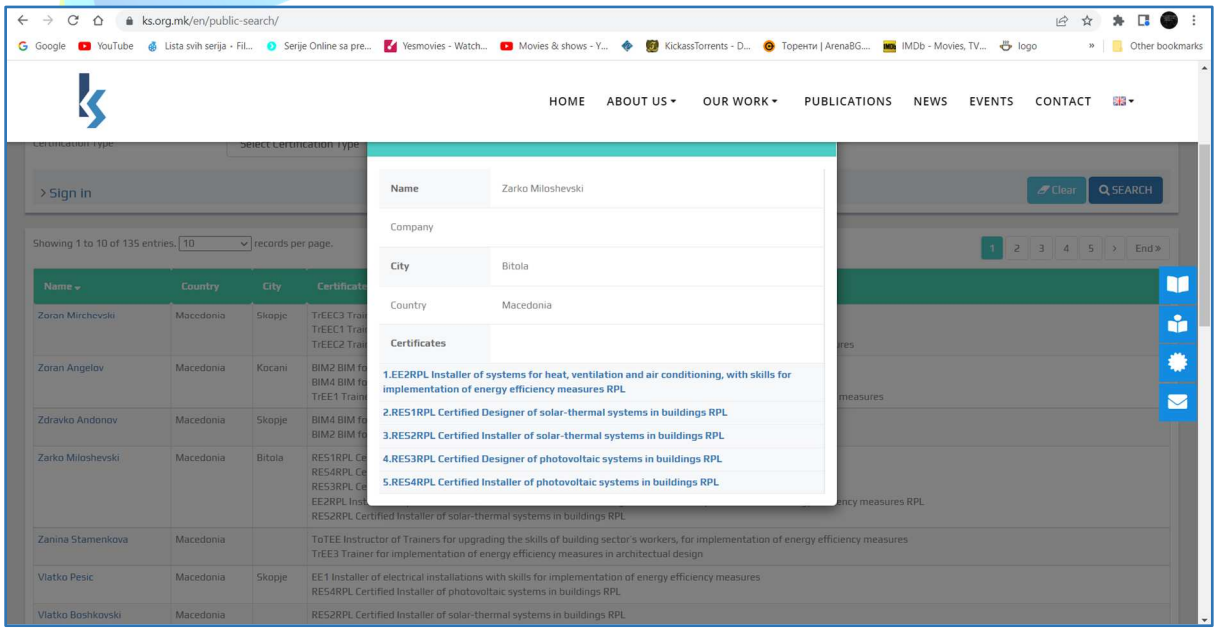

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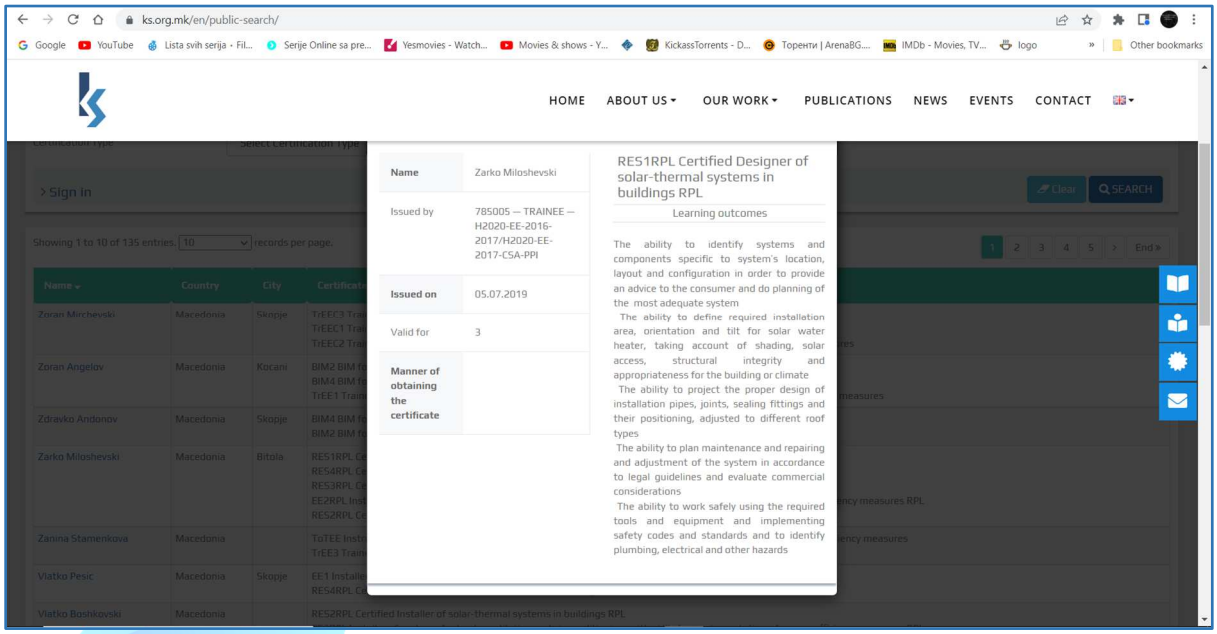

Structure of the database

The database of certified trainers and certified professionals include building professionals that have obtained their certification during the precedent project BEET IEE/13/BWI/682/ SI2.680171 - Intelligent Energy Europe and during TRAINEE project, as well during regular training activities within Knowledge and skills management centre.

The database divides certifications in 4 different thematic sections.

Thematic section: Energy efficiency	Thematic section: Solar energy	Thematic section: BIM	Thematic section: EE construction
1. Installer of EI with skills for EE measures 2. Installer of HVAC with skills for EE measures 3. Architect with knowledge of EE regulation in construction	1. Installer for Solar-thermal systems 2. Designer for Solar-thermal systems 3. Installer for PV systems 4. Designer for PV systems	1. BIM for practitioners: engineers, architects and technicians 2. BIM for decision makers, market, owners 3. BIM for builders and contractors 4. BIM for industry and manufacturers	1. Façade worker with skills for EE measures 2. Roofer with skills for EE measures 3. Carpenter with skills for EE measures

The thematic sections are separated into different type of certificates divided by:

- occupation

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- manner of obtaining certificate (through training or recognition of previous learning – RPL)
- purpose of issuing certificate (for trainers or for workers)

Besides the lists of certified professionals in each of the certificate categories, the database includes details on the qualification scheme (description, list of learning outcomes, validity of certificate etc.). For unique labeling of the type of certificate, they will be connected with separate code representing the thematic section and the number of the certification scheme (for ex. EE1, RES3, BIM2 etc.)

The insight into the data structure of the database is given on the following figure.

Thematic section	Code	Certification	Issued on	Valid until	Issued by	Description	LIST of Learning outcomes
Energy efficiency	EE1	Installer of electrical installations with skills for implementation of energy efficiency measures	March 2016	Un-limited	BEET IEE/13/BWI/682/SI2.680171 - Intelligent Energy Europe		Familiarization with the subject, mea ……

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	EE2	Installer of systems for heat, ventilation and air conditioning, with skills for implementation of energy efficiency measures	March 2016	Unlimited	BEET IEE/13/BWI/682/SI2.680171 - Intelligent Energy Europe		
	EE3	Graduated architectural engineer with skills for implementation of energy efficiency measures in design	23 february 2019	Unlimited	785005 — TRAINEE — H2020-EE-2016-2017/H2020-EE-2017-CSA-PPI	The training overall objective is to facilitate the participants……	

How the register works technically

The TRAINEE register is a dynamic website built by using PHP, Apache 2 (web server), MySQL (RDBMS), with responsive design using bootstrap. Ajax is used for most of the server side interactions.

The purpose of the TRAINEE register is:

1. Managing the process of training preparation and maintenance;
2. Managing the process of certifying workers and trainers;
3. Managing the process of building and publishing a registry of certified and trained workers and trainers

Recognized user roles

1. Administrator - with permission for managing all available data in the software
2. Trainer - with permission for managing his personal data, managing the list of certified workers for the training he is responsible for.
3. Trainees - with permission for managing his personal data, read-only access to trainings details
4. Viewer - with read-only access to some of the data

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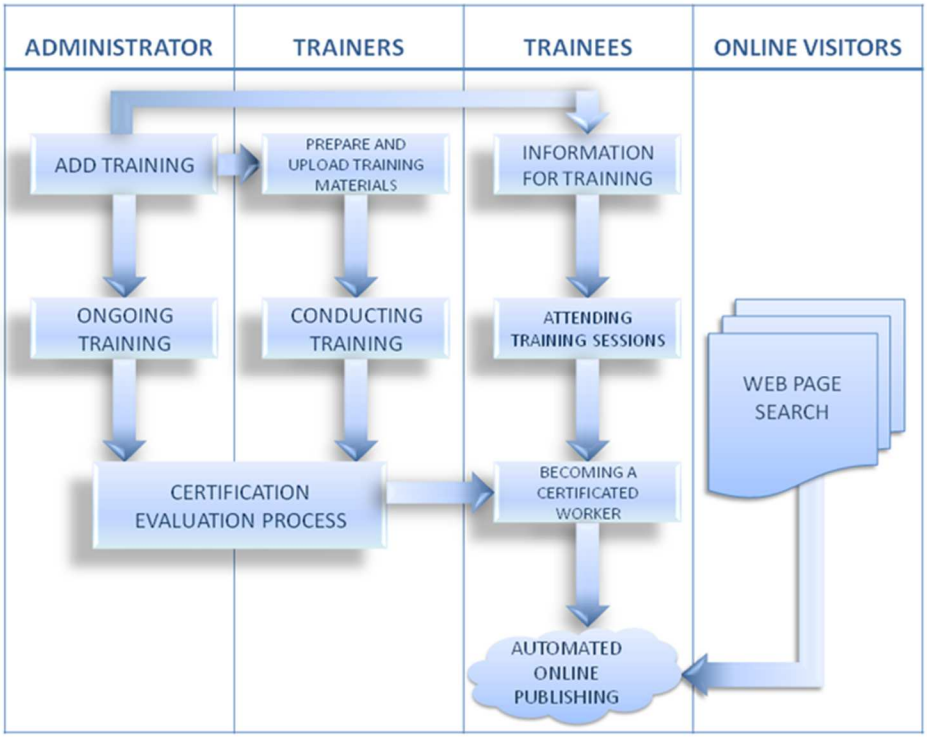
User Interfaces and Functionalities

1. User interface for: adding; changing; view; data versioning and list with search engine for Type of certifications.
2. User interface for: adding; changing; view; data versioning and list with search engine for Trainings.
3. User interface for: adding; changing; view; data versioning and list with search engine for Trainees (user) Profile.
4. User interface for: adding; changing; view; data versioning and list with search engine for Trainers (user) Profile.
5. List with search engine for Trainees by Training; User interface for managing Participants (Trainees) for Training.
6. Sending message to certified workers and trainer with identification method for the sender
7. Automatic publishing of certified workers and trainers on the official web site of the project
8. Public online search engine for certified workers and trainers

Software decision logic

All logical decisions and flow of data within the database are shown in the Certification Management Flow Chart, presented at the following graph. The graph represents the interconnections and interrelation between the roles in the management software.



