



**Establishing future-oriented training
and qualification quality standards
for fostering a broad uptake of
sustainable energy skills in the
European construction sector**

D2.4 Tools for the market application



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Executive summary

This deliverable is tailor made for specific user groups of the TRAIN4SUSTAIN project platform as it puts into context the proposed concepts and the implemented tools. Whereas deliverable D3.2 explains the main features of the platform this report focused more on the market application (use case explanation by target groups), explained use of functions and potential future development cases

The aim of this deliverable is to describe the uses and benefits of each tool that are available on the TRAIN4SUSTAIN (T4S) project platform, for the 3 main target groups categories considered:

1. Qualification scheme operators
2. Demand-side of the market
3. Supply-side of the market

The deliverable is therefore structured based on the 3 possible applications of T4S tools. The first chapter offers a recap of the findings from the previous analysis and research activities.

The following chapters of the deliverable (chapter 2, 3 and 4) describe the tools, conceptualized by the TRAIN4SUSTAIN project partnership, on the intended use for the end users.

More specifically, the platform features that are considered here: the self-assessment of qualification schemes (which can be used by scheme operators and professionals); the comparison matrix to help the research of a professional from the demand-side (e.g.: project owners) of the market; and the Skills Passport that can be used mainly by professionals.

The last chapter in this document, devoted to the conclusions, highlights the potential benefits and the relevance of the tools and their intended future applications.

1 State of the art

1.1 WP2 major findings

WP2 aims at setting up an EU-wide harmonised competence quality standard based on existing knowledge to increase comparability and mutual recognition of regional and national qualification schemes on the market. The impact of the competence standard to stimulate demand for sustainable energy skills will be fostered by WP2 tasks through providing tools to increase trust in national qualification schemes and to support their visibility on the market. WP2 will in particular:

- Liaise with other initiatives and developed qualification schemes for harmonising the skills for professions in view of capitalising on their experience and maximise combined impact
- Get a comprehensive overview of qualification schemes and of the current offer in the target countries and regions
- Identify the key bottlenecks in mutual recognition of sustainable energy skills in member states and neighbouring states
- Harmonise existing qualification schemes and skill level in Europe and develop a common understanding of skill levels from qualifications through establishing a competence standard
- Provide effective tools for market actors in relevant target groups to use the TRAIN4SUSTAIN competence quality standard in practice

Task 2.1 has been the starting point of the whole project, whose aim was to foster a common understanding of sustainable energy skills across Europe by promoting a competence quality standard, a European Skills Registry and a Skill Passport.

The first phase of task 2.1 was devoted to the collection of all the qualification schemes and training courses, related to energy efficiency and sustainability of buildings, available in the countries of the consortium and at international level. In this phase, 106 schemes were collected and divided among 3 target groups: Design and Planning (DP), Building Construction Worker (BCW) and Building Maintenance

and Management (BMM). The first screening highlighted that most of the schemes considered are referred to Design and Planning group and the connected training courses are administered through a theoretical rather than practical teaching. Another important aspect deduced by this analysis, is related to the fact that for at least 2 out of 3 schemes the legislative framework and the reference to an official register for the specific qualification have not been indicated (or not discovered in publicly available sources). The absence of reference to an official qualification register reflects the core concept of the project: in order to ease the recognition of qualification schemes (and connected skills, knowledges and competencies), the creation of an international register of experts and qualified workers is absolutely relevant. The tools developed in TRAIN4SUSTAIN project would allow to compare professionals, not only at a national but also at European and even international level.

The second phase of the task has been referred to the analysis of the distribution of the thematic areas identified. In particular, T4S has taken into consideration the same field of expertise of the PROF / TRAC project, adding two categories in order to improve and expand the professional skills of the involved profiles. In this second phase of the analysis, the objective has been the identification of the most common and also the least available skills and expertise provided by each qualification scheme or training programme. This part of the analysis played a fundamental role for the following project phases: the identification of a certified professional qualification profile, expert in sustainability and energy efficiency.

The analysis conducted on the qualification/training schemes provided by partners, highlighted the low level of competence of the target groups considered with reference to the two introduced thematic areas: Neighbourhood solutions and Innovative Digital Skills. The possible explanation for this result is the fact that the new areas of expertise included in the two additional fields have started to be considered and examined only in recent years. It is very important to insist on these competences and to develop adequate training programmes and qualification schemes, because these areas of expertise are the driver for change and innovation.

The last part of the task has been centred on the implementation of direct interviews and an on-line survey with relevant market actors (experts and representatives of national or regional qualification schemes, homeowners, SMEs, professionals, etc.), with the aim of investigating the state of the art in the countries involved and the understanding of the sensitivity of the various actors and groups addressed by the project. One of the most important findings to be considered during the project concerns the obstacles related to obtaining a specific qualification: lack of time, economic issues and too long training courses etc. Another aspect to stress is the difference between supply and demand of the professional qualifications on the market: the analysis highlighted that for some areas of expertise this difference was much consistent than in other cases. For example, the category Certification protocols and sustainability of buildings presented a high level of availability even if the demand is not so significant. For other categories such as Energy performance of the building envelope and Building diseases diagnosis, the demand is much higher than the availability.

Task 2.2 was centred on the development of a common understanding of sustainable energy skills through defining a competence standard. It was addressed to introducing the methodology of the TRAIN4SUSTAIN Competence Quality Standard (CQS), conceived to allow the evaluation, scoring and reporting the level of competence of professionals, workers with regards to specific Areas of Expertise related to sustainability at building and urban scale. On the base of Learning Outcomes acquired through the completion of learning processes, a professional receives the TRAIN4SUSTAIN Skill Passport, a transnational document reporting the level of competence in relation to the thematic fields and areas of expertise of the Competence Quality Standard.

The main reference for the methodology development has been the European Qualification Scheme developed by the H2020 Prof/Trac project and it is being expanded in TRAIN4SUSTAIN project to include new topics and new professions.

