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D.7.7 Policy recommendations for a pan – European common approach for sustainable energy skills recognition

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D.7.7. Policy recommendations for a pan – European common approach for sustainable energy skills recognition

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0.1	20.09.2024	S,Kasovska Georgieva	Initial comments and suggestions
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Publishable executive summary

This report presents recommendations for a common pan - European approach for recognition of sustainable energy and digital skills, applied in the building sector.

While the previous report D7.5 presented a set of recommended stimulating and supportive measures applicable in the project partner countries, as identified by the surveys and analysis carried out within D7.4 and D7.5, the ambition of D7.7 is to go a step further and to recommend a common approach with a potential of applicability across Europe.

Recognition of skills is understood in two aspects: 1) educational (content, scope, assignment, level, proficiency, format and comparability of competences, developed by different programs, certification schemes and national systems of qualifications) and 2) commercial (requirements included in tenders for public and private procurement of building projects, for competences and certificates of engaged workforce, in the field of sustainable energy and digital skills).

Recommendations are intended to contribute to improvement of policy and practice, including tendering procedures, for recognition of sustainable energy and digital skills in all phases of procurement and execution of building projects. As such, they are expected to be of use for public and private procurement of building projects.

The Report D7.7 is in the composition of nexus of deliverables D7.4. D7.5 and D7.6, each of them analysing several aspects of the subject of a more intensive market demand and application of skills, while in the final step of the series of reports, the goal is to contribute to introduction of a common pan European approach.



List of acronyms and abbreviations

BIM - Building Information Modelling

NZEB - Nearly Zero-Energy Buildings

BSI – Building Smart International

NQ – National qualification

NQF – National Qualification Framework

VET – Vocational Education and Training

CPD – Continuous Professional Development

EQF – European Qualification Framework

AEC – Architecture, Engineering and Construction

WP – Work Package

GPP – Green Public Procurement

CEN – Committee on European Norms

TC – Technical Committee

CEDEFOP - European Centre for the Development of Vocational Training

ECEC - European Council of Engineers Chambers

LOs – Learning Outcomes

ULO – Units of Learning Outcomes



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1. Introduction

1.1. Subject and objective of the Report

Subject of the Report 7.7 is development of a set of recommendations for a common approach that can be applied in European countries, towards recognition of sustainable energy and digital skills applied in building projects

Objective of the Report 7.7 is to design a set of policy recommendations that will be applicable for a large number of countries and by that to contribute to initiation of reforms for improvement of current practices, for market appreciation of skills, through feasible and multi - aspect measures.

This report is the final in the chain of deliverables 7.4, 7.5, 7.6 and 7.7, which form a nexus of aspects of analysis of skills recognition.

Bases for development of the report D7.7. were the relevant findings of other ARISE reports, as well as recommendations developed by European organizations, platforms, initiatives and projects.

More specifically, the conceptual design of measures is based on the following findings from previous analyses:

- Public procurement can be used to incentivise upskilling in sustainable energy and digitalization.
- Policy and regulatory changes should be developed in a dialogue and close collaboration with a broad range of stakeholders, including industry, public administration, SMEs, education centres, etc., making the process fully transparent and available for all involved parties.
- Educational changes need to enable reforms in regulatory procedures reforms.
- Technical and financial support is required to provide complete transition with all involved companies and continuous and fair competitiveness.



1.2. Applied methodology

The applied methodology included:

1. Overview of relevant findings of ARISE reports
2. Analysis of European initiatives in the field of international skills recognition
3. Development of policy recommendations for a pan European common approach for sustainable energy skills recognition in building projects

1.3. Basis for development of D7.7

For development of D7.7, main findings from the following data and reports were used:

1.3.1. ARISE project deliverables

1. *D2.2 First overview of EU directives implementation.*
2. *D2.3 First overview of the national and regional qualification framework.*
3. *D2.4 First overview of other EU wide certification schemes.*
4. *D2.5 Overview of pathways of integration of previous EU project resources report*
5. *D2.8: European roadmap BIM applied to energy performance improvement report*
6. *D3.1 Desk research on maturity analysis of digitalisation and sustainable energy skills*
7. *D3.3 Qualification framework of sustainable energy skills leveraged by digitalisation incl. BIM*
8. *D3.5 Guidelines as a basis for digital implementation*
9. *D3.6: Recommendations for adaptation of the proposed recognition*
10. *D7.1, Guidelines to align ARISE learning outcomes with national qualification frameworks*
11. *D7.2, Guidelines for use of ARISE trainings to gain CPD points*
12. *D7.4, Overview of best practices in market recognition of skills*
13. *D7.5 Recommendations for market stimulating and supportive measures*

1.3.2. Analyses of reports from pan -European initiatives, platforms, projects and professional associations

14. *GPP Guidelines for procurement in buildings sector: Green Public Procurement Criteria for Office Building Design, Construction and Management. Procurement practice guidance document*¹
15. *ECEC Manifesto*²
16. *CEDEFOP analysis, projections and recommendations for validation of informal learning (Construction industry skills card)*³
17. *CEDEFOP common methodology for recognition of qualifications through learning outcomes (“Learning outcomes going global”)*⁴
18. *CEDEFOP The role of learning outcomes in supporting dialogue between the labour market and education and training; the case of vocational education and training AO/DSI/JP/ Learning outcomes and the labour market /004/15,*⁵
19. *CEDEFOP Comparing Vocational Education and Training Qualifications: towards a European Comparative Methodology’ Draft synthesis report (2021),*⁶
20. *Build Up Skills Platform*⁷
21. *High Level Construction Forum*⁸
22. *BUS League project*⁹

