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D7.4 Overview of best practices in market recognition of skills

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D7.4. Overview of best practices in recognition of skills

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Revision and history chart

Version	Date	Editors	Comment Description
0.1	28.06.2023	Suzana Kasovska Georgieva	Initial comments and suggestions
0.2	21.08.2023	Suzana Kasovska Georgieva	Final comments and suggestions

Publishable executive summary

This Report presents analysis, findings and conclusions based on responses from the online survey carried out in project partner countries. The survey was implemented in two stages, firstly among the project participating organizations (Survey 1), and secondly among the national stakeholders and professionals in the field (Survey 2), in time periods April–June and June–August 2023, respectively. The questionnaires included topics on sustainable energy skills demand in procurement procedures for building projects, in compliance with national regulatory frameworks.

The survey was used to identify best practices of market recognition and demand of sustainable energy skills on a country level, as commercial or professional procedures applied or prescribed as mandatory and effective in national regulatory frameworks.

Some of the questions were profiled to identify issues such as: consistency, completeness of competences and their transferability (international recognition)

The Report on survey responses consists of two thematic parts: 1) an overview of the main features of national regulatory frameworks related to the demand for sustainable energy skills in the procurement procedures in partner countries, and 2) findings on gaps, barriers, needs and opinions for improvement of procedures for market appreciation of skills along with recommendations for share of good practices across countries.

The analysis of survey results provided a basis for development of recommendations for improving demand and recognition of sustainable energy skills, as further elaborated in Report D7.5. It will also be of use and guide for organizations involved in professional development programs.

List of acronyms and abbreviations

BIM - Building Information Modelling

NZEB - Nearly Zero-Energy Buildings

RES - Renewable Energy Source

BSI – Building Smart International

NQs – National qualifications

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

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1. Introduction

1.1. Subject and Objective of the Report

Subject of the Report 7.4 is analysis of the survey responses conducted in the project partner countries regarding national practices and regulatory frameworks for sustainable energy skills demand in procurement procedures for building projects.

Objectives of the Report 7.4 are:

- 1) to provide an overview of the most relevant characteristics of practices of sustainable skills demand in procurement procedures applied in partner countries;
- 2) to set a basis for a share of good examples,
- 3) to identify gaps, barriers, needs and potential incentives for improvement of procedures for market appreciation of skills through feasible and perspective-stimulating measures.

The collected data on experience and effects of market appreciation of skills in procurement procedures and good practice sharing will provide guides to design professional development programs and policy supportive tools.

The Report consists of two thematic parts: 1) Analysis of results of the first stage survey on national legislation related to the demand for sustainable energy skills in the procurement procedures in partner countries, providing an overview of country-based procurement practices, as a basis for comparison, share and application of good practices across countries., 2) analysis of responses of stakeholders included in the second stage survey, as a basis for ideas and suggestions for supportive and stimulating policy and regulatory measures.

Thus, Report D7.4 sets the basis and directions for development of recommendations for the improvement of market demand for skills in procurement procedures (subject of Report D7.5) through considering and evaluation of sufficiency, consistency, completeness of competencies of work teams and transferability (international recognition) thereof.

1.2. Applied methodology

The applied methodology included the following:

1. Creation of the concept and content of the surveys
2. Conduction of the surveys
3. Analysis of received responses
4. Summary of findings and recommendations
5. Conclusions

1.3. Basis for development of D7.4

For the development of D7.4, the main findings from the following deliverables were used:

- *D2.2 First overview of EU directives implementation.* This deliverable has provided the legislation framework confirming the need for a qualified workforce to increase the number of renewable energy installations and improve the energy performance of buildings. Not all the countries, however, have yet the obligation to require digital competencies while they are more prepared for RES and EPBD directives implementations.
- *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 competencies in the energy domain in the directives mentioned above. The national qualification framework is usually not updated with the latest technology, and even for the traditional ones, only some countries have implemented them.
- *D2.4 First overview of other EU-wide certification schemes.* There are very few heterogeneous certification systems in the examined countries in the energy domain while, for the digital competencies, the buildingSMART international qualification system is widely accepted in Europe and internationally, even if not yet very well-known and implemented.