The TRAIN4SUSTAIN CQS has been structured in modules and hierachic levels, reflecting the structure of the most relevant sustainability certification systems at building and urban scale and in relation to the recent Level(s) framework of core sustainability indicators issued by European Commission in October 2020. An additional source of information for the definition of topics to include in the TRAIN4SUSTAIN Competence Quality Standard has been the Deliverable T2.1 "Baseline of national qualification schemes and recognition policies" where several national and international qualification schemes have been analysed. More than 120 Areas of Expertise have been defined in the CQS as result of the analysis of relevant transnational and national qualification schemes.

The TRAIN4SUSTAIN CQS allows to map existing qualifications and trainings in relation to building constructions, building energy efficiency and sustainability at national and transnational level and to integrate them in the system through the identification of the Learning Outcomes provided. The TRAIN4SUSTAIN CQS is a living and extendible system that can evolve over time as it is able to receive new inputs for instance, new (area) expertise considering technological and methodological development, also fulfilling its "future-looking" mission. The structure of the TRAIN4SUSTAIN Competence Quality Standard has been already successfully tested. The Learning Outcomes of 16 relevant national and transnational qualification schemes has been mapped and integrated in the system.

Task 2.3 activities have been based on the previous works done in Task 2.1 and Task 2.2 and have been focused to feed the Competence Quality Standard (CQS) with further Qualification Schemes (QSS) to complete the standard. The completion of the CQS served then as the basis for the T4S platform and the "Skills Passport".

This Task enhanced the TRAIN4SUSTAIN CQS very decisively. The CQS is thus not only international, but also pan-European, as 67 QSS from all over Europe have been integrated by the Mapping actions from Austria, Belgium, Croatia, Finland, France, Germany, Hungary, Ireland, Italy and Spain as well as non-EU countries like Republic of Serbia and Switzerland.

These integrated QSs describe in total 1,335 Learning Outcomes (LOs) as well as every single Area of Expertise (in total 140 AoE) and professions (in total 22) in the CQS, resulting in 100 % filling. The 67 QSs integrated into the CQS come from a total of 46 different QS providers. These providers can be divided into three groups - public (50 %), private (43 %), and other providers (3 %). The public providers include universities, vocational schools, schools for further education and associations. Businesses and companies belong to the private providers. Other providers include for example (EU-) projects and foundations.

Furthermore, in the Evaluation actions of this Task in total 302 QSs were analysed to identify useable QSs for the filling of the CQS. These evaluated QSs include about 2,973 addressed potential AoE, where 50 % address the dimension Environment, 19 % address the dimension Society, 6 % address the dimension Economy and the remaining 25 % address AoE in the dimension Process.

The described QSs will come in action in the European Skills Registry (ESR) platform, including the Match-making hub and the Skills Passport. The LOs descriptions are now going to get transferred into the web-based platform, to facilitate the market uptake and simplify the practical application of the results. The number of QS integrated into the ESR will grow and the ESR platform will gain functions for comparison of these QS.

1.2 Task 2.4

In **Task 2.4** the goal was to facilitate the market uptake and simplify the practical application of the results from previous tasks T2.1, T2.2 and T2.3 through showcasing the concepts directly usable by market actors. The tools are targeted to three main user groups defined as most relevant to stimulate the demand for sustainable energy skills on the market. These are qualification scheme operators (e.g. scheme managers, trainers), demand-side on market (homeowners, cities) and supply-side (professionals like designers, workers, building operators, etc.) among the value chain.

For **qualification scheme operators** a method developed to allow a self-assessment of qualification schemes based on the competence quality standard. The method is based on a survey reflecting all the needed information on a scheme to evaluate the score of the learning outcomes and achieved skills (e.g.: target group of profession, covered thematic fields, deepness of knowledge imparted, number of presence hours, etc.). The scheme operators, from all over Europe, can easily assess their own scheme and to integrate it in the database of analysed qualification schemes. Thus, the tool would allow the extension of the database in Europe and its comprehensiveness directly through the scheme operators.

For the **demand-side** (homeowners, cities, etc.) a special comparison process is developed to allow comparing the qualifications of professionals to support a decision-making for received offers. Upon selecting a number of regional and national qualification schemes in the database (T2.3) for similar professions (e.g.: schemes of BIM professionals) the process could allow providing information on the qualification outcomes relevant for selection of offers.

Professional suppliers of services (experts, SMEs, etc.) in the value chain is supported in promoting their skills towards clients through a Skills Passport, which can be created and issued for registered professionals in the ESR. The method of the Passport is similar to a "Diploma Supplement" used for showing the equivalence of university degrees in the EU. The Passport will show basic information on the professionals (e.g.: name, qualification, credentials of successful works, etc.) and could be linked digitally to the ESR via a QR-Code.

2 Qualification scheme operators

2.1 Self-assessment of qualification schemes: objectives and rationale

This paragraph deals with the role of qualification scheme operator: this actor, with regards to the project, is a training, qualification and sustainable energy courses operator (including higher education). Certification scheme owners such as, for example, the organisations managing BREEAM, Casaclima, Protocollo ITACA, are included in this target group.

Thanks to the tool for self-assessment of qualification schemes, operators and trainers will be able to map their qualification schemes and curricula in terms of learning outcomes, on a transnational base.

Considering the platform developed by T4S project, Scheme operators are special users who can access the Scheme Evaluation Tool and add new qualification scheme to the registry of mapped CQS's areas of expertise. At the present moment, the members of the Consortium have already mapped the national contexts and identified more than 60 qualification schemes, with more than 1000 learning outcomes.

A method has been developed to allow the self-assessment of qualification schemes based on the competence quality standard: it is based on a survey reflecting all the needed information on a scheme to evaluate the score of the learning outcomes and achieved skills (e.g. target group of profession, covered thematic fields, deepness of knowledge imparted, number of presence hours, etc.). Each Learning Outcome is linked with one or more qualification schemes; in this way, it is possible to identify the scheme (s) which guarantee the acquisition of the specific learning outcome and competences.

The survey will enable scheme operators from all over Europe to easily assess their own scheme and to integrate it in the database of analysed qualification schemes.