¹ <https://publications.jrc.ec.europa.eu/repository/handle/JRC102383>

² https://www.ecec.net/fileadmin/user_upload/ECEC_Manifesto_upload.pdf

³ <https://www.cedefop.europa.eu/en/tools/matching-skills/all-instruments/construction-industry-skill-card>

⁴ https://www.cedefop.europa.eu/files/9193_en.pdf

⁵

⁶ https://www.cedefop.europa.eu/files/2021_draft_synthesis_report_-_comparing_vet_qualifications_towards_a_european_comparative_methodology_march_2021_v.02.pdf

⁷ <https://build-up.ec.europa.eu/en/bup-skills>

⁸ <https://build-up.ec.europa.eu/en/resources-and-tools/links/high-level-construction-forum>

⁹ <https://busleague.eu/>



23. Train4sustain project¹⁰

1.4. Content of the Report

The content of the Report has been organized in 6 Chapters:

1. Introduction –background, scope, subject, objective and applied methodology
2. Summary of findings and outputs of ARISE reports, correlated to the subject of D7.7
3. Summary of analysis and recommendations produced by -European projects and initiatives
4. Specification of recommendations for a common approach of sustainable energy skills recognition
5. Conclusions
6. References

¹⁰ <https://train4sustain.eu/>

2. Outputs used from ARISE project reports

For the purpose of development of D7.7 the following outputs from ARISE project deliverables were used:

1) ***D2.2 First overview of EU directives implementation***

This deliverable has provided the legislation framework in project partner countries, confirming the need to have a qualified workforce to increase the number of renewable energy installations and improve the energy performance of buildings. Not all of the analysed partner countries, have yet the obligation of requiring digital competences, while they are more prepared for RES and EPBD directives implementation.

2) ***D2.3 First overview of the national and regional qualification framework***

This deliverable has shown the heterogeneous development of qualification systems covering the needs of the competences in the energy domain, in project partner countries. The report finds out that the national qualification frameworks are usually not updated with the latest technology progress and even for the traditional ones not all the countries have implemented them.

3) ***D2.4 First overview of other EU wide certification schemes.*** There are very few and heterogeneous certification systems in the examined countries in the energy domain while, and even less for the digital competences. Therefore, this deliverable suggests the buildingSMART International qualification system as widely accepted in Europe and globally, for an international system of recognition of digital competences and in near future, energy efficiency leveraged by BIM competence.

4) D2.5 Overview of pathways of integration of previous EU project resources report

This report provides a deep analysis of the EU directives on implementation of renewable energy sources, energy performance of buildings and European directive for the introduction of Building Information Modelling in the public sector. The report reveals that the subject directive on BIM has been transposed to national regulations in all the countries and partially in North Macedonia, although its implementation is different in each country. In particular, the articles related to the qualification and/or certification of the workforce have been implemented differently. This report provides the bases for linking the European directives to the learning outcomes already produced by many European projects to support the use of the platform also by public authorities involved in the authorization process.

5) D2.8: European roadmap BIM applied to energy performance improvement report

This report provides input to develop a roadmap to get the workforce ready for the challenges of climate changes. The report starts recalling the requirements already defined in the European directives dealing with energy performance, the renewable energy sources, and the digitalization. Then, starting from the outputs of the previous deliverables, the roadmap briefly identifies the knowledge, the skills and the competences needed both on the demand side and the offer.

side to reach the goal of having our buildings more resilient to climate change and with less use of natural resources. In the second part the partners have provided the perception of the maturity level reached in their country for all the technologies considered important to improve the energy performance of the buildings. The implementation of the digitalization shows that the problem is more related to the lack of a full maturity on the demand side.

6) ***D3.1 Desk research on maturity analysis of digitalisation and sustainable energy skills***

The report demonstrated comparability and transactability of qualification frameworks developed by different EU funded project for skills, and the framework developed by BSI, by using CEDEFOP methodology of comparison of LOs.

The three main findings of the research were:

1. All the analysed projects identified existing qualification frameworks on national levels in two important fields for the construction sector: sustainable energy (NZEB) and digital skills (BIM).
2. They all saw the future of competences in construction by integrating sustainable energy and digital skills.
3. Despite the different objectives, focus and applied methodological approach, skills and competences developed by the analysed frameworks, presented by their learning outcomes, were comparable and recognizable, enabling learning achievements transactions, accumulation and recognition across the frameworks.

7) D3.3 Qualification framework of sustainable energy skills leveraged by digitalisation incl. BIM

This report elaborated the developed ARISE QF based on tasks and accompanied ULOs.

The report identified the need to improve upskilling and educational trajectories is evident, and further work is needed to encourage upskilling. A benchmarking mechanism is needed, against which the competence of individual professionals can be measured (Building Smart Professional Certification Program, 2022). There should be a focus on skills recognition, rather than accreditation.

The ARISE project developed a maturity-based model of digitization skills in sync with sustainable energy skills. The model includes four AEC professions (designers, contractors, clients and public administration), to address the building life cycle (design, construction, operation), and is designed to be fit for maturity analysis. The model is developed to focus on BIM, in order to maximise the effect of sustainable energy skills.