1.4. Content of the Report

The content of the Report has been classified into 5 Chapters:

1. Introduction–background, scope, subject, objectives and applied methodology
2. Survey concept, design and content
3. Analysis of received responses from Survey 1
4. Analysis of received responses from Survey 2
5. Findings and recommendations
6. Conclusions
7. References
8. Appendices: Questionnaires applied in the surveys

2. Survey concept, design and content

2.1. Survey concept and design

An online survey with multiple-choice answers and windows for additional comments was adopted to collect information on country-based policies and practices in the domain of requirements for sustainable energy competencies in procurement procedures. This method was selected because it is precise (while allowing freedom of opinions), concise, attractive for respondents, effective in providing a pool of information quickly and in a uniform format that enables useful statistics and comparative analyses.

The concept of the online survey was adopted to be carried out in two stages:

- 1) Survey 1, comprising 25 questions, intended for representatives of project partner organizations,
- 2) Survey 2, comprising 15 questions, is intended for a wider group of stakeholders in project partner countries and broader.

The Survey 1 was carried out in period May – June 2023, while the Survey 2 was carried out in period June – August 2023. Both surveys were profiled as online questionnaires equipped with multiple-choice answers. Apart from that, room for free comments and additions was also foreseen. The time for completion was estimated and tested not to exceed 15 minutes.

All project partner organizations participated in the Survey 1.

The selected target groups to participate in the Survey 2 were.

- Policymakers,
- Public administration,
- Public and private Investors,
- Construction works contractors,
- Building owners,
- Designers,
- Construction materials manufacturers,
- Company managers and SME owners

Questions were aimed at identifying the current policy measures, their sufficiency, existing incentives, barriers and possible ways of overcoming market demand for skills on a country level.

Both surveys were carried out in English, with an opportunity offered to the project partners to translate and carry out the Survey 2 in national languages. The partner organization IBIMI used this opportunity and completed the Survey 2 in Italian. IBIMI also provided translation and analysis of responses of Italian stakeholders, for the purposes of this report.

Both surveys consisted of three parts:

- invitation and introduction (information about the project, the survey objective and purpose),
- information about the respondent,
- questions about relevant aspects of market demand for sustainable energy skills in the respondents' country.

2.2. Survey content

The Appendix of this Report presents the Survey 1 questionnaire for partner organization representatives and the Survey 2 questionnaire for partner country stakeholders.

The composition of the questions was designed:

- To capture the most relevant aspects needed for the project team to establish the picture of the regulatory framework in the survey – included countries,
- to enable concise and precise responses in 10 to 15 minutes.

For the respondents who have chosen to give their name and address when taking the survey, GDPR provisions were guaranteed by the survey lead organization (IECE North Macedonia).

Both sets of questions (Survey 1 and Survey 2) were subject to review, comments and suggestions for improvement by all the project partners in the survey development phase and preparation in April 2023.

Survey 1 was country-based. Questions in the Survey 1 were designed to collect facts about national policies and practices and to enable, through a comparative analysis, the identification of similarities and differences among the national procurement procedures in aspect of requirement and recognition of sustainable energy skills in building projects. This also served as a basis for recommendations for sharing good practices among countries.

The questions, responses, findings and preliminary directions for improvement of the procedures collected from Survey 1 are presented in Chapter 3.

Summary and findings on experience and effects of the market appreciation of skills include suggestions for their applicability in other countries. This sets the basis and directions for development of recommendations for improving market demand for skills in procurement procedures (subject of Report D7.5) through considering consistency, completeness of competencies of work teams and transferability (international recognition).

Survey 2 was conducted to collect opinions, ideas and suggestions and was based on the professional profiles of included target groups. Questions in Survey 2 were designed to collect and reflect opinions of a wide range of target groups considered market drivers and service suppliers. They included topics about gaps, needs and barriers to increase procurement requirements for sustainable energy skills.

3. Analysis of received responses in Survey 1

3.1. Concept of Survey 1

This Chapter includes an analysis based on the Survey 1 results, carried out in partner countries in period May– June 2023, about the regulatory framework, policy and practices for market demand for sustainable energy skills in partner countries. Representatives of seven project partner organizations completed Survey 1. Thus, the geographical coverage of Survey 1 included the following countries: Denmark, Ireland, Italy, the Netherlands, North Macedonia, Portugal and the UK.

The responses give an overview of the regulatory framework and national practices in procurement procedures for building projects in the project-included countries. They also identify gaps, needs and room for improvement of current procedures. The responses are also used to compare policies and practices and identify and share examples of good practices to be potentially applied in other countries.