Thus, the tool will allow the extension of the database in Europe and its comprehensiveness directly through the scheme operators. Moreover, the tool will show scheme operators in each thematic field how the skill level compares to other existing schemes on the market and highlight if improvements are needed.

Scheme operators will be interested in joining the platform because this would give more visibility to their own qualification schemes, not only in their context but also in other European countries. In order to allow the international recognition of the qualification scheme, it will be uploaded on the platform and described in detail, so to be "validated" in a European scenario. Moreover, the ESR platform will serve to showcase and increase the adoption of the qualification scheme.

The access and use of tools for the scheme operators will be free of charge.

Considering the high relevance of this profile and its future involvement in the use of the platform, several representatives of the target groups have been involved in Local Project Committee Meetings, B2B meetings, interviews, in order to get their feedbacks and to tailor on the final users the tools designed in the frame of TRAIN4SUSTAIN Project.

2.2The Skill comparison tool

One of the tools of the ESR Platform developed for Qualification Schemes Operators is the Skill comparison tool: its aim is to ease the collection of methods for comparing two or more qualification schemes (and respective learning outcomes), always taking as a basis the QSC developed by the partnership of T4S.

SCHEMES

SEARCH _____

THEMATIC FIELDS _____

EXPERTISE _____

[Clear filters](#) [Search](#)

CasaClima Energy Consultant

EM2 EP0 ER7 MS3 MS4 MS5 DI1 PP1 PC1
PC2 CQ3 CT1 CV1 CA1 FS2

EP0 ER7 DI1 PP1 PC1 PC2 CQ3 CT1 CV1
CA1

CasaClima Junior Expert

EP0 ER7 DI1 PP1 PC1 PC2 CQ3 CT1 CV1
CA1

CasaClima Sustainability Consul

EM2 EM3 EP0 ER7 WE1 WE2 MS3 MS4 MS5
HL1 HL4 DI1 PP1 PC1 PC2 CQ3 CT1 CT2
CV1 CA1 AB3 FS2 FS3 FS4

ComuneClima Consultant

EM2 EM3 EP0 ER7 WE1 WE2 MS3 MS4 MS5
HL1 HL4 DI1 PP1 PC1 PC2 CQ3 CT1 CT2
CV1 CA1 AB3 FS2 FS3 FS4

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Figure 1 - List of qualification schemes

For comparing qualification schemes, the user can filter the list of schemes by keyword, thematic field and area of expertise and then compare them, in order to detect similarities and differences.

		COMPARE SCHEMES	
		CasaClima Junior Expert	CasaClima Sustainability Consul
ENVIRONMENT	Available levels of competence i		
	Energy		
	Energy production		
	EP0	Heating and Cooling GENERAL	5
	Energy reproduction		5
	ER7	Heating and cooling emission systems	5
	Energy management		
	EM2	Domotic systems (homes)	5
	EM3	Building management systems BMS	5
Water			
Water efficiency			
WE1	Outdoor water use management		5
WE2	Indoor water use management		5

Figure 2 - Example of qualification schemes comparison

This approach allows to visually detect the differences between the 2 qualifications and the respective skills. The possible levels of competences are:

1. Has little knowledge and skills with respect to the thematic area. Understands basic principles and is able to take part in project team discussions.
2. Understands basic knowledge and has practical skills within the thematic area, is able to solve simple problems by selecting and applying basic methods, tools, materials and information.
3. Has comprehensive, factual and theoretical knowledge and skills within the thematic area, is capable of solving standard 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 specialized 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.

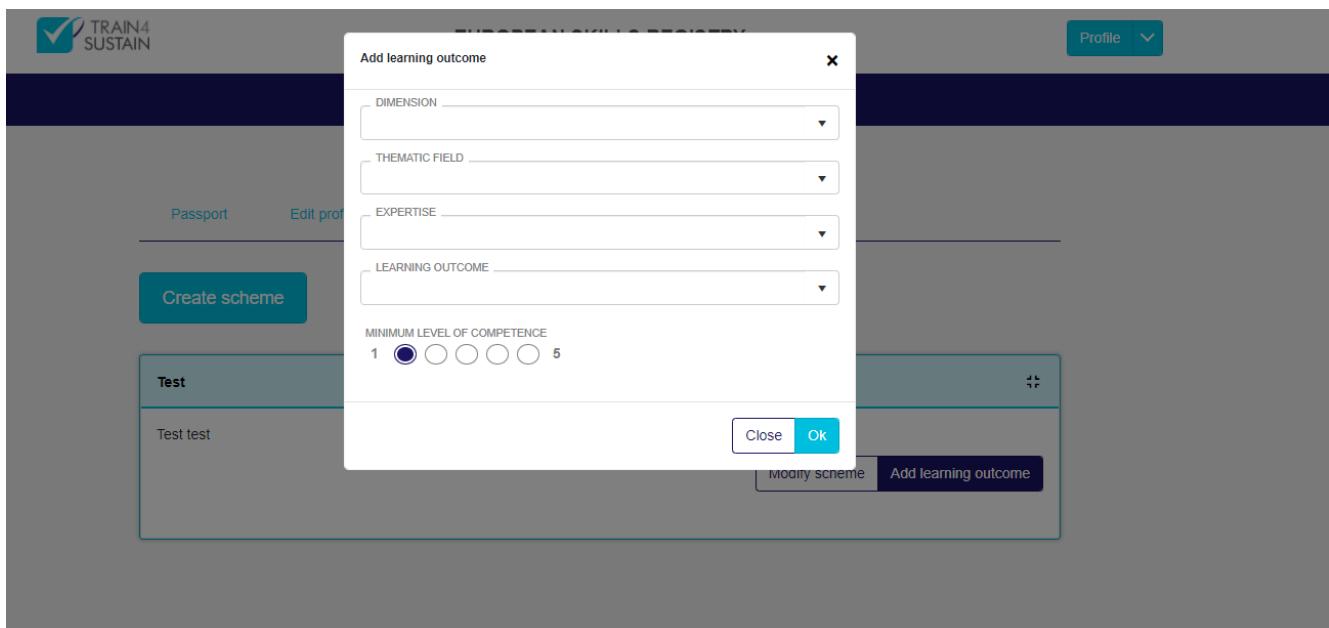


Figure 3 - Insert a qualification scheme

In the profile section, dedicated to scheme operators, is possible to create a new qualification scheme or to modify an existing one.