This report focuses on the development of the task-based qualification framework for sustainable energy skills with digitalization as an accelerator. The main objective of this report is to establish the ARISE qualification framework that serves as a BIM resource and skills recognition pathway that all stakeholders can utilise, deliver and stimulate.

8) D3.5 Guidelines as a basis for digital implementation

This deliverable is created in order to provide an overview of the essential IT-elements and guidelines for the implementation of the ARISE learning platform.



The ARISE platform incorporates a learning management system (based on Moodle) and an app for smartphones (Build Up Skills Advisor) dedicated to offer learning material and measure the maturity of skills. These elements foster a continuous and personal learning journey to encourage personal skills- development, enabling learners to track their progress and growth.

To further empower learners, recognize and verify their achievements, the ARISE platform implements block-chainable Open Badges. This automates the recognition processes for completing bite-size modules, authenticating and verifying credentials. Gamification elements are included to stimulate lifelong learning by providing tangible and motivating rewards for the learners' dedication and progress.

By utilizing these technological components and adhering to the recommended guidelines, educational and construction specialists can unlock the full potential of the ARISE framework to significantly enhance the acquisition of energy skills and contribute to the attainment of energy-related goals, as well as to approach closer the international recognition of acquired competences.

9) D3.6: Recommendations for adaptation of the proposed recognition determined the pathways for adaptation for digital recognition

This report contains a set of recommendations for adaptation of the by ARISE proposed recognition on BIM and EE-skills. To facilitate the adaptation of the proposed recognition by national branches, use of the buildingSMART qualification system already accepted worldwide has been mapped against the micro learning units presented within the ARISE platform.

The digitalization of the BIM permits together with the requirements of BIM in public tenders has a high priority to make the tender assignment more



transparent and less disputable during the construction process. To do this, the public administration must know that a design made in BIM at the start could cost a little more, but the advantages later on could be very important.

Notable, the bSI, as a liaison organization to CEN TC 442 BIM, WG8: Competences, has a significant role in the alignment, on standard or technical specifications level on the competences in BIM.

10)D7.1, Guidelines to align ARISE learning outcomes with national qualification

This report explains transaction model of ARISE QF with NQs and provides guidelines for alignment of ARISE ULOs with national qualification frameworks, in the area of AEC sector, with a focus on BIM and Energy efficiency of buildings.

Based on the analysis of national frameworks, in general (their format, content and referencing to EQF) and in specifics of sustainable energy correlated competences, a compilation of ARISE ULOs has been prepared within the Deliverable 3.3 *Qualification framework of sustainable energy skills leveraged by digitalisation incl. BIM*, in a format that will enable recognition and correlation with national frameworks.

ARISE tends to upgrade and extend the existing competences in national frameworks, in the field of sustainable energy skills supported by digitalisation in the AEC sector, by designing upskilling and reskilling



pathways, models of delivery tailored to any professional profile, sets of ULOs and accompanying training modules.

The guidelines and explanations are supported by two analyses, outputs thereof being presented in the Appendices of this report:

- Presentation of method of upgrading of competences in sustainable energy skills that are prescribed by the EU Directives
- Examples of upgrading of existing national qualifications in AEC sector and sustainable energy skills, with ARISE competences in sustainable energy skills with BIM.

11) D7.2, elaborates the algorithm to transact learning achievements as per ARISE QF, to CPD points

This report provides guidelines for use of ARISE training schemes to gain CPD points, based on the model of transaction of developed learning modules in compliance with international system of recognition, which represents deployment of the project international approach towards market appreciation and implementation of skills.

The guidelines are intended, in the first place, for managing authorities of the national qualification frameworks (to upgrade the national qualifications in AEC sectors, by new competences, up to the new needs of the energy-efficient buildings market), then professional bodies in charge of CPD system of recognition, CPD accredited providers, as well as for individual learners, professionals, managers, investors and public administration. This will contribute to



an international share of experience and best practices in recognition of qualifications for sustainable energy skills in construction.

For that purpose, a survey and analysis were carried out, of national implementation of CPD systems in the AEC sectors in partner countries.

The analysis confirms another dimension of ARISE feature of transferability of learning achievements and competences, in continuation with previously explored inter-changeability and complementarity of learning outcomes of the analysed learning frameworks developed by previous construction skills projects (refer to Deliverable D3.1).

12) D7.4. explores and presents the best practices in project partner countries, of market recognition of skills

The report was formed on the basis of two surveys conducted among the partner organizations and among wider groups of stakeholders in partner countries.

The main conclusions from the surveys are:

- Identified insufficient or (in some countries) lack of demand for competences in sustainable energy and digital skills, as well as inconsistency and incompleteness of specifications for skilled workforce in public procurement of buildings, even more emphasized in private procurement.
- Even in countries with qualifications demand in public procurement, there is a room for improvement, particularly in aspect of assigning more weight to the competences, in the bid evaluation procedure.

- On the other hand, the recognized interest and motivation at both demand and supply side are encouraging findings and an inspiring foundation to design and propose stimulating and supporting measures to enhance market demand of skilled workforce.
- The requirement for competences in sustainable energy skills should be compulsory in public and private procurement, include all key professions in the team, with evidence of their validation provided, and should have higher values in points of evaluation of bids. It is a general assessment received by all respondents, that these measures would have a highly positive impact on improving the quality and productivity of works related to energy performance of buildings.