3.2 Questions, a summary of responses and preliminary recommendations based on Survey 1

In continuation, questions included in Survey 1, a summary of responses and findings, and preliminary recommendations (to enable a clearer link to D7.5) are presented.

Q1: Are there policies and regulations in your country for the demand for sustainable energy skills and qualifications of the construction workforce in public procurements of building projects?

According to responses, sustainable energy skills are not required in public procurement procedures in Portugal and the Netherlands.

In additional communication, the partners who had answered affirmatively to Q1 clarified that the complete supply chain, i.e., competencies of all professional profiles in work teams, were not included. Some professional profiles, such as designers, RES installers, and energy auditors, are subject to regulatory demands.

In Italy, there is a difference in public procurement procedures and related regulations among different regions. As identified in D2.5, competencies also differ in cross-regional value.

These findings provide a basis for the following preliminary recommendations:

R1.1: Requirements for sustainable energy skills should be included as compulsory in procurement procedures.

R1.2: Requirements for sustainable energy skills should encompass a complete work team hired for the procured services.

R1.3: Requirements for sustainable energy skills should be aligned or easily transacted in regional policies.

Q2: Which types of buildings does it include (tick all that apply)?

Responses show that requirements for competencies are included in procurement procedures for public buildings, primarily not residential and residential buildings of a larger size.

An example of good practice is Denmark, where requirements for competencies are included in procurement procedures for all types of buildings: (Public buildings, Private buildings, All sizes of buildings, Residential buildings, Not residential buildings, Buildings of specific size, and Heritage buildings).

This finding provides the basis for the following preliminary recommendation:

R2: Requirements for sustainable energy skills and competencies should be included in the procurement of all types, purposes and sizes of buildings by both public and private investors

Q3: For which stage of a building life cycle are the qualifications for sustainable energy skills required in the procurement procedure (tick all that apply)?

Responses show that in most survey-included countries, competencies are required in public procurement only in the design stage of a building project.

This is one of the major and common shortcomings identified in all countries: inconsistency and incompleteness of the requirements for competencies for sustainable energy in the complete life cycle of building projects.

Examples of good practice are Ireland and North Macedonia, where competencies are required (additionally) in the construction phase, as well as in the operation and maintenance phase.

A preliminary recommendation based on this finding would be:

R3: Requirements for sustainable energy skills and competencies should be included in the procurement of all stages of a building project - development, execution, and operation.

Q4: The extent to which implementation of demand for engagement of qualified workforce has a positive impact on the energy performance of buildings is (on a scale from 1 to 5):

All interviewed partners responded by grades 4 and 5. – the highest grades of positive impact on the energy performance of buildings achieved by the engagement of a qualified workforce.

This provides basis that ARISE will make a significant contribution and impact by its training program and system of competences.

R4: Considering the high value of positive impact on energy performance, engagement of a workforce qualified in sustainable energy skills should be compulsory in the procurement of services in building projects.

Q5: Sustainable energy skills for professionals and workers should be included in private procurements for building design, construction and renovation (even if not required by legislation) - on a scale from 1 to 5

All partners agreed with this statement, with an assessment of 5 – Strongly agree. ARISE's contribution in this area will be the training programme for raising awareness and building competencies of private investors and owners of buildings.

The preliminary recommendation is therefore

R5: Include requirements for sustainable energy skills and competencies in procurement procedures carried out by private investors; as a precondition, include private investors in raising awareness and capacities campaigns.

Q6: Are the qualifications for sustainable energy skills different for energy efficiency of buildings and application of renewable energy sources in buildings?

The qualifications are different in all partner countries, except in Denmark, where there is the same competence for both fields and in Portugal, where there is only the competence for the field of renewable energy sources.

The majority of responses for separate competencies are favourable and encouraging. Indeed, specialisms in energy efficiency and RES are different and training white and blue collars in the fields requires different content and approaches, leading to separate specialisms and competencies.

R6: This is an example of a good approach and applied practice and, as such, is recommended for other countries to apply different types of competencies for the two fields of sustainable energy (energy efficiency and renewable sources)

Q7: Can the qualifications for sustainable energy skills achieved in your country be used in other countries?

According to the responses, qualifications achieved in Italy and Denmark, and partially in the UK, can be used in other countries.