From this interface, the operator can select the dimension of the qualification (Environment, Society, Economy, Process), the thematic field, the field of expertise and, as subfield, the learning outcome. For each field of expertise, and for each of its learning outcomes, the operators can specify title and level of competence.

After adding all the details and information dealing with Area of Expertise, Learning Outcome, Level of Competence etc, the newly inserted qualification scheme will have the look depicted by Figure 4.

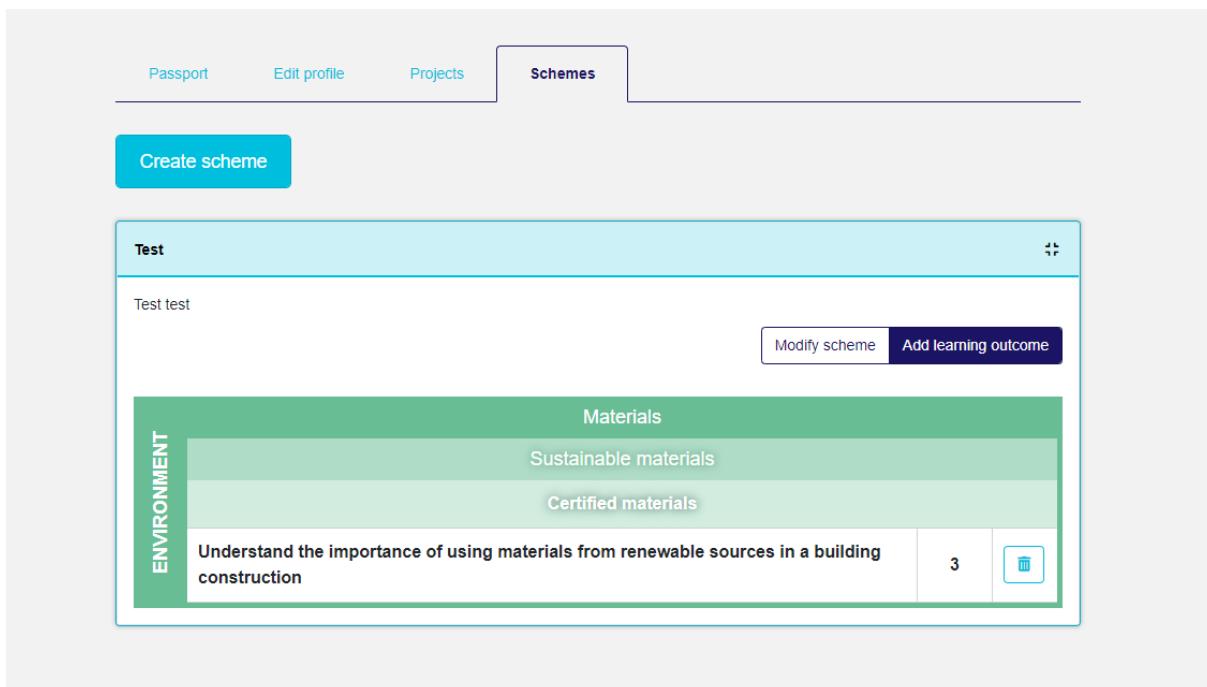


Figure 4 - Look of qualification scheme

3 Demand-side of the market

3.1 Comparison matrix: assessment rationale

The demand for increasingly high-performance building requirements through the EPBD, as well as the mandatory nZEB energy standard, entails new and stimulating challenges in the design, construction and maintenance of energy-efficient buildings. The new EPDB, introduced in 2020, gives a strong input to the demand for these requirements and highlights the spread and relevance of deep energy renovation of buildings in Europe. Building owners, condominium administrators, tenants, maintenance workers, as well as professional technicians, construction companies, artisans and public bodies will increasingly need to prepare in time and update themselves to face the new challenges that the directive poses.

Nowadays, the choice of a qualified expert (professional or craftsman) can take place in several ways. Previously, the so-called "word of mouth" was the method used by customers and another and, in many cases this transmission vehicle was also used as a method of assessing one's competence, based on the satisfaction of the customer.

Even today, this method is a work resource in construction, but it is certainly not enough, because the trust and guarantee of the skills of technicians or craftsmen is constantly evolving in relation to the new requirements in modern construction.

For many professionals there are already official platforms that attest generic skills, such as professional orders (i.e. engineers and architects), or craft trade associations. Membership in a professional or craft association is an obligation established by law and therefore constitutes a form of guarantee for the customer who is looking for a valid professional. Instead, for a person who is not a specialist, such as an owner, a citizen, a condominium administrator, etc. searching for a competent professional is not an easy task.

At the moment there is no specific platform that can bring together the skills related to energy efficiency and environmental sustainability of buildings. Some platforms

(e.g. prontopro.it, artisans-du-batiment.com/, my-hammer.de, etc.) combine one or more skills, without verification by third party of their validity, in many fields related to construction sector.

The new platform developed by TRAIN4SUSTAIN Project aims to offer an excellent communication tool between demand (owners, citizens, public bodies, etc.) and supply (professionals, artisans, scheme operators, etc.) in two ways, mutually allowing one to seek the others. Access to the system will be very simple, and basic researches could also be done without registering. By registering, on the other hand, the user will have access to your private area, where will be possible to complete all the information necessary for both research purposes and for the inclusion of a project visible to all interested parties.

It should also be pointed out that today the average user looking for an expert in energy efficiency is not very familiar with the myriad of qualifications existing on the market and this can often lead them astray. The same problem can also arise for the selection of companies or professionals by public administrations when they need to entrust a specific task regarding energy sustainability. It becomes more and more difficult, for example, for a public body that has to write a tender, to assess what level of competence it needs for the project purpose.