As a general recommendation, the combination of capacity building of the demand side and financial stimulating and supportive measures for the supply side, is present in most of the countries included in the analysis.

13) D7.5 provides recommendations for stimulating and supporting measures for market implementation of skills

Approach suggested by the project is the following one:

General approach recommended by this project is a combination of four groups of measures that are expected to include all market stakeholders.

Measures are to be applied by the top – down method, initiated and led by policy makers and public administration, which is expected to induce the push – pull momentum (market demand – market supply driver



nexus), and result in the full engagement of the sector. The following groups of measures are recommended:

- I) Policy measures
- II) Regulatory measures
- III) Financial measures
- IV) Educational measures

The recommended general principle of implementation of reforms in procurement procedures and practices, towards an increased market demand of skills consists of:

- A. Preparation
- B. Piloting and demonstration
- C. Improvement
- D. Replication and upscaling
- E. Wide adoption

3. Pan European initiatives for a common approach in recognition of sustainable energy and digital skills

3.1. Green Public Procurement

Green Public Procurement (GPP) is defined in the Communication (COM -2008-400) "Public procurement for a better environment" as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured."¹¹

While GPP is a voluntary instrument and Members States are able to determine the extent to which policies or criteria are applied, it plays a key role in the EU's efforts to boosting a resource-efficient economy.

The basic concept of GPP relies on having clear, verifiable, justifiable, and ambitious environmental criteria for products and services, based on a life-cycle approach and scientific evidence base.

Therefore, by using GPP, public authorities can provide industry with real incentives for upskilling, and other stakeholders with the confidence they need to upgrade their buildings³.

EC Communication (2017): Making Public Procurement work in and for Europe – key priorities include:

- Ensuring wider uptake of innovative, green, and social procurement
- Boosting the professionalism of public buyers

Legislative background of GPP, in summary, encompasses:

- GPP is governed by the EU procurement directives, Treaty principles,

¹¹ https://green-business.ec.europa.eu/green-public-procurement_en

case law and national legislation

- Equal treatment, transparency, proportionality and mutual recognition must be applied
- The 2014 procurement directives allow GPP to be applied throughout the tender process
- The link to the subject-matter requirement sets a limit to what bidders can be asked for

Voluntary GPP criteria have been developed for several product groups, including public buildings.

EU GPP criteria¹² include energy efficiency, in procurement related to buildings

The criteria also include competence clause, of the project manager and the team engaged in the services and products correlated to energy performance of buildings.

Competency-based clauses¹³

Art. 66 of Directive 2014/24/EU on public procurement¹⁴ explicitly states that the organisation, qualification and experience of staff assigned to performing a contract (where the quality of the staff assigned can have a significant impact on the level of performance of the contract) can be a criterion for awarding a contract. For complex contracts such as building contracts it can usually be expected that the quality of the project managers, design team, specialist consultants and contractors can have a significant impact on the performance of a project.

However, the educational and professional qualifications of the service

¹² GPP Criteria Guidelines JRC

¹³ BUS League

¹⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0024>

provider or contractor or those of the undertaking's managerial staff may only be evaluated once in a tender procedure, either at selection stage or as an award criterion (Annex XII, Part 2 f of Directive 2014/24/EU).

The terms on which these selection criteria can be applied, and the means of proof which can be requested, are specified in Article 58 and Annex XII of the Procurement Directive 2014/24/EU. At selection stage, bidders must be allowed to prove their technical and professional capacity through various means. Evidence of professional qualifications, labels and certificates from other member states must be taken into consideration. Technical specifications which refer to particular standards must be accompanied by the words 'or equivalent'. Furthermore, selection must be proportionate. E.g., there is a limit on the number of previous contracts which bidders can be asked to provide to demonstrate technical ability.

To reduce the environmental impact of public purchasing, the EU highlighted the need to identify and develop GPP criteria for products, services and works which account for a high share of public purchasing combined with a significant improvement potential for environmental performance. In 2016, the Joint-Research Centre published "[Green Public Procurement Criteria for Office Building Design, Construction and Management](https://publications.jrc.ec.europa.eu/repository/handle/JRC102383)"¹⁵

The Guidance document was developed to provide procurers with orientation on how to effectively integrate GPP criteria for office buildings into the procurement process. It addresses the procurement process for office buildings, including their design, site preparation, construction, servicing and ongoing management.

¹⁵ <https://publications.jrc.ec.europa.eu/repository/handle/JRC102383>

Project team competencies (design team and contractors) is a key criteria of the EU's GPP, which can for instance be used as a selection criterion. The proposed GPP criteria relating to the ability of the tenderer for office building is summarized in the table below.

Figure: GPP Criteria related to the ability of the tenderer for Office buildings -

GPP criterion	Brief Description
Criteria related to the ability of the tenderer	
Competencies of the project manager	<i>Experience and expertise in the management of:</i> <ul style="list-style-type: none"> - Contracts with environmental performance requirements - Implementation of environmental technologies and design innovations - Financial appraisal of environmental technologies and design innovations
Competencies of the design team	<i>Experience and expertise in:</i> <ul style="list-style-type: none"> - Energy efficient building fabric and services design and commissioning - Specification of resource efficient construction materials. - Use of multi-criteria building assessment and certification schemes,
Competencies of the lead construction contractor and specialist contractors	<i>Experience and expertise in:</i> <ul style="list-style-type: none"> - Energy efficient building fabric and services design and commissioning - Procurement of resource efficient construction materials. - Implementation of demolition site waste management plans
Competencies of design, build and operate (DBO) contractors and property developers	<i>Experience and expertise in the selection and management of:</i> <ul style="list-style-type: none"> - Design teams to achieve environmental performance requirements - Main contractors who have delivered buildings with environmentally improved performance - Ongoing facilities management in order to optimise the performance of office buildings

Source: JRC, 2016

The guidance document includes core criteria to assess the ability of the tenderer. These were developed to be used by any contracting authority across the Member States with minimum additional verification effort or cost increases.