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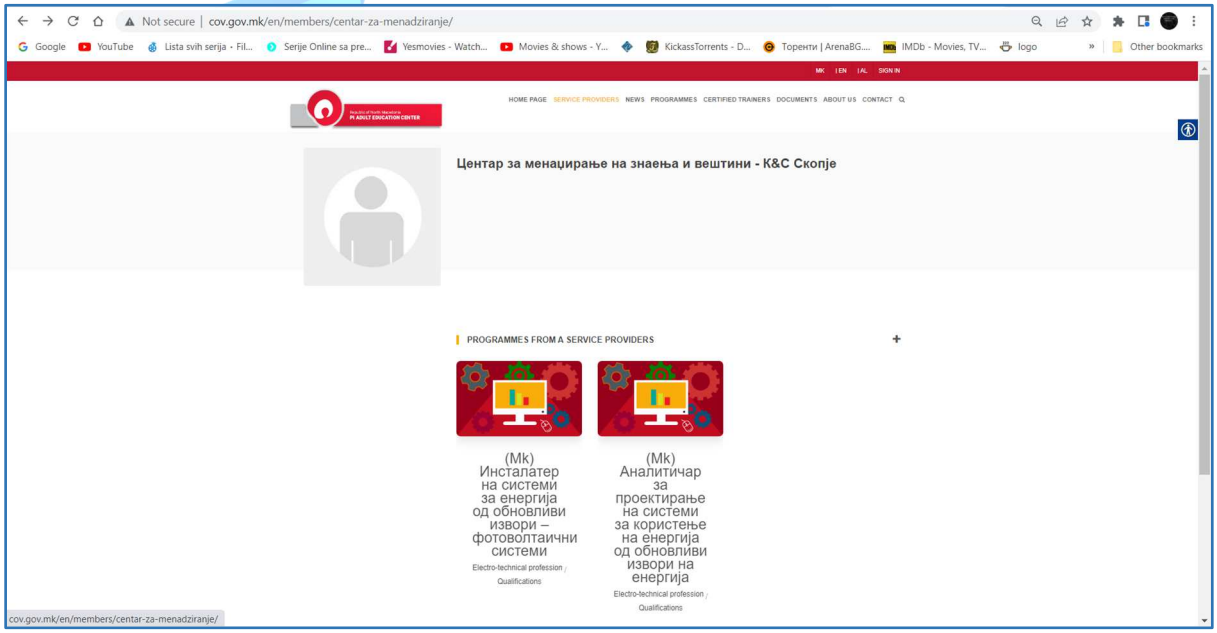
How the register is implemented in the macedonian ecosystem

Currently, there is no national register of certified professionals. In order to follow the EU directive for RES, there is a commitment for developing a national database of certified installers for RES systems by the end of 2024. The Register of certified professionals is presented at the authorities both nonformal and through formal notifications as an offer to be the baseline database of certified installers for RES, as it is currently unique and the only one in the national environment.

Because the Register of certified professionals is connected with the database of training schemes offered by K&S centre (as a path toward certification), it is linked with the database of training schemes at K&S. Regarding the connection of the database of training schemes to the national database of trainings managed by the national accreditation authority the Adult education centre, the database of trainings is linked with the national database, for the accredited trainings.



Possibilities for communication with registers at national level

Currently there is no functionality to communicate with registers at national level

Usability for delivering a sustainable EU-wide concept register

It is possible to build upon the TRAINEE register for the purpose of creating a common register in SEEtheSkills area. To do so the database needs to be become multi-langual, manageable by country administrators, communicate with the BUS-app unit of Learning Outcomes Database, accessible by API to search for registered professionals.

Interesting element is the registration of the manner of obtaining the certificate (through training or by recognition of previous learning – RPL)

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CraftEdu register

General information

There is no register of certified professionals created in the frame of the CraftEdu. There is only a list of the trainers and the trainees that have undertaken some of the training courses developed and piloted during the project.

However, the project CraftEdu, enables registration of the interested parties that can furthermore allow to search through the available training courses and provide more detailed information about them and the possibilities to attend the courses.

CEN CE register

General information

Name of the register: CEN EPB Standards Certified Experts

Link to the test environment of the register: https://www.cen-ce.eu/find-a-certified-expert.html

Description of the register: the CEN-CE register of trained experts is developed within CEN-CE, a 2-years long H2020 project (2018-2020) aiming at developing an EU-wide common large-scale training and qualification scheme for building professionals. The core of the scheme is the set of CEN EPB Standards related to the Energy Performance of Buildings, mandated (M480) by the European Commission for supporting the implementation of EPBD recast (Directive 2010/31/EU). The CEN-CE certification scheme for experts trained on CEN EPB Standards aimed to enable recognition in the building construction market. Furthermore, the CEN-CE training and qualification scheme supported the correct use of CEN EPB Standards EU wide and even in third countries (e.g. associated countries, CIS countries).

The CEN-CE training and qualification schemes are targeting middle and senior level professionals (EQF level 4 – installers, EQF levels 5 & 6 – engineers, architects, national calculation methodology developers) and enable system designers and installers to be aware of new solutions proposed by the industry. Moreover, it shall enable them to evaluate the impact of improvements on building performance.

The database currently includes certified experts in 17 different training courses, from 13 european countries. The searching can be done by four different criteria: course, country, city and EQF level.

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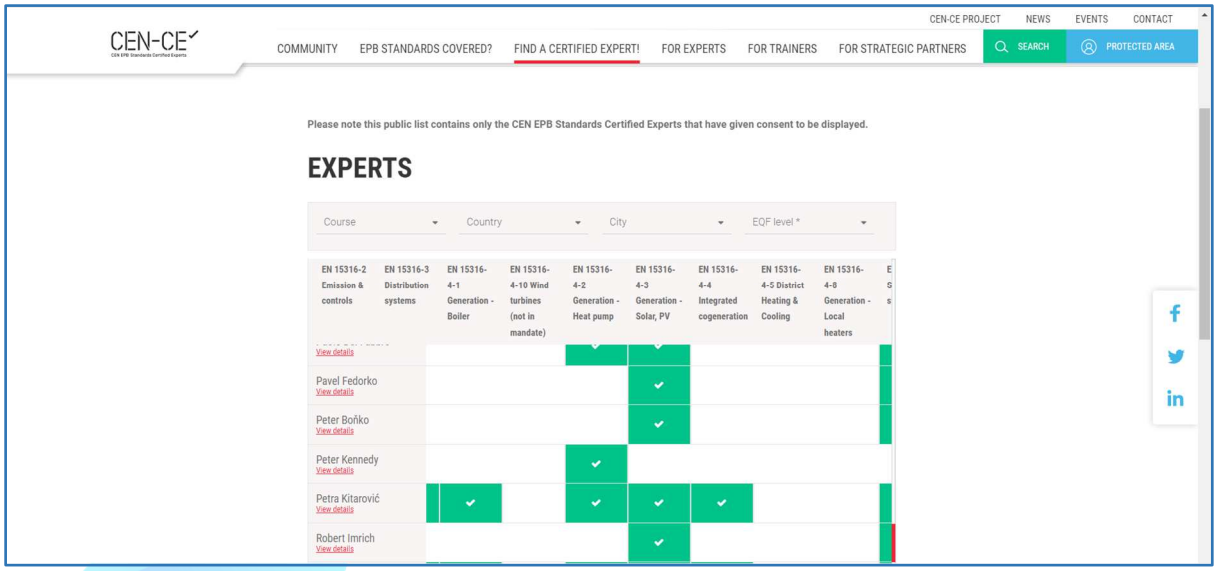
Several screenshots



How the register works technically

The register is a website linked to a database that is filled by importing an Excel file with candidates that passed the formal exams in the Learning Management System used by CEN-CE.

Possibilities for communication with registers at national level

At this moment the CEN-CE register is not able to share data with other registers.

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Usability for delivering a sustainable EU-wide concept register

Except for the EQF level, the register does not provide any further information about the learning outcomes achieved during the training. Also there is no functionality to communicate with other databases. In order to be usable a significant upgrade and extension of functionality will be needed.

Interesting element is the modular representation of the CEN-CE certificates. So that in one view it is clear how many modules a professional has been registered for.

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Construction Blueprint register

General information

Construction Blueprint. Skills Blueprint for the Construction Industry is a project funded by the 2018 Call of the Erasmus+ Programme of the European Union, inscribed within Key Action 2 of the Sector Skills Alliances (Lot 3) for implementing a new strategic approach (Blueprint) to sectoral cooperation on skills.

The main objective of Construction Blueprint is to develop a new sectoral strategic approach to cooperate on skills in the Construction industry, and support a better matching between skills needed by companies and skills provided by training centres. To achieve this goal successfully, the project gathers three Sectoral European Organizations, along with nine National Sectoral representatives and twelve Vocational Education and Training (VET) and Higher Education providers from twelve European Union countries.

Although much of the job is created to map the existing training opportunities and create a new one, rather than to identify skills needs, the project does not aim at developing a database of trained and certified professionals.