To overcome all these critical issues, the T4S platform aims to become a solid reference point for all the players linked with the topics of energy sustainability in construction. Here below, the screenshot of the homepage of the platform.

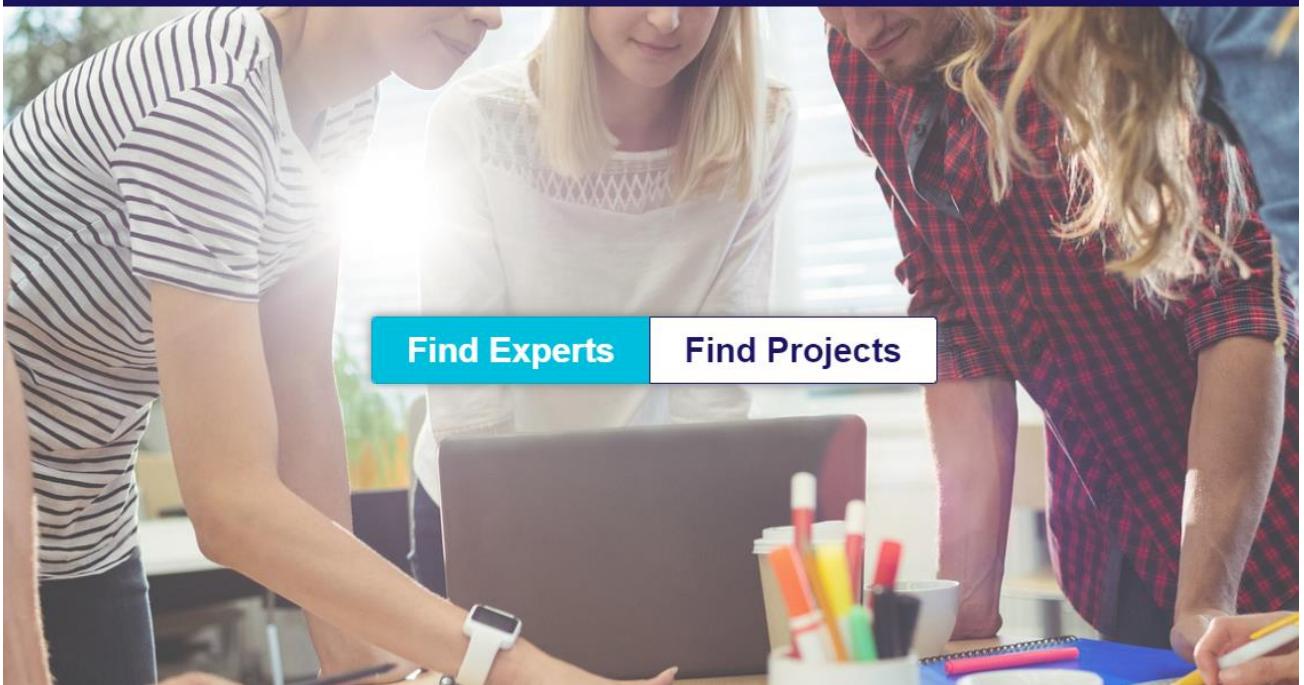


Figure 5 - homepage of the platform

When coming to the research of the expert, the first field will be "search", a free field, meaning the user can type any text with the inquiry. With the other fields, the search narrower and more targeted to one's goal or need: "Thematic fields" will contain the thematic areas considered in the project and precisely the second hierachic level of the TRAIN4SUSTAIN CQS (reported in Deliverable 2.3) relating to the four Dimensions (Environment, Society, Economy and Process). The field can be edited or selected with a drop-down menu to help choose the relevant item. It will be possible to select one or more thematic areas for the research.

Finally, the "Expertise" field will specifically concern the areas of experience envisaged in the energy efficiency and sustainability project. This represents an innovation in expert research platforms since, at the moment, there is no comparable function available. This field will allow to select one or more areas of experience among the 144 items collected and selected in task 2.2 and 2.3. To

facilitate their identification, Area of Expertise are coded with two letters and a progressive number in relation to the Macro Areas of Expertise.

Finally, with the "Location" field, it will be possible to enter an additional search criterion linked to the nationality of the expert or the project.

The research carried out will provide as a result a list of experts, in the form of preview cards that meet the search criteria. In addition to being able to view the expert's profile in detail, it will also be possible to contact the expert directly by sending him a short text message with a token-based technology; in this way no email address is provided in respect of the processing of personal data (privacy).

The difference from other research platforms is linked to the possibility of verifying all the expert's skills, not only for the search criteria. In this way, it is possible to globally evaluate all the skills of the expert related to the field of energy efficiency and sustainability.

The same type of search can also be carried out on the "Projects" section using similar search fields. This section will show all the projects uploaded by users who are looking for a professional or craftsman to be involved in the specific activity.

This section can also be used by public bodies in order to obtain requests or expression of interest in their project. Indeed, public authorities will be able to publish projects that require the candidacy of experts in certain fields.

The platform will also make it possible to search for certification schemes validated and inserted by scheme operators and reported in Deliverable 2.2. The Schemes section provides for the collection of all the schemes envisaged by the project at the present stage and all those that can be inserted in the future. On each tab it will be possible to use a button that provides more details and it will also be possible to select more scheme cards, in order to compare them.

The comparison tool will allow you to make a direct comparison between the set of expertise associated with the qualification. It will therefore be possible to quickly

and easily verify in which of the two qualifications that specific expertise is present and to compare them with the relative level mapped by the CQS (as reported in Deliverable 2.2).

This function can also be useful for professionals who have already entered their qualifications in their profile, comparing their profiles with others experts. The comparison can also be useful to evaluate how to use one's own experiences and how many and which experiences they must reach to obtain a further qualification scheme. The procedure will be very similar to the Skills Comparison function, i.e. the user selects a qualification scheme which will then be displayed in a tabular layout as a breakdown of learning outcomes mapped on the Passport. Areas of expertise missing to achieve the qualification will be highlighted and relevant items will be suggested from the electronic inventory.