Training Clauses¹⁶

Training clauses, proposed and promoted by the projects Train4Sustain¹⁷ and Bus

¹⁶ BUS League D3.2, https://busleague.eu/wp-content/uploads/D3_2_full_version.pdf

¹⁷ <https://train4sustain.eu/>

League allow public procurers to require companies winning highly ambitious projects (reaching the NZEB standard or beyond) to train their staff in energy efficiency. This type of clause is currently in-use only for projects of a specific type and size

3.2. ECEC Manifesto 2024

The European Council of Engineers Chambers (ECEC) is the umbrella organization of European Engineers' Chambers. Its members are national Chambers or other legally established public bodies representing authorized Chartered Engineers. Currently the ECEC represents 17 Chambers and over 300.000 highly qualified European Chartered Engineers who are members in these Chambers.¹⁸

ECEC's basic objectives are

- securing quality and safety of Design and Construction
- stimulating sustainability of Design and Construction
- enhancing international mobility of European Chartered Engineers

In the Manifesto 2024, the ECEC calls on the European Parliament:

1. To further support and promote the New European Bauhaus initiative

Chartered Engineers are main actors in the development of the (green) EU Economy and thus play an important role in the implementation of the New European Bauhaus (NEB) aims. The NEB initiative is an essential basis to ensure the sustainable inclusive and high-quality implementation of the Green Deal and thus needs to be continued.

¹⁸ https://www.ecec.net/fileadmin/user_upload/ECEC_Manifesto_upload.pdf

2. To profess to adequate professional regulations for engineers regarding qualifications, professional independence and responsibility

Quality of engineering services is a basis for safety and reliability of infrastructure, buildings and products and depends to a high degree on the qualification and professional independence of engineers.

High-quality engineering solutions are the basis for the intelligent use of resources and for ensuring that technological advances are applied in a creative, conscious, and ethical manner. Due to the manifold impacts of engineering work on safety and quality of life, high quality education and professional independence are important prerequisites to guarantee decisions taken in the public interest.

3. To support engineering cross-border mobility and automatic recognition for Chartered Engineers by encouraging the fast implementation of a “Common Training Framework” for Civil Engineers in the framework of the EU Professional Qualifications Directive

Meeting the challenges that our society currently faces urgently requires the expertise of mobile and well-educated Engineers. Further enhancing their mobility is also an important step towards overcoming the current lack of engineers. EU policy measures are to a high degree depending on smart engineering solutions as a base for current societal and natural transition processes and especially Civil Engineering work has a massive impact on the quality of the (built) environment and therefore is a major factor in securing that the Green Deal becomes a cultural, human centered and positive tangible experience.

A European framework that is based on common requirements for training of Civil Engineers is important to successfully enhance the mobility of Civil Engineers and ensure that consumer/clients and public authorities can trust in

the quality of Civil Engineering Services throughout Europe.

The quality and safety of the (built) environment is a public interest **and a Common Training** Framework for Civil Engineers would considerably contribute to secure and enhance this interest.

4. To promote fair and quality-based procurement procedures for engineering services by supporting the implementation of a special chapter for intellectual services within the EU Public Procurement Directives

Successfully addressing current societal challenges such as the urgently required implementation of a fair and inclusive green transition requires excellent engineering solutions and thus depends on open and quality-oriented procurement procedures for planning services.

Inappropriate procurement procedures have a strong negative impact on quality, cost certainty, time reliability and overall successful implementation of public projects. It is therefore necessary.

5. To open a separate chapter for intellectual services in the Public Procurement Directives to define appropriate procedures.

Obligatory application of the best bidder principle (MEAT) for planning services needs to be implemented across Europe. Additionally, it is important to enhance Quality Based Selection procedures.

6. To fully support the approach that in the digitalization of the construction sector “open BIM” remains the most essential criterion to keep the market open for SME

The increasing use of Building Information Modelling (BIM) can lead to reliable forecasting of timeframe, results, and costs at each stage of the life cycle of a project and thus increase maneuverability and efficiency of use of resources as well as labor productivity. This requires in- depth expert project preparation as



past projects have proved that in cases of a lack of preparation the use of BIM leads to higher costs, longer project durations, lower quality and weaker usability than expected and thus finally also to financial and political disasters.

3.3. CEDEFOP initiatives

3.3.1. Main skills assessment and anticipation initiative¹⁹

The Matching skills online tool is designed for policy makers working on education and training, skills, (active) labor market policy and related policy areas. It showcases a collection of the main policy initiatives used to detect labor market trends and anticipate skill needs in EU Member States. It also captures key vocational education and training (VET) measures that use such labor market and skills information to inform and shape upskilling or other skills matching policies.

Using a harmonized and comparative methodology and drawing on national expertise, the tool helps understand the approaches and methods used and the rationales behind them. It provides information on their skill mismatch focus, targeted skills and beneficiaries, along with practical organization, funding and stakeholder involvement. It also provides insight on how innovative and successful a policy instrument is and its sustainability. The tool structures and displays the information in a way that you can readily access and interpret.