R7 This is an example of a good practice of international market recognition and transactability of competencies and, as such, will be the subject of the project team's further exploration towards applicability in different countries. However, it has to be noted that this is not a general rule for all qualifications in the sustainable energy field.

Q8: Can the qualifications for sustainable energy skills from other countries be applied in public procurement in your country without nostrification?

A confirmative response was received only from Ireland.

Negative responses to this question show that there is a need for comparability, transactability and transboundary recognition of competencies in sustainable energy, which leads to the following preliminary recommendation:

R8: Promote international recognition of skills and competencies obtained in different countries.

Q9: How is the technical capability of the bidders checked in a tendering procedure regarding sustainable energy skills and competence of their workforce (tick all that apply):

Specific responses are provided for Denmark (By a qualification acquired by formal education) and for the Netherlands (By years and/or number and type of projects in professional experience).

Examples of good practices are other partner countries, where in public procurement, apart from the formal education and the professional CV, qualifications received by VET providers are also required (Italy, UK, North Macedonia).

That includes the possibility for continuous professional development and maintenance of competencies, upskilling and reskilling as a good practice.

R9: In requirements of public procurement, qualifications acquired in formal education and then improved by upskilling programmes of VET providers specialized and accredited in the subject fields should be included

Q10: What are the means for providing proof of possession of sustainable energy skills and expertise in public procurement procedures?

In all observed countries, a professional CV is required as proof of possession of sustainable energy skills and expertise.

Italy and Ireland are examples of good practices because, in addition to a professional CV, a certificate issued by an accredited training provider is also required, which means an update of skills is required

R10: Certificates received from VET providers specialized in the subject fields should be included in requirements in public procurement, in addition to professional CVs of the work team. That will ensure the reduction of the gap between formal education and actually required competence and will enable continuous professional improvement of sustainable energy and digital skills

Q11: Which institution in your country issues the certificates for qualifications for sustainable energy skills in construction:

Respondents from all partner organizations stated as institutions in charge:

- Formal education institutions,
- Professional associations of engineers, architects, blue-collar workers;
- VET institutions and training providers

R11: This is a good practice identified in all survey-included countries since all the institutions listed above have important and complementary roles in the continuous education of professional profiles in the subject fields.

Q12: Please mark the professions for which the proof of qualifications for sustainable energy skills are required in public procurements for building projects: (tick all that apply)

Inconsistency is evident in most of the partner countries. In Italy, Netherlands, UK and partially North Macedonia, there is no requirement for proof of competence (except for RES installers), unlike Denmark and Ireland,

These two countries are examples of good practice, where a proof of competencies is required for all profiles of architecture and engineering professions.

R12: The whole supply chain in a construction process and complete teams should be included in the procurement requirement for competencies.

Q13: In the public procurement tenders in your country, the required competencies for sustainable energy are described from 1 (with low details) to 5 (as very detailed):

All responses were marked by 1, which means the competencies are described with low details in procurement procedures (only the general title of qualifications).

This is a common shortcoming in all survey-included countries. A preliminary recommendation would therefore be:

R13: Competences required in the procurement procedures should be described in sufficient scope and level of detail.

Q14: Please select for which fields improvement and extension is needed:

Most of the responses include all offered options, but the first three ranked fields are:

- The energy efficiency of the building envelope,
- New materials,
- Digital tools (BIM).

R14: The selected fields are among the most changing and, as such, require continuous professional development, preferably included in CPD systems

Q15: Are the acquired competencies permanent or need to be improved periodically?

In all survey-included countries, acquired competencies need to be updated periodically; only in Denmark they are permanent

R15: Periodical update is a good practice and, as such, recommended to be applied and validated, because of the continuous progress of the technology in the two fields.

Q16: Are databases for qualified workforce available and accessible for investors and employers?

They are not available only in Italy and Ireland

R16: Having databases available of professionals and blue collars with validated competencies in sustainable energy is a good practice recommended to all countries. It can be considered a good stimulating measure for both continuous upskilling and employment support.

Q17: Are the competencies of the construction workforce related to sustainable energy mandatory or optional (bring bonus points to the bid)?

They are mandatory in Ireland, North Macedonia, Denmark and the UK, while in Italy and the Netherlands, they only bring bonus points in procurement procedures.

R17: Thus, the first listed countries are examples of good practice and, as such, recommended to the others. It must be noted that there is inconsistency in that competencies are not required for the complete team, with all professions included. This inconsistency should be addressed in recommendations for improvement of procurement procedures.