Finally, there will be an additional "E-inventory" section which represents a database of national and international courses that provide certain qualifications. In this folder will also be stored training materials, such as handouts, video lessons, video exercises, tutorials, guidelines relating to the training of experts who want to increase their level of competence. This database will also facilitate the transfer of knowledge in the sector, thus improving the quality and completeness of existing qualification schemes.

4 Supply-side of the market

4.1 New Skills Passport: rationale

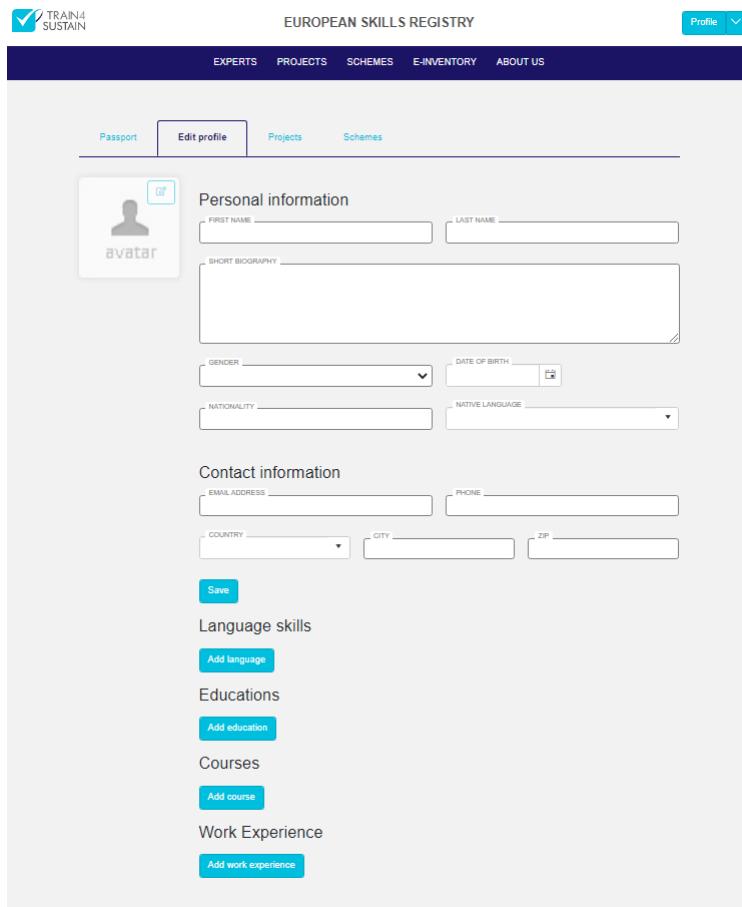
In the construction field, almost all professional technicians are enrolled in the corresponding professional associations and orders, as required by law. These lists do not certify specific skills, but rather a set of technical skills for generic professional activities. For example, an engineer, as well as an architect enrolled in their own register, can provide engineering and architectural services related to the structural, rather than aesthetic or energy aspects of the building. The related competence is not detailed and often the order leaves the technician the opportunity to self-declare the experiences in the specific sector, perhaps by exhibiting or publishing a qualification or certification. In addition to these professional lists, there are other more specific lists concerning certain qualifications, such as the Energy Certification, the Energy Auditor, Fire Prevention Experts, Environmental Acoustics Experts, etc., also required by law. Finally, there are lists not provided for by legislative standards that highlight other no less important qualifications and which have now become fundamental, such as those relating to the energy and environmental efficiency and sustainability of buildings. In short, there is no single license or passport that is understandable to everyone where one's technical skills and competences are listed.

The same type of reasoning can also be made for small and medium-sized enterprises that must be registered in specific category associations in order to be able to carry out their entrepreneurial activity. However, membership in an association is not sufficient to demonstrate the level of competence and the quality of the type of activity; instead, it is often necessary to enrol in additional specific lists in order to be more visible and qualified on the market.

Today, sustainability and energy efficiency have become a fundamental and mandatory aspect and the technicians and craftsmen working in this sector struggle, with the current tools to demonstrate their skills and competences.

The T4S platform also intends to try to fill this gap by allowing not only to have a single list and point of reference, but also to be able to grow and enhance one's skills over time using comparison tools.

For professionals, once registered on the platform it will be possible to modify and complete their profile by entering further data (such as language, education, courses taken and work experiences). The following image shows a screenshot of how the request for the data needed to identify the user's profile could be implemented.



The screenshot shows the 'Edit profile' section of the European Skills Registry. At the top, there are tabs for 'Passport', 'Edit profile' (which is selected), 'Projects', and 'Schemes'. Below these are sections for 'Personal information' and 'Contact information'. The 'Personal information' section includes fields for First Name, Last Name, Short Biography, Gender, Date of Birth, Nationality, and Native Language. The 'Contact information' section includes fields for Email Address, Phone, Country, City, and Zip. There are also buttons for 'Save', 'Add language', 'Add education', 'Add course', and 'Add work experience'.