Main skills assessment / anticipation initiative, includes specification of national activities / measures, in nine policy areas:

¹⁹ <https://www.cedefop.europa.eu/it/tools/matching-skills/policy-instruments/main-skills-assessment-anticipation-initiative>



- 1) Education
- 2) Training
- 3) Employment
- 4) Social inclusion
- 5) Equality / equal opportunity
- 6) Innovation
- 7) Digital economy
- 8) Migration

With six areas of skills matching focus:

- Upskill or reskill employed adults
- Upskill or reskill non-employed adults
- Facilitate job / career transitions
- Address sectoral or occupational skill shortage
- Address mismatch broadly
- Other

As well as defined use if labor market intelligence by

- Designing training programs to activate unemployed
- Informing decisions on course funding/provision
- Informing and training career guidance and counsellors
- Informing job-search decisions of unemployed
- Enabling strategic business decisions at sector/enterprise level
- Other

The complete list of implemented measures per countries can of be found on the link: <https://www.cedefop.europa.eu/en/tools/matching-skills/policy-instruments/main-skills-assessment-anticipation-initiative>



Key training policy measures include national activities / measures, examples of which are listed below:

- Online Courses
- Youth Employment
- Flexible employment and training opportunities in companies with varying activity intensity
- Communication Network with Employers for Technical Occupations' platform
- HRDA Scheme for Job Placement and Training of Tertiary-Education Graduates
- Scheme for the Vocational Training of the Unemployed in Organisations of the Public and broader public sector, Local Government Authorities, Non-Governmental Organisations and Non-Profit Institutions
- System of vocational Qualifications (SVQ)
- The Regional Labour Market Councils (RAR)
- Choose IT!
- Trade committees and local committees
- Investing in competences 2018-202

The complete list of applied measures of the kind, on a country level, can be found on <https://www.cedefop.europa.eu/en/tools/matching-skills/policy-instruments/key-training-policy-measure>.

3.3.2 CEDEFOP initiative for a construction industry skills card

Key Training Policy Measures²⁰

This instrument will help to address the shortage of skills in the construction industry. It also aims to improve quality standards, health and safety practices and employment conditions in this sector. The policy instrument creates an official method of recognition for people that have worked in the construction industry and not had their technical knowledge recognised. Apart from this, the workers also benefit from training that will in turn lead to higher construction standards, including in health and safety as well as employment conditions. The Construction Industry Skill Card (CISC) is aimed at providing new skills to people already working in the construction industry. The Skills card has been show cased for Malta.

3.3.3 CEDEFOP analysis and recommendation for a common methodology for comparison of qualifications²¹

The methodology for comparing vocational education and training qualifications, towards a European comparative methodology, is aimed at tans national comparability of qualifications, by using a method of comparison of learning outcomes. As a pre-step, a selection and testing of a reference point for VET comparison (Draft Final Report, June, 2019) is used. This method was replicated in ARISE report D3.1.

²⁰ <https://www.cedefop.europa.eu/en/tools/matching-skills/all-instruments/construction-industry-skill-card>

²¹ https://www.cedefop.europa.eu/files/9158_en.pdf

3.4. Build Up Skills

Build Up Skills is an initiative of the European Union launched in 2011. It has subsequently been funded under the Intelligent Energy Europe programme, Horizon 2020 and currently under LIFE Clean Energy Transition. It is currently managed by the Climate, Instructure and Environment Executive Agency (CINEA).²²

It directly supports the EU Pact for Skills, and especially the pact related to the construction sector, signed by social partners in 2022, which aims to “upskill and reskill overall at least 25% of the workforce of the construction industry in the next 5 years, to reach the target of 3 million workers.”

The initiative addresses all professionals active in the building value chain as well as companies employing them, but also public authorities as well as building owners and tenants.

The main focus areas include:

- **skills intelligence** for the green transition in the built environment;
- **skills development**, supporting new or upgraded training and qualification schemes covering all aspects of building decarbonisation;
- **skills uptake**, developing measures increasing the demand for skills and skilled professionals.

Over the years, supported projects have allowed to test and validate a whole **toolbox** of approaches, notably:

- **National skills strategies**, including assessment of skills gaps and roadmaps of actions endorsed by key stakeholders;

²² <https://build-up.ec.europa.eu/en/bup-skills>

- **Qualification and training schemes** in different thematic areas (deep renovation, nZEB, heat pumps, Building Information Modelling, circular construction etc...);
- **Innovative tools and methods to train the workforce**, for example training delivered directly at the renovation site, or through digital means;
- **Pilot trainings of professionals and/or trainers**, although the primary focus of BUILD UP Skills is on the engineering of new skills and piloting of innovative methods, rather than on the organisation of large-scale training;
- Mechanisms to **boost the demand for skills**, for example through awareness campaigns, the development of skills passports and registers of trained professionals, or exploring ways to include skills or qualification requirements in procurement procedures.

These tools and approaches are now available for replication and upscaling and national or regional level.

The BUILD UP SKILLS initiative has allowed many European partnerships to develop qualification systems and training materials that have been used to help all the European countries to have a platform to develop and recognize the competences needed to have both new and existing buildings at zero energy. In this document we identify what is the gap to cover and the outcome of which project could be used to fill the gap in the competences needed.