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Train4Sustain European Skills Registry

General information

Name of the register: European Skills Registry

Link to the test environment of the register: https://esr.train4sustain.eu/

Description of the register: The European Skills Registry (ESR) is a major outcome of the TRAIN4SUSTAIN (T4S) project. The ESR is a web application with functions related to competences and qualification of building professionals, based on the T4S Competence QualityStandard (CQS) developed by Train4Sustain. The T4S CQS and the ESR, enable the issuing of a personal Skills Passport. The ESR can facilitate stakeholder interactions and support the promotion of sustainable energy skills in the construction sector. Market players, both on the demand (investors) and supply (companies, building professionals) side should better find each other in EU MSs and regionally, by matching the required and achieved competences of their training and through professional experiences.

The main functionalities are a:

1. Skills Comparison Tool: Comparing various qualification schemes and learning outcomes on the basis of the common competence quality standard
2. Scheme Evaluation Tool: Mapping existing qualification schemes and curricula in terms of learning outcomes
3. Skills Passport: evaluating achieved national qualifications of professionals in the field of sustainable energy skills
4. Match-making Hub:
    a. Searching for qualified experts fulfilling certain criteria with regards to competences, comparing their qualification level to national standards and contacting them via the Platform's internal communication panel
    b. Publishing projects that require experts with skills in the field of sustainable energy

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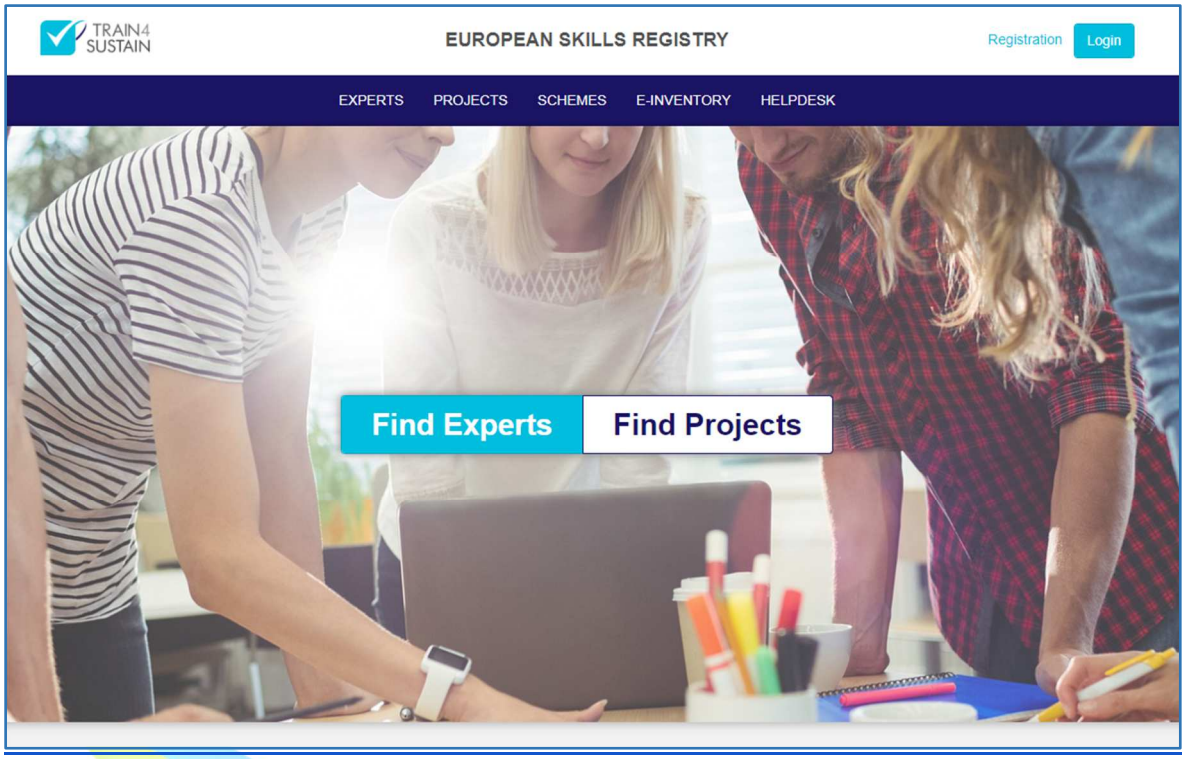
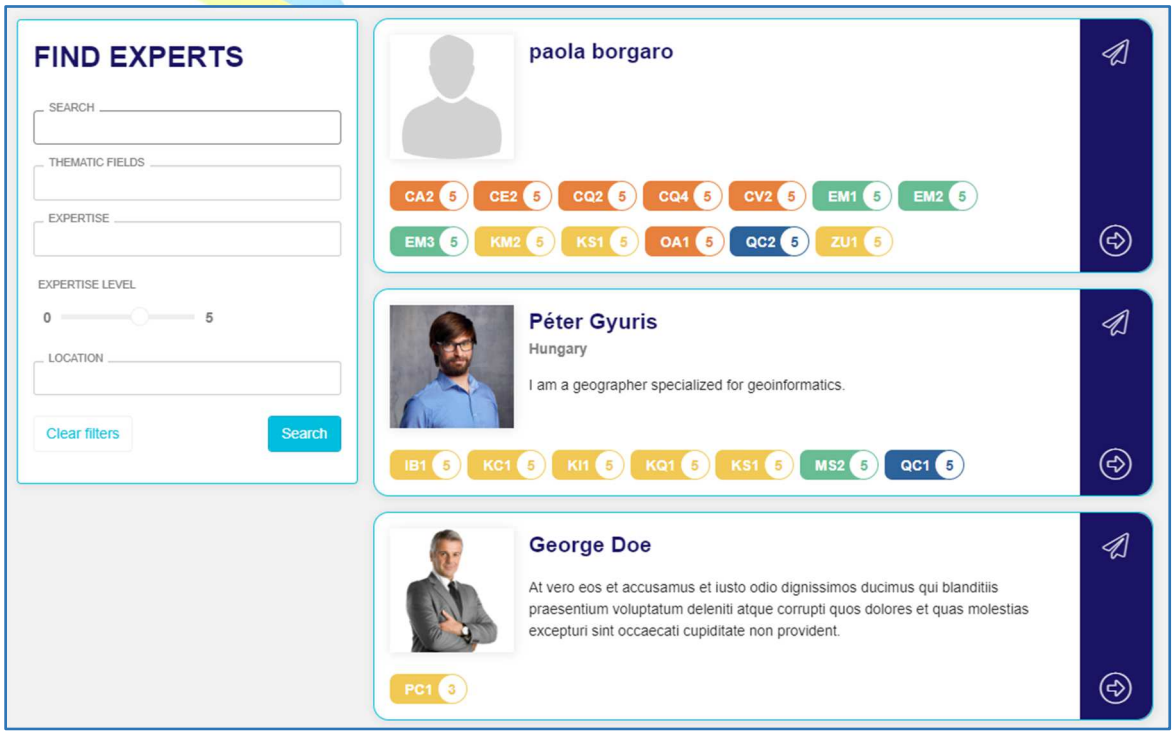
Several screenshots



Welcome page of the European Skills Registry



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In the European Skills Registry professionals are profiles based on a skills passport powered by the T4S Competence Quality Standard. With this standard it becomes possible to compare skills needed to sustain the built environment.

SKILLS PASSPORT

PROCESS	Innovative design solutions		
	Building Information Modelling		
	IB1	Operation of BIM systems	5
	Interdisciplinary skills		
	Collaboration and Communication		
	KC1	Motivation and communication - Design Team	5
	Information management		
	KI1	Management of information in a design process	5
	Quality assurance		
	KQ1	Quality assurance planning and management	5
	Safety assurance		
	KS1	Risk prevention, safety and health of workers	5
ENVIRONMENT	Materials		
	Sustainable materials		
	MS2	Environmental impact of construction materials	5
ECONOMY	Economical quality		
	Cost planning and management		
	QC1	Construction cost planning	5

Overview of the Skills Passport where you see how in a 3-tier approach groups of related skills are harmonized.

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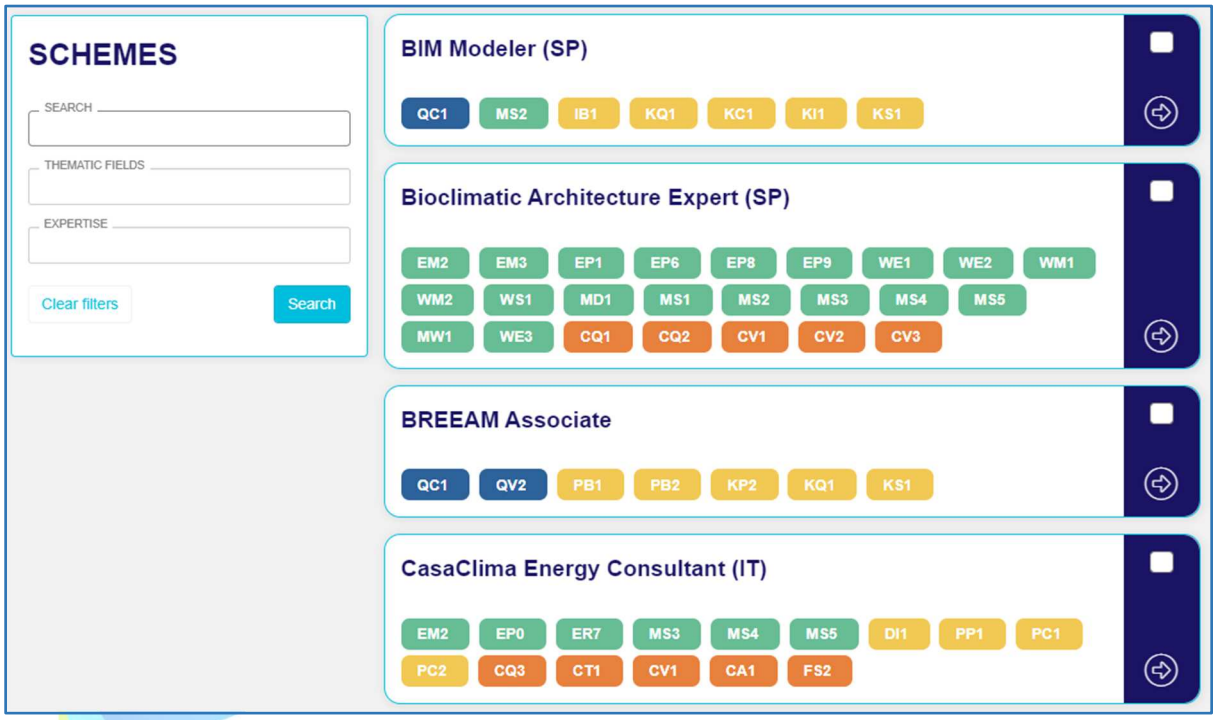

The T4S Competence Quality Standard is also applied to several schemes that require properly skilled professionals. Thus enabling matchmaking between schemes for sustainability and professional in the ESR.