Figure 6 - information on the user's profile

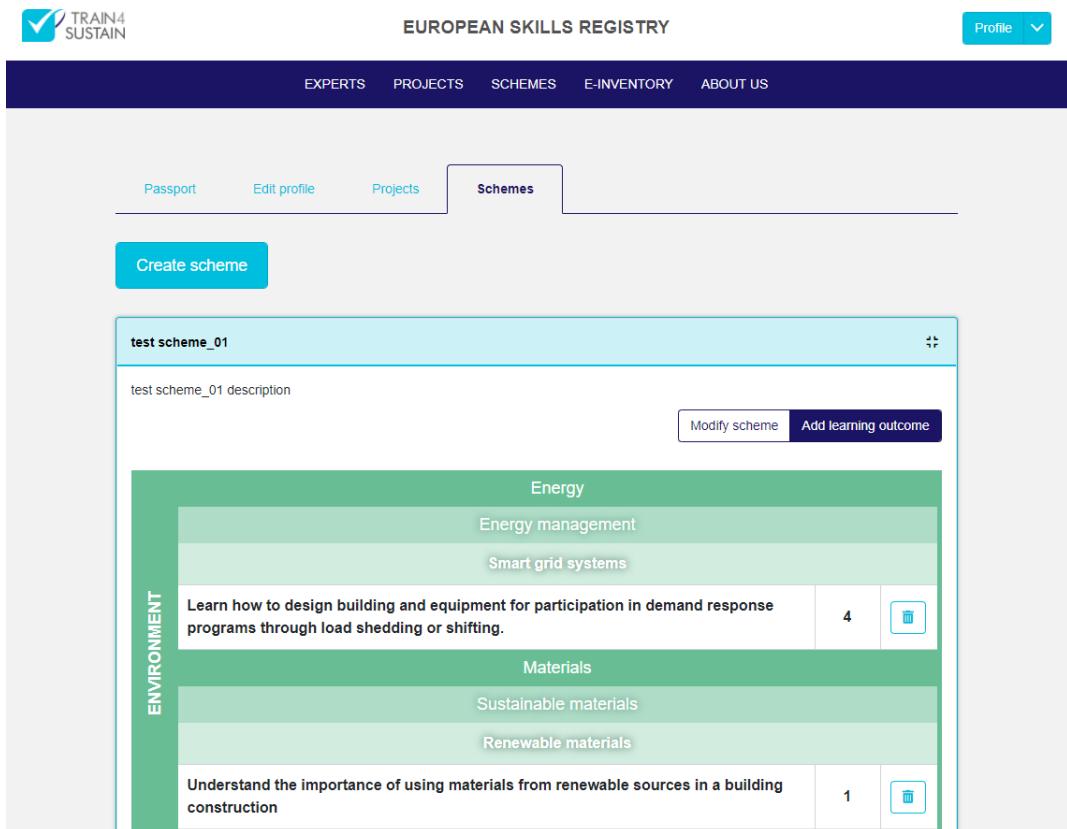
Further other data may be needed to create your own Passport which can be considered an extremely significative tool of the platform and the project. On the basis of the data entered (courses, selected qualifications etc.) the system will evaluate the level of competence in relation to the Quality Standards defined by T4S.

The assessment will be carried out by associating each skill with the relevant level as it has already been described in Deliverable 2.2.

These data can be represented and inserted in the relative "Projects" and "Schemes" sections. In particular, in the Projects section you could enter the works or projects in which the professional (or craftsman) has participated and completed with the aim of increasing his curricular and professional visibility.

In the "Schemes" section the professional will be able to add qualifications, once validated by the Scheme Operator. This function will allow to enter all qualifications, validated and certified by Scheme Operator in professionals' passport.

Below is an example of the insertion of a qualification sheet where it is also possible to note the individual expertise and the relative levels of competence represented by a number ranging from 1 to 5.



The screenshot shows the European Skills Registry interface. At the top, there is a header with the TRAIN4SUSTAIN logo, the title "EUROPEAN SKILLS REGISTRY", and a "Profile" dropdown menu. Below the header, a navigation bar includes links for "EXPERTS", "PROJECTS", "SCHEMES", "E-INVENTORY", and "ABOUT US". A secondary navigation bar below the main menu includes "Passport", "Edit profile", "Projects", and "Schemes", with "Schemes" being the active tab. A "Create scheme" button is located on the left side of the main content area. The main content area displays a qualification scheme titled "test scheme_01". The scheme is categorized under "ENVIRONMENT". It includes three main sections: "Energy", "Materials", and "Smart grid systems". Each section contains a description, a level indicator (e.g., 4 or 1), and a delete icon. The "Energy" section describes how to design building and equipment for participation in demand response programs through load shedding or shifting, with a level of 4. The "Materials" section describes understanding the importance of using materials from renewable sources in a building construction, with a level of 1.

Figure 7 - example of the qualification scheme sheet

The same functions can also be performed by companies or craftsmen who have specific qualifications in the sector of sustainability and energy efficiency of buildings using the platform in the same way as for technicians. The "Projects" section in this specific case could have a significant importance compared to the other sections since it is easier for a craftsman to demonstrate his skills on the basis of what he has already achieved compared to the qualifications possessed. The dynamism of this function will allow artisans, but also professionals to insert further projects or qualifications as they are realized or achieved with the passage of time and their professional career.

The Competence Register will be linked directly to the Competence Passport issued via a link (for example a QR-Code), which will allow users to directly and immediately check and verify the level of competence reported on the Competence Passport.

The competence comparison tool will enable a convenient and easy-to-use comparison of learning outcomes and competences for all qualification schemes assessed based on the new standard. The comparison function will show the ULOs of each scheme in each thematic field and profession.

The additional information on the level of competence achieved is very important to highlight the differences between qualification schemes that are very similar and that deal with the same sectors. With this information we enter into the specifics of the competence by deepening the detail of the requirements for that expertise.

An interesting additional function could be to insert plug-in of other existing platforms and to collect information on other topics and sectors; in this way the users of these platforms will have the opportunity to have a further comparison based also on the skills related to the sustainability and energy efficiency of buildings.

4.2 The Passport

The passport is the main and fundamental document to highlight the various skills inherent to the energy efficiency and sustainability of buildings for this project. It represents the tool for evaluating and describing the skills and competencies of the

professional. It will aim to facilitate an easy and practical comparison of the levels of competence between different professions at a transnational level. The passport will serve to prove the equivalence of qualifications within the EU or neighbouring states and will have a similar function to the "Diploma Supplement" used to compare the equivalence of university qualifications as well as for the "Bologna Process". The passport will be an additional document in order to supplement the existing certificates of qualifications: it will support professionals to demonstrate their level of qualification using the new quality standard of competences (CQS). Operators of national regimes will also have the advantage of having a clear document indicating the level of competence of a professional, which will facilitate the mutual recognition of qualifications in the EU. The Skills Passport will be issued for experts registered through the ESR.