Q18: Is there a sustainable energy qualification clause in public procurement?

There is such clause in Ireland, Denmark, Italy and the UK, partially in North Macedonia but not in Portugal.

R18: The partner countries provide a good example of including sustainable energy qualifications and, as such, can be recommended for other countries

Q19: How are the requirements considering qualifications for sustainable energy skills for professionals and workers formulated?

For most of the survey-included countries, the received response was: As a requirement for a certificate achieved by an accredited training

In the Netherlands: As content and description of the competence

In Italy and North Macedonia (for some professional roles): As an explicate title of the qualification, and as a requirement for a certificate achieved by an accredited training

R19: Countries have their national specifics in this matter; however, having a precise description of the competence is the best way to describe the requirement in the procurement procedure. Italy and the Netherlands are examples of good practices in this.

Q20: Do the requirements for qualifications for sustainable energy skills cause additional costs for construction sector companies, more precisely to:

[Employers] and [Investors] – Most of the partners answered: Yes

[Employees] – Most of the partners answered: No

R20: In all the included countries, costs for acquiring qualifications are borne by companies, and this is one of the barriers. This provides the basis for recommendations for financial supporting measures for the services supply side.

Q21: Please identify two main barriers to changing the current legislative framework in your country for public procurement of building projects concerning the requirements on sustainability skills for workers and professionals

Most of the responses identify the following two main barriers:

- Lack of awareness of the policy and market drivers,
- Lack of information on benefits

Further two ranked barriers are:

- Lack of adequate training for sustainable energy skills
- Industry (SMEs in the construction sector) reluctance (mostly due to increased operational costs).

R21: These findings from Q21 will serve as a basis for the design of recommendations in a way that will overcome the barriers. These findings are very similar to those identified in Survey 2.

Q22: Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required:

- By public investors and owners of buildings: Most of marks: 3; Denmark: 4.
- By private investors and owners of buildings: Most of marks: 4
- By employers and owners of construction companies: The responses are balanced between 2 and 3.
- By employees in construction companies; Most of marks: 2

R22: As a general conclusion, the respondents assessed with higher values the motivation and interest of the demand side. However, there is a need for further

improvement in the awareness and willingness of both the demand and supply side.

Q23 Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders:

- The requirement for competencies in sustainable energy skills should include all key professionals in the team. All respondents strongly agree.
- The weight represented by the parameter of the professional skills requirements should have much relevance in the bid.]; All respondents strongly agree:
- Evidence of continuous professional updating of competencies in sustainable energy skills should be ensured.: All respondents strongly agree

R23: As a common conclusion: The requirement for competencies in sustainable energy skills should include all key professions in the team, with evidence of their validation provided; in addition, competencies should have higher values in points of evaluation.

Q24: What are the stimulating measures for procurement demand of qualified construction sector workforce applied in your country?

The three stimulating measures active in all survey-included countries are:

- capacity building of public administration,
- capacity building of private investors
- free upskilling of construction sector workforce

Examples of good practices are

- Italy and Portugal (taxation free incentives) and
- Netherlands and Portugal (subventions for employing certified workforce)

R24: As a general conclusion, 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. This is used as a basis for development of recommendations in the Report D7.5

Q25: Would you recommend additional stimulating measures for the demand for qualified construction sector workforce and, if yes, which ones?

The respondents suggested the following additional stimulating measures for the demand for a qualified construction sector workforce:

- involve insurance company that could decrease the cost if all the workers are qualified for the right task,
- Skills assessments at the team level,
- Introduce energy and carbon requirements from the outset of the project. The concept is explored in the Leti Carbon Primer (<https://www.leti.uk/ecp>), in which embodied carbon tasks and targets are overlaid with the RIBA Plan of Work stages. Similar to planning information exchanges in BIM projects, having the energy and carbon targets set out early on will allow careful planning to take place.
- Access to investment funds (e.g. green building funds) for investors willing to employ a contractor with a qualified workforce in sustainable energy skills.
- During the concept phase of design, energy requirements and carbon footprint are considered to meet targets throughout the process, rather than after completion.
- more bonus points in procurement when related to workforce skills.
- The submission of digital files and data-driven assessments regarding further mandatory but subsidized certification for designers and installers.