It is also possible to compare these schemes.

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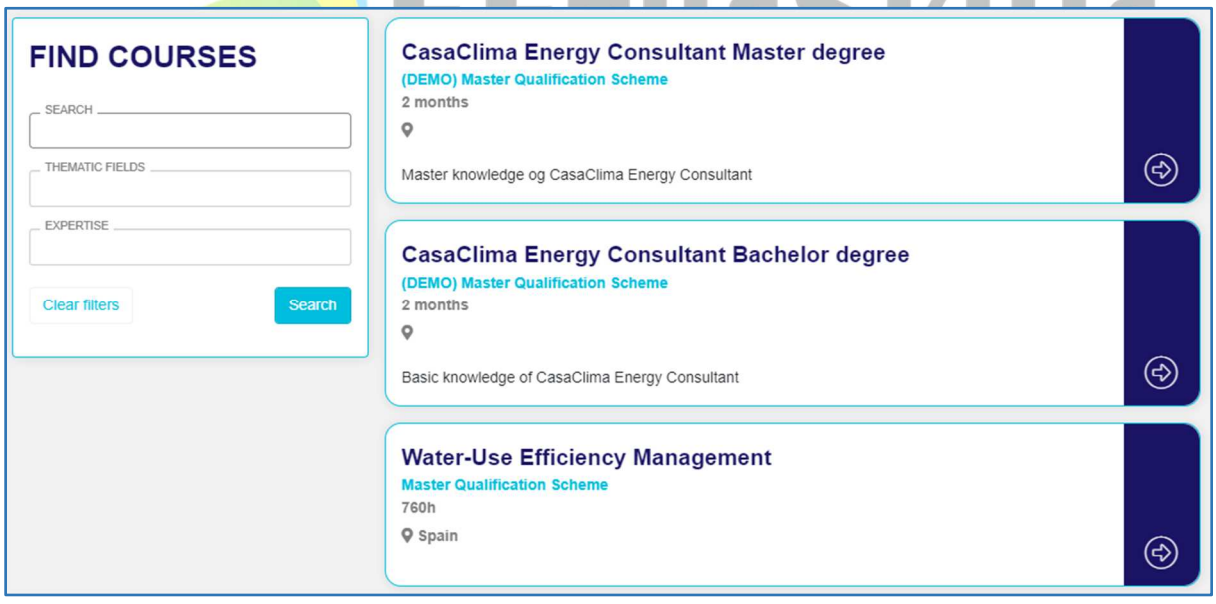
			CasaClima Junior Expert (IT)	CasaClima Energy Consultant (IT)
			Available levels of competence	
ENVIRONMENT	Energy			
	Energy production			
	EP0	Heating and Cooling GENERAL	5	2|5
	Energy reproduction			
	ER7	Heating and cooling emission systems	5	5
	Energy management			
	EM2	Domotic systems (homes)		5
	Materials			
	Sustainable materials			
	MS3	Recycled material		5
	MS4	Renewable materials		5
	MS5	Certified materials		5
	Building design			
	Integrative design			
	DI1	Integrated Design Process	5	5

Example of a skill requirement comparison between two schemes for sustaining.



Furthermore a catalog of upskilling opportunities is available.

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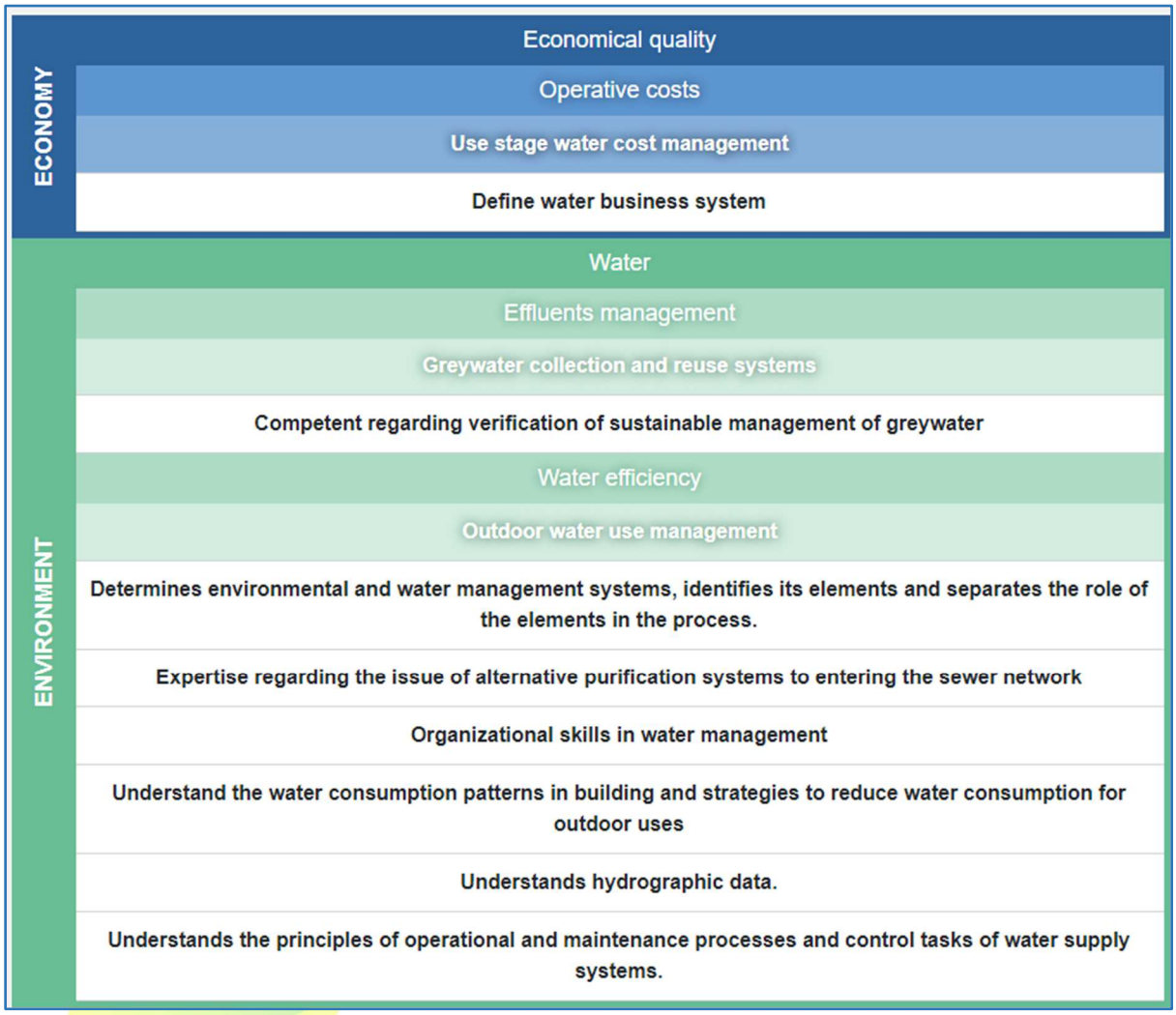

Every course available is mapped with the T4S Competence Quality Standard describing the Unit of Learning Outcomes in a generic applicable wording.

How the register works technically

More information on the IT background and designs can be found in Train4Sustain deliverable: D3.3 - Inventory database and eLearning facility report.

The Train4Sustain team plans to publish a PHP implementation of the API client for the ESR on GitHub exposing public endpoint groups for traversing and accessing the hierarchy of the CQS, comparing qualification schemes, listing and searching for courses and materials stored in the E-inventory.

How the register is implemented in the EU ecosystem

More information: Train4Sustain deliverable: D3.2 - Report on platform implementation and launch Possibilities for communication with registers at national level

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Not known yet (25-8-2022)

Usability for delivering a sustainable EU-wide concept register

The ESR from Train4Sustain is quite suitable for use on the European level. It has complementary functionality to the BUILD UP Skills advisor app and by API it seems both applications can be connected seamlessly.

There are plans for adding a Europass module. This module will let users add Europass CVs to their profile. This with the goal to parse these documents and map to the user's ESR profile.

Currently the registration is done in the form of a self registration by the professional. It seems that these self registration data are reviewed before acceptance. For broad implementation this should be clearly described.

More information: Train4Sustain deliverable: D2.4 - Tools for the market application

Interesting elements are: the modular view of topics a professional is qualified in. Also the ability to link skills to requirements in formal schemes for sustaining the built environment at EU level (e.g. LEED, BREEAM and LEVELs) and at national level are promising.