With this tool, experts (professionals, artisans, etc.) will be able to assess internationally the national qualifications achieved in the field of sustainable energy skills. Through a common standard, the skill levels of each qualification will be comparable and can be transparently promoted to clients across borders using a new document.

The T4S passport, as a tool to facilitate the transnational recognition of learning outcomes and proficiency levels of existing qualifications and vocational training, plays a key role in almost all tools used by the platform. An example of the list of skills on the passport could be the one shown in the following image:

SKILLS PASSPORT		
ENVIRONMENT	Energy	
	Energy production	
	EP7	Solar absorption cooling
	EP8	Solar thermal energy systems for heating gen.
	Energy reproduction	
	ER2	Air tightness building
		5

Figure 8 - section of passport dealing with skills

The Platform will allow users to possibly also add the Europass CV to their profile. Each profile will have its own Skills Passport available with a unique and public address that can be encoded as a QR code and incorporated into the PDF version of the passport.

In a nutshell, the Skills Passport offers additional information on training, education levels achieved and qualifications acquired. It provides the expert who is in possession of it with tangible proof of the qualifications that can be transparently provided to the applicant.

The main use of the passport is to highlight that many skills acquired for a specific qualification can already be included in another. For example: a Sustainability Expert from Germany has been qualified as LEED AP expert (Expert certified to work with LEED rating system for buildings) and got a qualification and certificate. A client now wants the Sustainability Expert to provide consultancy services for rating a building using the BREEAM sustainability system. The Sustainability Expert now needs get trained again by the BREEAM system as BREEAM assessor even though he already got most of the needed skills and competences in the LEED AP training, which is mostly similar in terms of contents and knowledge imparted. Recognition of the achieved skill levels are so far not possible as there is no denominator and standard to compare the qualifications.

The following figure highlights a possible comparison of the skills (with the relative levels) of each qualification held for each passport.

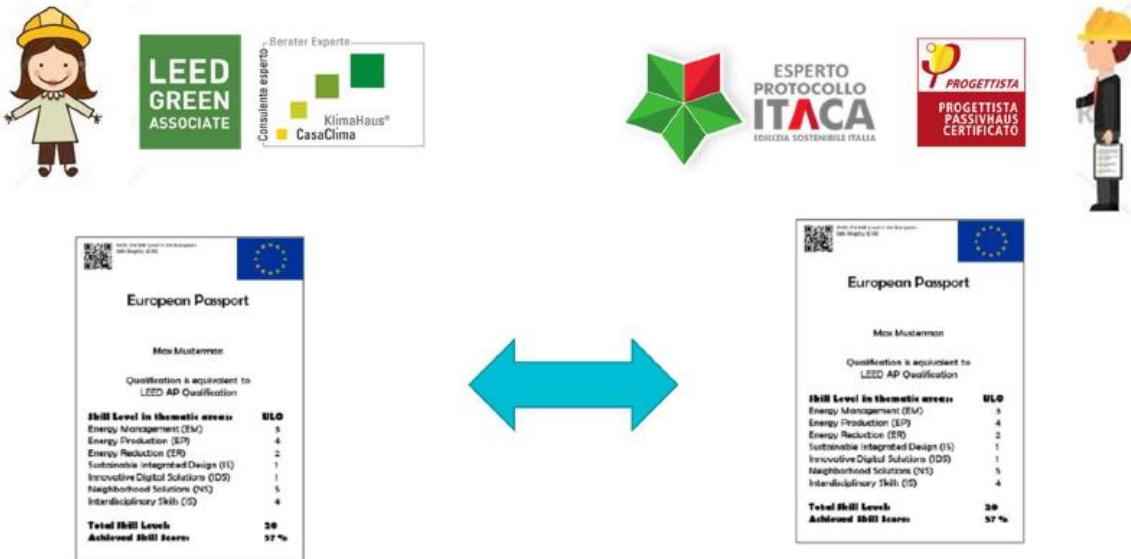


Figure 9 - example of comparison between schemes

The TRAIN4SUSTAIN Skills Passport will enable the expert to transparently proof his skill level and allow a recognition of skills between different qualifications (e.g. LEED and BREEAM sustainability rating system). Therefore, BREEAM may offer a far reduced training or even recognize the LEED expert also as BREEAM expert as the skill level is similar, according to the Skills Passport.

Another use case can be highlighted by the following example:

A public authority from Italy creates a procurement for the energy renovation of a school and needs to evaluate bids from several EU countries. Two bids of SMEs, one from France and one from Bulgaria, are among the favourites in terms of price, quality and competences. For the Italian authorities it is hard to evaluate the competence and skill levels of the certificates provided by the SMEs and their experts as there is no way to compare them transparently.

The TRAIN4SUSTAIN Skills Passport will allow the demand-side (both public and private) to more easy and transparent compare qualification schemes and certificates provided by professionals in bids public authorities to easily compare the skill level. The clients can request in their procurement or offer to add the transnational skills passport, which will facilitate the selection process and increase trust and acceptance in foreign qualifications if they are equal in the achieved ULOs.

5 Conclusion

The analysis offered in Deliverable 2.4 „Tools for the market application” highlights which are the applications and benefits that make innovative the new platform of TRAIN4SUSTAIN Project.

First of all, the most relevant aspect offered by the Platform will be the European Qualification Schemes Registry for Sustainable Energy skills. The list of schemes will be constantly updated by users (qualification schemes operators) following a procedure developed by the Consortium and based on the identification of standardised levels of competence for each Unit of Learning Outcomes. This should allow a more objective mutual recognition and comparison of qualifications and skill levels reached in different national contexts and, as a consequence, the easier movement of workers and professionals at European level. They will thus be able to present and offer their expertise to a broad network of potential customers in Europe.

The comparability of professional profiles will be eased by the European Skills Passport tool: it will be emitted for each expert registered on the platform and offering its competence on the job market. The demand-side, the potential customers will be able to select at the same time and compare the list of skills possessed by two or more workers, in order to find the most suitable profile for the specific activity.

In the passport, the user will find information such as training background, qualifications possessed, previous working experiences in addition to the complete list of skills and corresponding level of competence.