A number of projects dedicated their efforts to the subject of methods and means of international recognition of sustainable energy and digital skills and competences, in both aspects: of content and level of proficiency and of market demand and implementation in procurement.

The EC funded projects' findings and recommendations on the subject have been considered, analysed and quoted in the report D7.5.

In line with the objectives of this report, the suggestion of digital recognition of skills, in form of skill passport or skills cards (Train4Sustain (<https://train4sustain.eu/>), Bus League, Bus Go Circular, etc.). As commented by BUS GO CIRCULAR, D4.2 Stimulating demand for circular construction skills - a guide for public authorities²³ these schemes of recognition provide many benefits for the construction sector professionals and for public sector procurement officers, in terms of an increased visibility of the competences, favouring the employability through a competitive advantage. It also motivates towards a continuous professional development, which has a beneficial impact on quality and productivity. The information about the qualification in the digital form is trustful and reliable, providing that it is issued and hosted by official websites of accredited organizations.

As provided by Train4Sustain²⁴ “The Skills Passport is a tool to foster easy and practical comparison of skill levels among different professions on a transnational level. The Passport can be used to proof equivalence of qualification schemes within the EU or neighbouring states. The Passport could become an additional document or annex to complement existing certificates for qualifications. It will support professionals of each profession to proof their level of qualification to clients using the new competence quality standard. National scheme operators also will have the benefit of being able to have a clear document stating the skill level of a professional, which will facilitate the mutual recognition of qualification in the EU”

²³ https://busgocircular.eu/wp-content/uploads/BGC_Guide_for_public_authorities.pdf

²⁴ <https://train4sustain.eu/skills-passport>



The efforts made further by the project Train4Sustain, in development of CEN WORKSHOP AGREEMENT. CWA 17939 October 2022, Competence Quality Standard²⁵, is a notable step towards an international recognition of competences in sustainable energy in buildings.

²⁵ https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/RI/cwa17939_2022.pdf

3.5. High Level Construction Forum

The **High Level Construction Forum** is an initiative of the European Commission (DG GROW) which has evolved from the previous Construction 2020 initiative²⁶.

Following the update of the EU Industrial Strategy (May 2021), the purpose of the High Level Construction Forum will be to co-create (and monitor) the green, digital and resilient transition pathways for the EU construction industry ecosystem. This will be done in partnership **with** industry, public authorities, social partners and other relevant stakeholders.

Based on the experiences of stakeholders on the implementation of Construction 2020, stakeholder needs and new purpose, the High Level Construction Forum will involve discussions around the following key topics of interest:

Digital topic: To enable a digital and innovative construction sector and built environment (e.g. digitising of design, planning and management in the built environment).

- **Green topic:** To address the priorities, within the construction sector and built environment, of a circular economy, resource and energy efficiency as well as the decarbonisation of the economy.
- **Resilience topic:** To enable a resilient construction sector and built environment (e.g. developing skills, better regulation of the internal market and ensuring international competitiveness).

²⁶ <https://build-up.ec.europa.eu/en/resources-and-tools/links/high-level-construction-forum>



On the 4th Meeting of the TS of HLCF, 24th April 2024, one of the building blocks of the transition pathways for the construction were the Skills Recommendation in the field 2 refereed to Skills ²⁷

The following recommendations are given in the Block 2: Skills:

- Recommendation 2.1: Promote partnerships creation
- Recommendation 2.2: Support upskilling and reskilling
- Recommendation 2.3: Facilitate cross border professional services
- Recommendation 2.10: Set up a NEB Academy for skills

One of the identified objectives of the H;CF recommendations is the need of international recognition of skills.

²⁷ https://ecorys-my.sharepoint.com/personal/claire_babok_ecorys_com/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fclaire%5Fbabok%5Fecorys%5Fcom%2FDocuments%2FDocuments%2F24%5FHLCF%2FSlides%204th%20HLCF%20%2D%20shared%2F4th%20HLCF%5FPresentation%20slides%20shared%2Epdf&parent=%2Fpersonal%2Fclaire%5Fbabok%5Fecorys%5Fcom%2FDocuments%2FDocuments%2F24%5FHLCF%2FSlides%204th%20HLCF%20%2D%20shared&ga=1

4. Recommendations for a pan European common approach for recognition of sustainable energy skills in construction

Key challenges identified:

In the course of this report development, two main challenges for adoption of a pan European approach have been recognized

1. Compliance and comparability of competences of involved professional profiles,
2. Compliance and consistency of the model of tender requests for competences,

More specifically:

- The offer of further education in the construction sector is still limited in many countries, the training schemes diverse and differ, and recognition of skills gained through further education is mostly voluntary and not required by the governments and private customers,
- In addition, in many countries, there isn't a national or international recognition of further education in sustainable energy skills in construction and, even if there is a national well developed system of recognition of further education, an international recognition is not established.
- At European level, the standardization of the roles of professionals, to be furtherly certified, seems challenging, due to different conditions, regulations and level of industry development.
- In many countries, competences requirement is not applied consistently.in the procurement procedures (e.g., regarding inclusion



of a complete work team, implementation for all phases of building projects life cycle, etc.).

To overcome these challenges, this report aims at proposing solutions for an international approach for recognition of sustainable energy and digital skills in construction, in two aspects: proficiency and procurement.