R25: These measures are taken in consideration for development of recommendations within the Report D7.5

4. Analysis of received responses in Survey 2

4.1. Survey in English

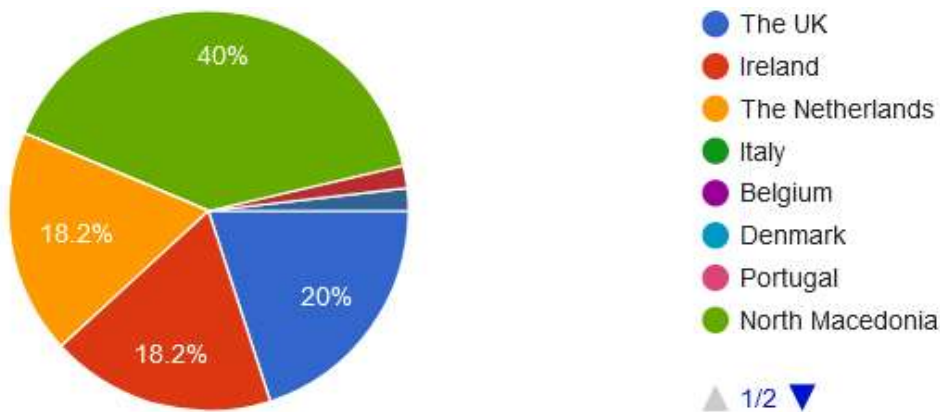
4.1.1 General information

This chapter contains responses of participants – stakeholders from countries included in the survey (partner countries, in the first place) and a short comment, findings and recommendations arising from the responses. Responses were provided from: the UK, Ireland, North Macedonia, the Netherlands.

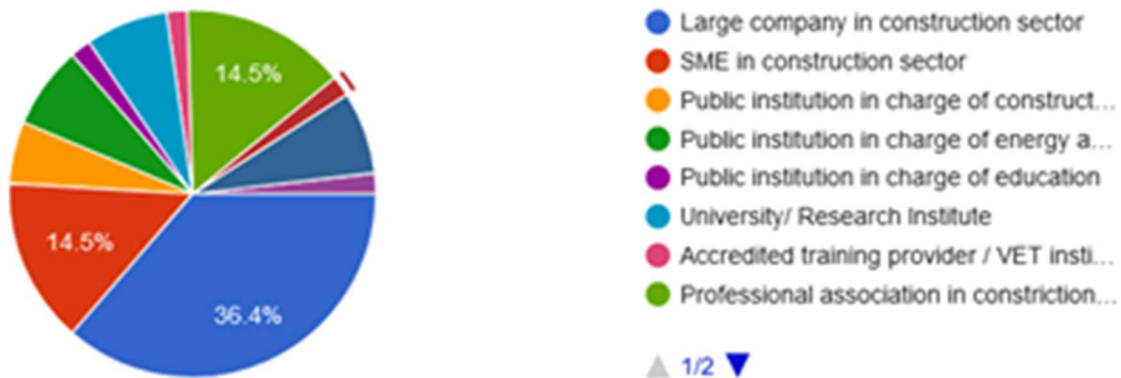
The number of responses received from Survey 2, carried out in English, is 55

The structure of respondents per country and profession is given in the figures below:

Q1. Country



Q2. Type of organization

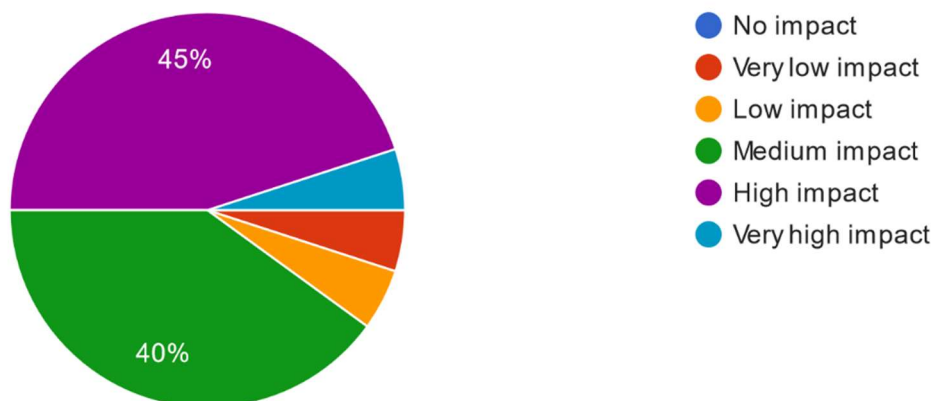


Approximately 6% of the respondents were from public administration in charge of construction and energy. An interesting fact is that about 50% of this category came from public enterprises – utilities in charge of resource supply; they actually fit into the category of public investors.