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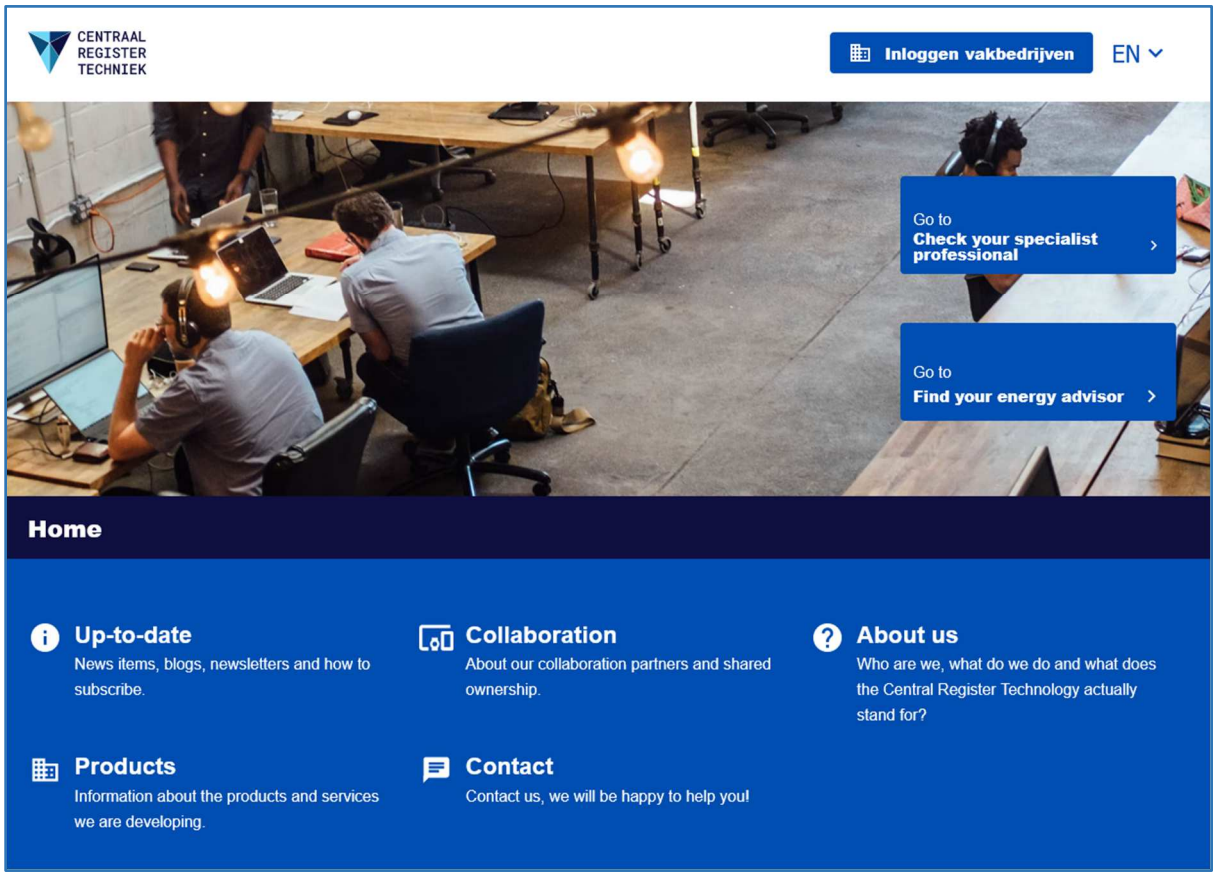
3. Relevant register(s) at national level

In this chapter a general overview of national / regional registers at national level is provided. This is in order to get a first impression on how the SEEtheSkills professionals and companies register can fit in national contexts.

The Netherlands

In the Netherlands several routes are available to get personal recognition. Most of these routes are branche specific or informal. In the scope of sustaining the built environment the recently developed and launched register (Centraal Register Techniek) is developing into the central hub for personal and company registers.



English homepage of Centraal Register Techniek.

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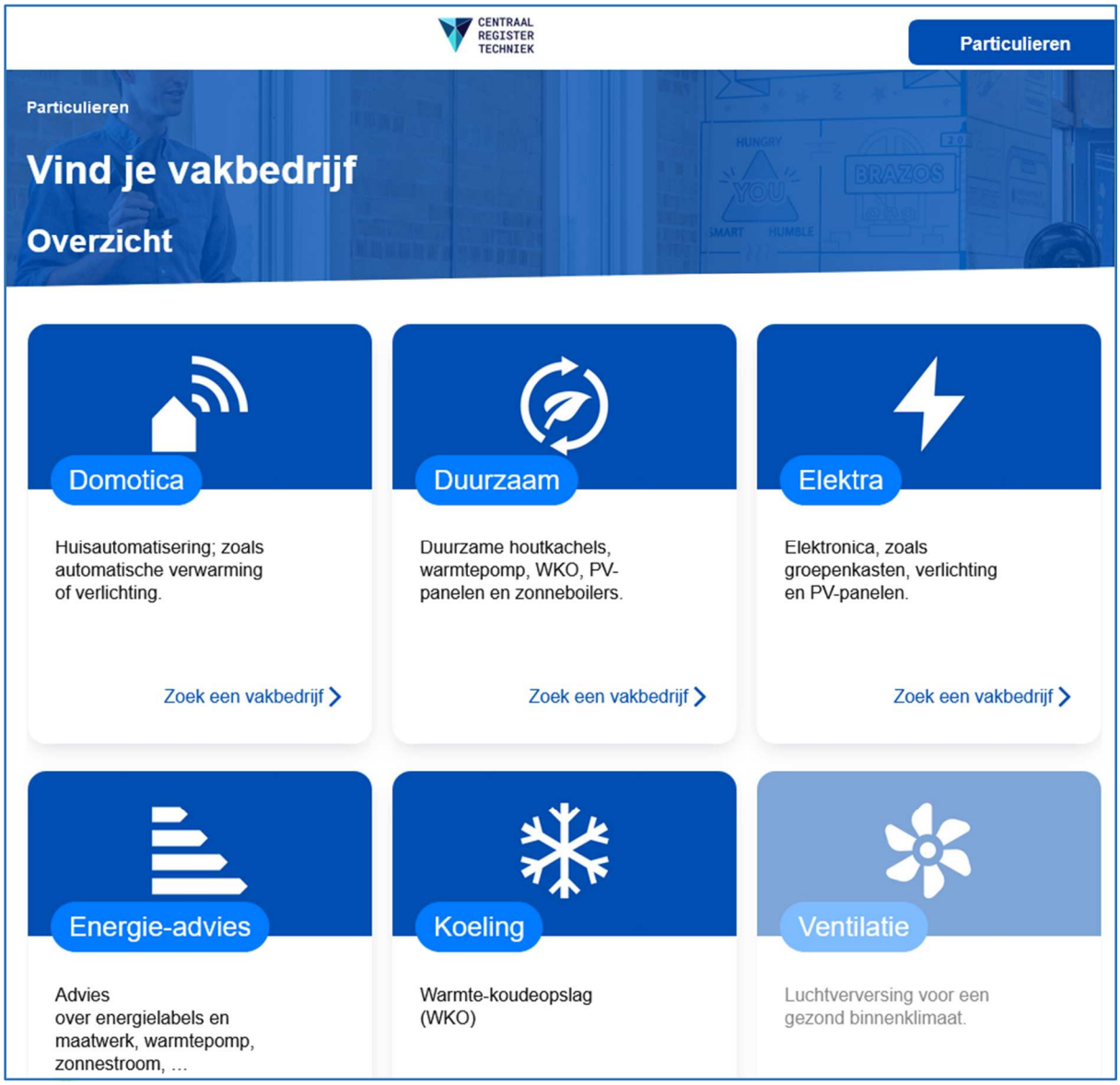

The search functionality to find registered companies.

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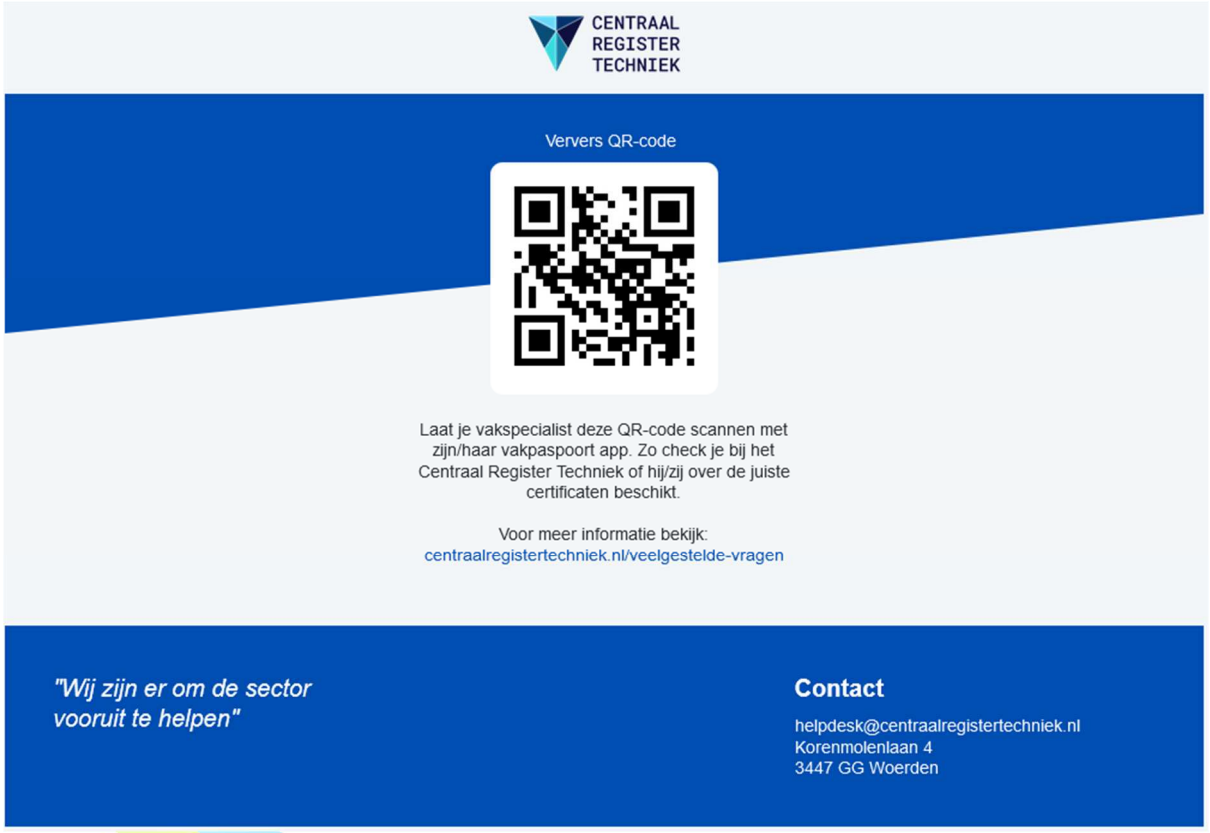

Screen 3: QR code scan to check if the professional is registered.