The analysis carried out in the reports D7.4, D7.5 and D7.7, explored a number of national and international practices and initiatives towards recognition of sustainable energy skills in construction. A strong interest of industry for harmonization in this area was also evident, particularly when considered in conjunction with industrial standards in the field (such as bsl, CEN, national standards, etc.).

There is a high complexity in responding to national and industry specific requirements while at the same time seeking to achieve a minimum harmonization and coordination throughout Europe. Striving to compound the challenges of aligning the definition of the terms related to design, planning, building and operating practices, as well as national regulations, it must be recognized that each country has a unique position on its path in order to adopt skills recognition.

The main policy recommendations coming out of the ARISE project work for a common approach towards recognition of skills, are based on a two – fold approach for necessity of:

- Recognition of the scope, content, level of proficiency and format of competences, nationally and internationally,
- Recognition of the usability and benefits in procurement of services in construction projects.

Basically, public procurement of building projects should be used to promote and improve skills and enhance mobility of construction sector workforce,

Based on these findings, **the recommendations for a common pan – European approach in recognition of skills proficiency and their market valuation**, are specified below:

1. Keep skills and skills development in the priority area of public policies. Continuous professional development of skills, related both to the technology itself and about the use of technology, including the understanding of how to deploy advanced technologies in a responsible way, should be further boosted and aligned at all policy levels.
2. Enable development and upgrading of national qualifications to follow the technological progress in the field of sustainable energy. Definitions and descriptions (scope, content, level of proficiency) of the expected competences of the construction sector professionals should be agreed on at European level, in order to establish a reference base plane with identified and therefore comparable knowledge and skills assigned to a professional profile.
3. Adopt and enable operation of a common international system of comparability of NQs in the subject field, by content and format, for example by using CDEFOP methodology of comparison of LOs, or using international industrial standards validation (e.g. Building Smart), or EU directives as a basis for development of national qualifications and specific competences.

4. Enable a trustful system of upgrading of competences and digital recording of the learning progress, through VET, that will be internationally recognized (skill passports, data bases / registers of skilled workers).
5. Provide that the system of continuous professional development includes the fields of sustainable energy and digital skills.
6. Include validation of competences achieved by training and certification, based on a solid and internationally recognized system of quality assurance and quality control.
7. Establish a system of public procurement based on common guidelines, such as GPP (Green Public Procurement), respecting thereby all national specifics and needs.
8. Include competence clause in compliance with the common procurement guidelines and include appropriate technical / financial ratio, assigning more weight in evaluation to the competence of the key team members.
9. Provide financial and technical support to industry, especially the SMEs, to enable fair market and bidding terms for all and to improve competitiveness of tenders and tenderers; continue using European funding to improve skills and competence framework, awareness raising campaigns and number of upskilled professionals.
10. Monitor, analyse and continuously improve the system of recognition of competences in sustainable energy and digital skills and share the experience internationally, through systemic and regular solutions (e.g. inter -governmental panels, EC agencies led analyses and reports on the progress etc.).



5. Conclusions

The European construction market could hugely benefit from a common international approach towards recognition of competences and skills, especially if the development of the sector towards the data-driven projects and processes is taken into account.

Recognition of skills has multiple effects: gaining the market's trust, motivating the workforce involved, for professional, career progress and mobility, employability, quality, competitiveness²⁸

The contribution of the ARISE project to development of a pan European approach towards recognition of sustainable energy and digital skills is multiple and includes:

- Competence – based framework of sustainable energy skills leveraged by BIM.
- Method of learning, based on micro modules and permanent availability of learning.
- Digital platform for delivery of training, digital recognition of learning achievements and competences.
- Method of transaction of ARISE learning achievements to national systems of competences and CPD certification.
- Guidelines for public investors to include requirements for workforce skills in procurement procedures.
- Recommendations for a common international approach towards recognition of skills.

²⁸ BUS League, D3.1: *Main barriers to incorporate “Energy efficiency/nZEB” training clause into Public Procurement*, https://busleague.eu/wp-content/uploads/D3_1_full_version.pdf



- The main impact of the ARISE project in this field, is seen in dissemination and follow up of implementation of the proposed measures in the partner countries and broader.

6. References

1. *ARISE D2.2 First overview of EU directives implementation.*
2. *ARISE D2.3 First overview of the national and regional qualification framework.*
3. *ARISE D2.4 First overview of other EU wide certification schemes.*
4. *ARISE D2.5 Overview of pathways of integration of previous EU project resources report*
5. *ARISE D2.8: European roadmap BIM applied to energy performance improvement report*
6. *ARISE D3.1 Desk research on maturity analysis of digitalisation and sustainable energy skills*
7. *ARISE D3.3 Qualification framework of sustainable energy skills leveraged by digitalisation incl. BIM*
8. *ARISE D3.5 Guidelines as a basis for digital implementation*
9. *ARISE D3.6: Recommendations for adaptation of the proposed recognition*
10. *ARISE D7.1, Guidelines to align ARISE learning outcomes with national qualification frameworks*
11. *ARISE D7.2, Guidelines for use of ARISE trainings to gain CPD points*
12. *ARISE D7.4 , Overview of best practices in market recognition of skills*
13. *ARISE D7.5 Recommendations for market stimulating and supportive measures*
14. *BUS League D3.1: Main barriers to incorporate “Energy efficiency/nZEB” training clause into Public Procurement,*
15. *BUS League D3.4: Using Public Procurement to Incentivise Upskilling – Best Practice Guide*