In order to link the SEEtheSkills Professional and Companies Register for EE-Skills to Centraal Register Techniek a formal agreement with the governing body of Centraal Register and some IT-extensions to implement the API's are needed. Further research is needed to deliver this API in such a way that it is also suitable for use to connect with national registers in other countries, regions and sectors.

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Slovakia

No relevant registers added.

Slovenia

EE consultants database for all kinds of investors funded through national eco fund calls: https://www.ekosklad.si/prebivalstvo/ensvet/svetovalec?stran=2Register of independent experts and issuers of energy performance certificates: https://podatki.gov.si/dataset/register-neodvisnih-strokovnjakov-in-izdajateljev-energetskih-izkaznic In both there is not written which competences, courses or knowledge they have acquired or went through. Only a common list for all is written: https://energetskaizkaznica.si/wp-content/uploads/2012/03/PROGRAM-

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USPOSABLJANJA.pdf , training procedures is described here: https://energetskaizkaznica.si/usposabljanje/

For contractors (construction companies, craftsmen) we have nothing no register on this neither no obligations for EFQ level 3,4,5,6 for higher levels EQF 7-8 national big project LIFE+ CARE4CLIMTE https://www.care4climate.si/en in which engineers and architects this is free till 2030 training is described https://trajnostnagradnja.si/kazalniki-trajnostne-gradnje/, for lower EQF there is nothing. This training is 21 schools' hours long, it has non-formal status.

Engineers (EQF 7-8) chamber register: https://www.izs.si/imenik/pooblasceni-inzenirji/ similar architects have a register at their chamber web site: https://zaps.si/clanstvo/clani-v-zaps/imenik/

North Macedonia

The official/national register of certified engineers and architects is led by the Chamber of Certified Architects and Engineers of the Republic of N.Macedonia. This register is used for licensing engineering companies by the Ministry of Transport and Communications as a responsible body.

The Chamber of Certified Architects and Engineers of the Republic of N.Macedonia (CCAE*) merges all the engineering and architectural professions into one register. It is the only authorized institution by Law to issue certifications to engineers and architects regarding their professional competencies. The Chamber also issues confirmation of certifications of foreign engineers and architects working in the Republic of N.Macedonia. At the moment CCAE has more than 3000 active and additional 4000 non-active members.

The chamber has 12 professional departments for each engineering profession. The basic competence of these departments is to issue engineering certificates to architects and engineers in the Republic of N.Macedonia, confirmation of certifications of engineers from abroad, as well as organizing training for continuous professional development of the Chamber members.

https://www.komoraoai.mk/clenovi-vo-komorata.html

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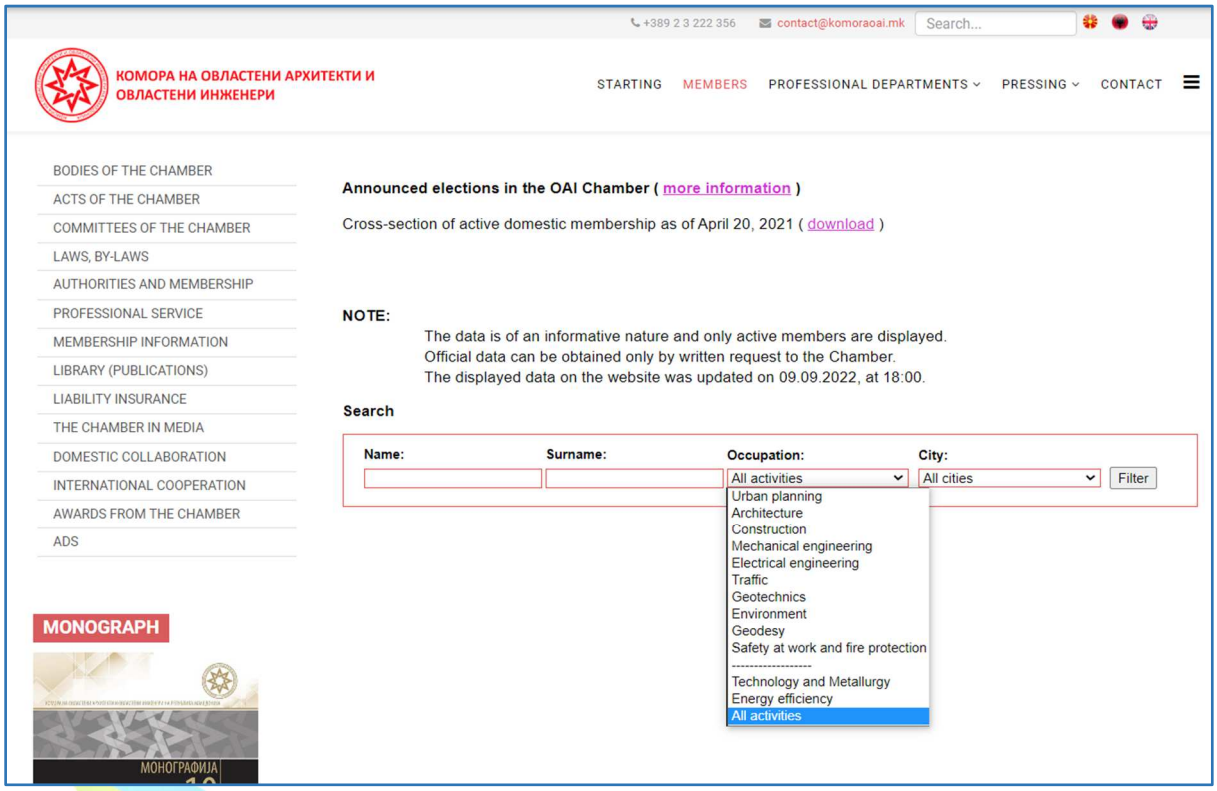

Spain

The COAM (Chamber of Architects of Madrid) makes available to members a registry of Experts in Certification Energy for the preparation of a list accessible to any user who needs the services of these professionals.

This list responds to a request from the Institute for the Diversification and Savings of the Energy (IDEA) derived from Royal Decree 235/2013, which approves the basic procedure for the certification of the energy efficiency of buildings, in which establishes that "The Administration shall make records available to the public periodically updated from competent technicians or from companies that offer the services of experts of this type and will serve as access to information on the certificates to citizens.

To be part of the COAM list of expert certification architects of new and existing buildings, it is necessary:

- Be a member of the COAM and be up to date with payments
- Accredit training in energy certification

In the same way as the COAM, most of the chambers in the construction sector allow professionals to register in their databases in order to perform their professions.

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Another initiative is the website https://www.certificadosenergeticos.com/ where, selecting the desired area of the country of Spain , you can find EE professionals with skills to issue the EE certificate for buildings and you can contact them for free directly through a form in the same website.

Once a specific professional has been selected you can view the contact details, a brief description of his/her professional activities and the ratings obtained from third parties.

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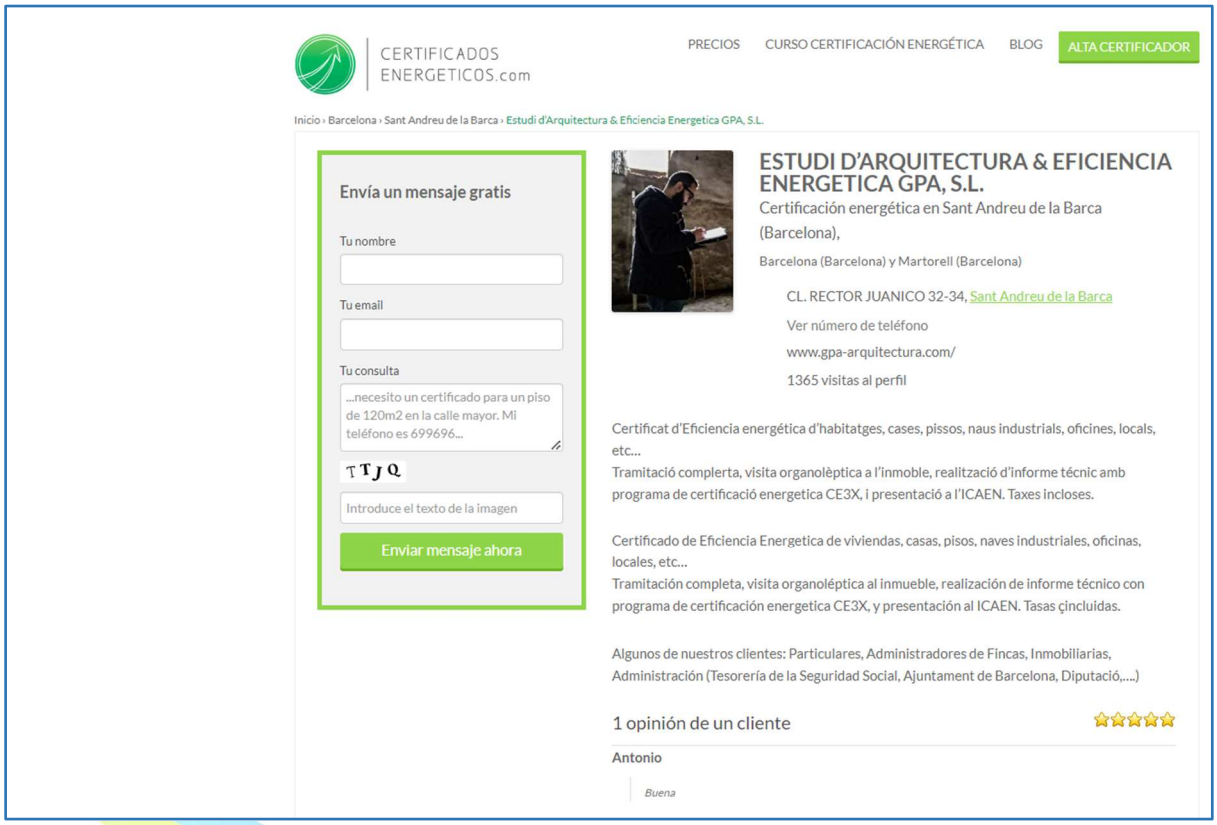

In order to respond to the third transitory provision of Royal Decree 235/2013, the Catalan Institute of Energy (ICAEN) makes available to users the data corresponding to the public information of the energy performance certificates of buildings.

Access can be done through three ways:

- Through the certificate search engine, you can download the energy efficiency label of any building registered in the registry. Allows you to search for address, procedure code or cadastral reference.
- Through the interactive maps that allow you to locate the certificates available for homes, buildings and the tertiary sector. This tool is used to search for a certificate according to the cadastral reference and the postal address and also allows you to navigate the map to have a global vision of the certifications carried out and their qualification.
- Downloading different files in Excel format that allow access to the public information of the registry.

There is no connection or link of this information with the EE professional register.

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4. Design of register for professionals and companies

As part of the 8th SEEtheSkills consortium meeting the consortium discussed the main functionalities and design requirements for the integrated register for professionals and companies. This discussion was guided with a Powerpoint presentation and use of the Mentimeter tool to gather input from the consortium partners.

The following functional requirements derived from the inventory of registers available at EU and at National Level has been discussed. This guided with use of online voting in Menti.com

In the following images the results of the voting and insight in the scatter between participant votes is given. Furthermore several open form brainstorms of possible functional requirements are shown and analysed. In chapter 5. Development of the Concept Professional and Companies Register for EE-Skills these are mapped into an conceptual functional overview of the to be developed professional and companies register for EE-skills.

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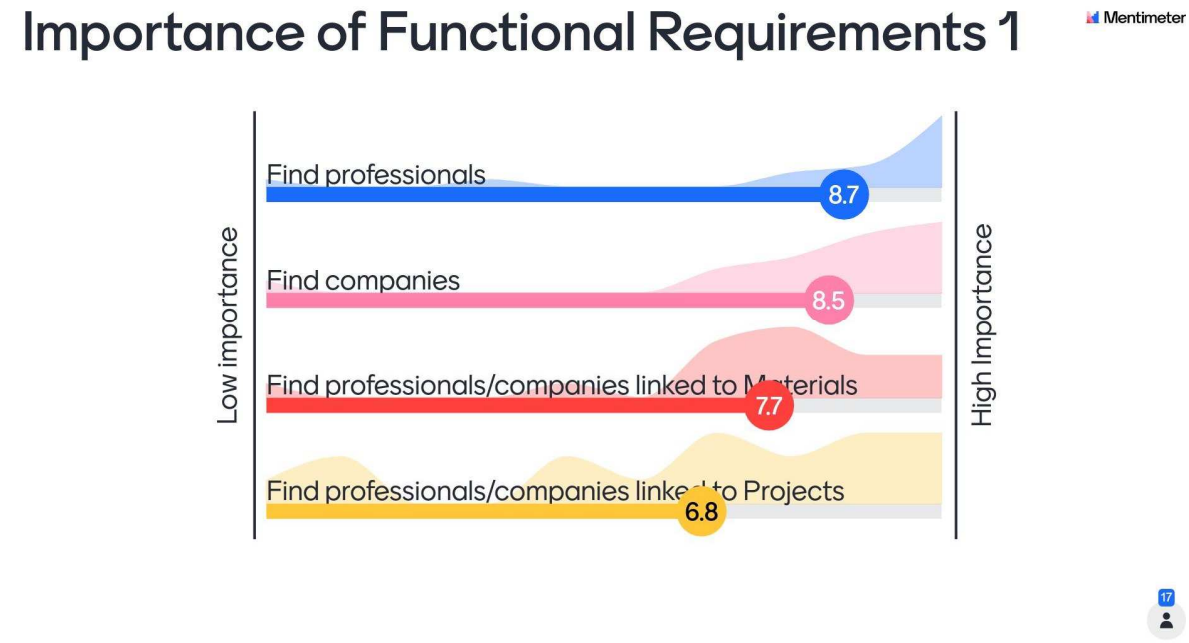

In the first step main functionality to find recognised professionals and companies have been weighted. Main functionalities should be:

1. Find professionals
2. Find companies
3. Find professionals an or companies linked to materials.

The functionality to find recognised professionals / companies linked with reference projects scored significantly lower. This with a broad scatter of votes.

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In the free form brainstorm many possible functionalities have been added. With most prominent ones the '**link of recognitions to skills', 'a ranking of professionals/companies', 'references' and 'background of professionals/companies'**. This delivers a good starting point for enriching the prototype of the SEEtheSkills professionals and companies register with added value functionality. This brainstorm also gives some high added value functionalities for future versions; such as **connection with LinkedIn, customer rating, availability for work, contact witness, years of experience**.

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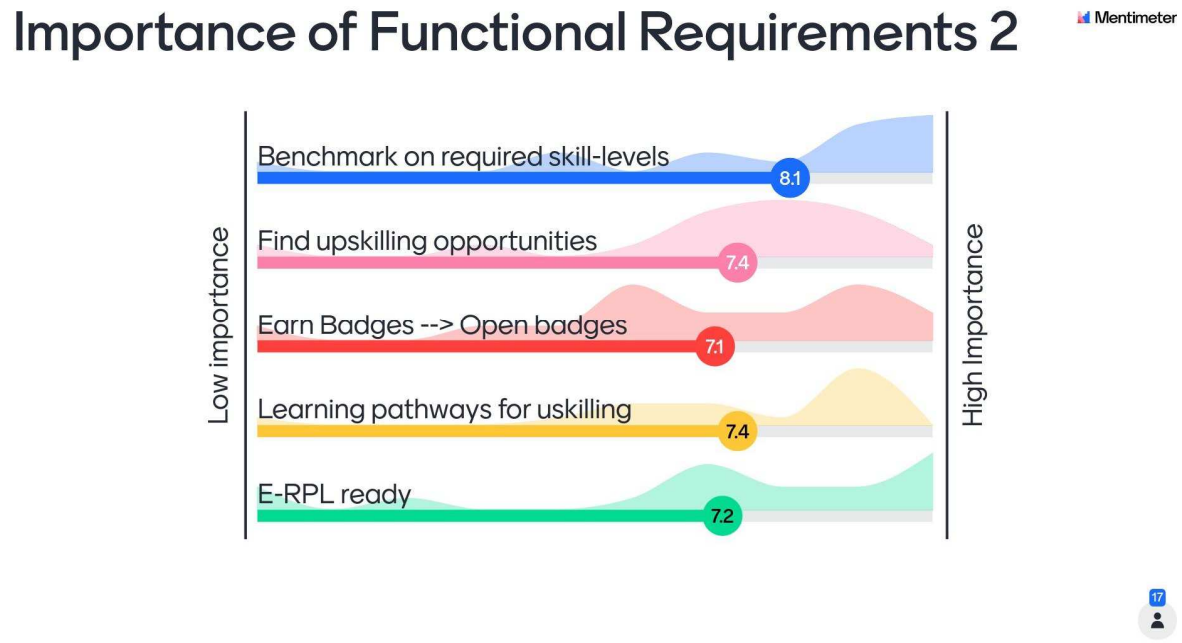

In further voting on the main functionalities the following insights are gathered. Main functionality should contain:

1. A benchmark on required skill levels
   Although not all respondents fully support this, most respondents appreciate this functionality to assess your skill-level in comparison to required skill levels.
2. A link to find upskilling opportunities
   A broadly supported functionality when other core functionality has been delivered.
3. Learning pathways for further upskilling
   Linked to 'finding upskilling opportunities, but a bit more advanced.

Less clarity is existing on the relevance of Open Badges and E-RPL readiness. It is expected that these items will be further clarified during the elaboration of the E-RPL procedures and the digital badges in the coming months.

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EU-level requirements Professional Register

Mentimeter

13

In the free form brainstorm several functionalities with regard to the 'profesional register part' at EU level have been added. With most prominent ones '**Recognition', 'a reference to the institute', 'interoperability, compatibility and mutual recognition'**. With as an important aspect the 'sustainability' of the Professionals register. The solution provided should have a solid ground for self sustaining exploitation after project duration.

National level requirements Professional Register

Mentimeter

16

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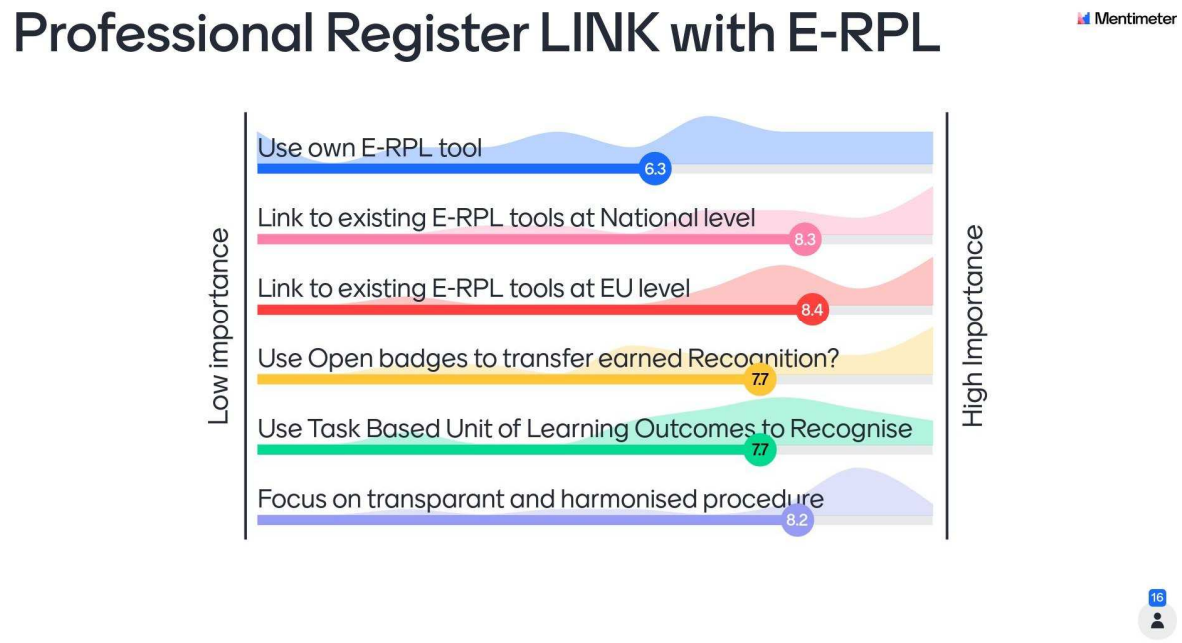
In this free form brainstorm many possible functionalities with regard to the 'profesional register part' at national level have been added. With as the most prominent one **'Visibility'**. The SEEtheSkills professional register should get enough trust and visibility at national level in order to become a solid player. Functionality related to this are **'maintenabillity at national level by national actors'** such as local training providers. Interesting added value functionality pinpointed are 'id most demanded skills, proven references



In the final voting round on the main functionalities the following insights around the link with electronic recognition of prior learning are gathered. Main functionality should contain:

1. Functionality to link to existing E-RPL tools at National and EU-level This making it possible to register as a professional with a E-RPL provider at national and or EU-level
2. The procedure for E-RPL leading to professional registration should be transparent and harmonized.
3. The use of Open badges for transferring previously earned recognitions looks promising.
4. This in combination with the use of task based Unit of Learning Outcomes.

Partners do not prefer to use their own E-RPL tool. Although based on the broad diversification of answers it seems that some partners do have and do want to use their own E-RPL tool. While others do not have an existing E-RPL tool in use.

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Conclusion on the core functional requirements

Based on the workshop outcomes of the Barcelona workshop voting with mentee provided the following ranking of key functional requirements.

Core functionality for finding professionals and companies:

1. Find professionals - 8.7 — Must have
2. Find companies - 8.4 — Must have
3. Find Professionals linked to materials 7.7 — Should have
4. Find Professionals/Companies with project references 6.8 — Nice to have

Core upskilling requirements

1. Benchmark myself on required skill levels - 8.1 — Must have
2. Generate learning pathways for upskilling - 7.4 — Nice to have
3. Earn Open Badges - 7.1 — Nice to have

Core technical requirements

1. Able to connect to existing E-RPL tools - 8.4 — Must have
2. Able to work with task based ULO's - 7.7 — Should have
3. Able to work with Open Badges for E-RPL - 7.7 — Should have

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Conclusion on the additional functional requirements

In the open brainstorm elements of the workshop several additional functional requirements have been put on the table. Most relevant ones are:

The solution provided should have a solid ground for self sustaining exploitation after project duration. This translates into several requirements

1. fit for use at national and EU-level – Must have
2. fit for replication in other countries – Must have
3. maintainable at national level by national actors – Should have
4. multilingual – Should have

With regards to the recognition several requirements are raised

1. Link of recognitions to underlying skills – Should have
2. A reference to the institute providing the proof – Nice to have
3. Interoperability, compatibility and mutual recognition – Nice to have

With regards to finding professionals/companies several requirements are raised of which some are related to electronic recognition of prior learning (E-RPL)

1. A ranking of professionals/companies – Nice to have
2. Background of professionals/companies – Nice to have
3. Connection with LinkedIn – Nice to have
4. Customer rating – Nice to have
5. Availability for work – Should have
6. Insight in most demanded skills – Nice to have
7. References - (idea for E-RPL)
8. Contact witness - (idea for E-RPL)
9. Years of experience - (idea for E-RPL)
10. Proven references - (idea for E-RPL)

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5. Development of the Concept Professional and Companies Register for EE-Skills

In order to successfully develop the Professional and Companies register for EE-skills a comparison overview between solutions found at EU-level is made. This chapter will close off with a recommendation for initial and further development of the register-solution most fit for use.

Table 1 Functionality match with registers at EU level

Must Have
Should Have
Nice to Have

No	Functionality	Train4Sustain	CEN-CE	TRAINEE	NEWCOM/BUS
1	Find professionals	X	X	X	X
2	Find companies	X		possible, hidden currently	X
3	Find Professionals linked to materials				
4	Find Professionals/Companies with project references	X			
5	Benchmark myself on required skill levels				X
6	Generate learning pathways for upskilling			possible, hidden currently	X
7	Earn Open Badges			In development	In development
8	Able to connect to existing E-RPL tools			planned	
9	Able to work with task based ULO's			linked to general competences	X
10	Able to work with Open Badges for E-RPL			planned	

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11	Fit for use at national and EU-level	X		X	X
12	Fit for replication in other countries	X		X	X
13	Maintainable at national level by national actors	?		X	X
14	Multilingual	?		currently bilingual, easy to extend	X
15	Link of recognitions to underlying skills	X			X
16	A reference to the institute providing the proof			X	X
17	Interoperability, compatibility and mutual recognition	X		X	X
18	A ranking of professionals/companies				
19	Background of professionals/companies	X			
20	Connection with LinkedIn				
21	Customer rating				
22	Availability for work				
23	Insight in most demanded skills				

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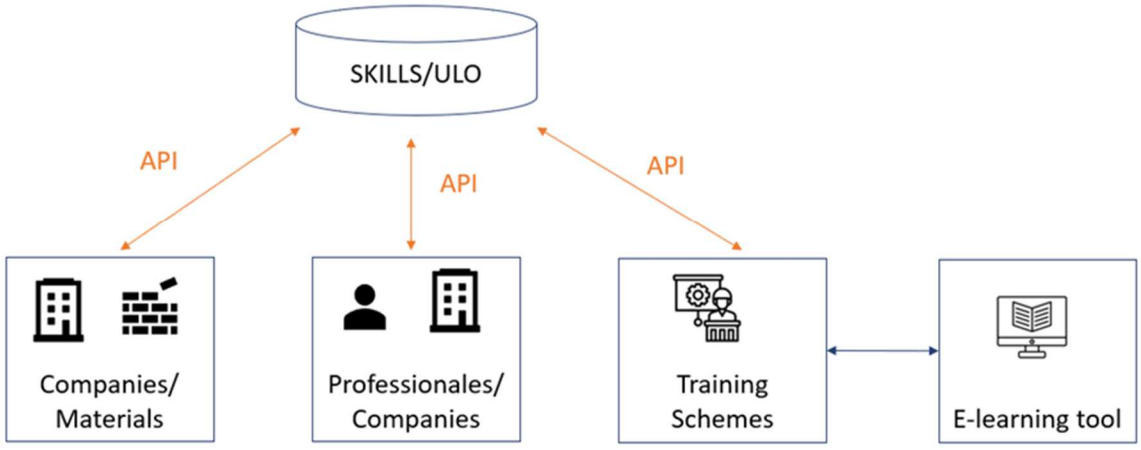
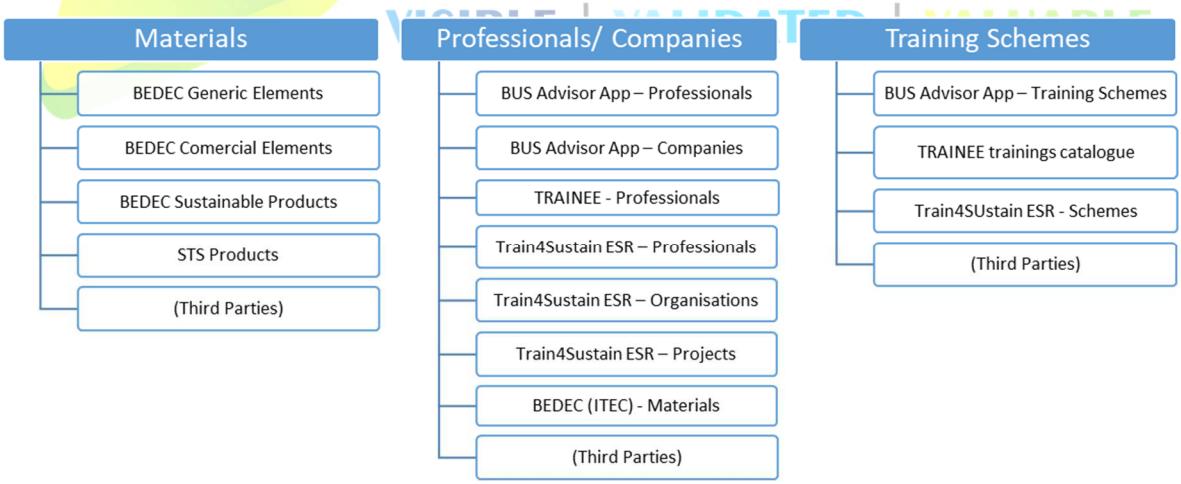
Conceptual approach for addressing the functional requirements

Based on the defined functional requirements, the found functionalities at EU-level and the concept of the SEEtheSkills integrated solution. SEEtheSkills recommends a hybrid approach in which the Unit of Learning Outcome definitions can act as a harmonized linking pin at EU level. To do so an Application Programming Interface (API) will be developed as part of the integrated SEEtheSkills Register for professionals and companies. This enables us to make use of strengths within the TRAINEE professionals, the NEWCOM (BUILD UP Skills advisor) and the Train4Sustain database solutions. This in order to harvest the benefits of already existing databases and enabling their interconnection with the involvement of adequate APIs, as an important decision making criteria should be the number of professionals already populated in the databases.



Scheme of API system in Cross-functionalities alternative, skills are the binding factor



Several functionalities of the integrated SEEtheSkills register provided by different solutions

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To be developed core functionalities

- Use Unit of Learning Outcomes as a linking pin
  By development of an API to retrieve the task based Unit of Learning Outcomes from the BUILD UP Skills advisor solution
- Find Professionals linked to materials
  As part of the integrated SEEtheSkills solution to be developed by ITEC
- Able to work with Open Badges for E-RPL
  By using open badges or a harmonized Unit of Learning Outcomes identifier
  To be developed as part of the BUILD UP Skills advisor solution
- Availability for work
  Adding as metadata at personal and company level
- Able to connect to existing E-RPL tools
  By using a personal identifier or Single Sign On / secure API / with Open badges

SEEtheSkills
VISIBLE | VALIDATED | VALUABLE