The most significant part of responses came from industry (25% were large companies and 16.7% were SMEs)

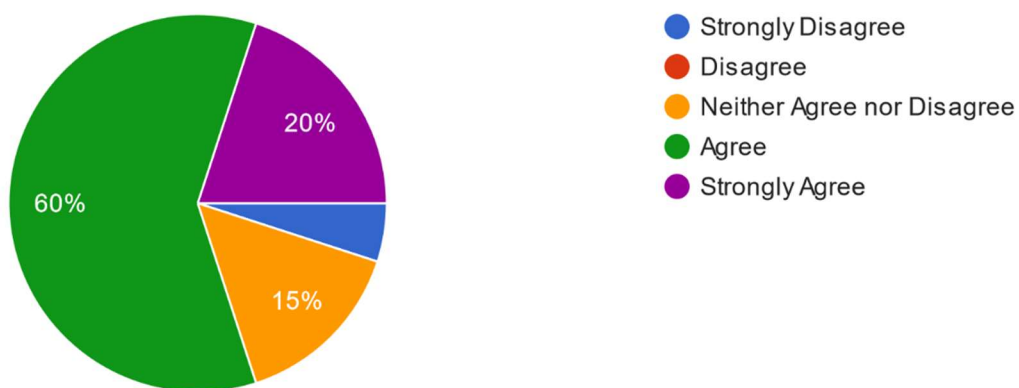
4.1.2. Overview of responses and brief comments of the survey team

Q1. To which extent implementing the demand for a qualified workforce (in energy efficiency) has a positive impact on energy performance of buildings is:



Most of the respondents (46%) found that including demand for sustainable energy competencies in procurement procedures had a significant impact on the energy performance of buildings.

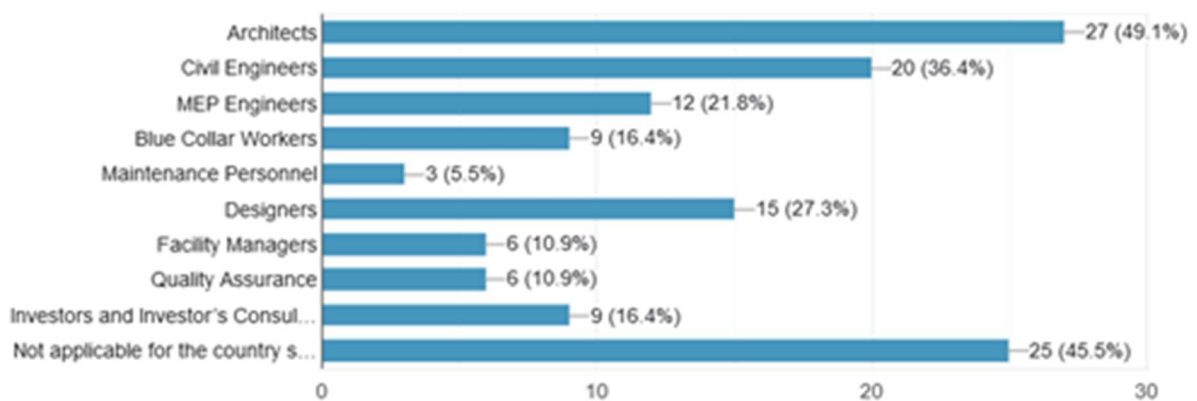
Q2. Do you agree that sustainable energy skills for professionals and workers should be a requirement included in private procurement for building (even if not required by legislation)



Most of the respondents (60%) agreed that including demand for sustainable energy competencies in private procurement procedures would be useful.

This is in compliance with the conclusion R1., from the Survey 1, as described in the Chapter 3.1

Q3. Please mark the professions for which a proof of competence in sustainable energy skills is required for public procurement tendering (tick all th... for your country, please tick only the last option)



The most impactful profession was found to be Architects, followed by Civil Engineers and professional profile Designer. Surprisingly, Investors and Investor Consultants are also highly ranked, which is very encouraging for the initiation of reforms in the procurement procedures.

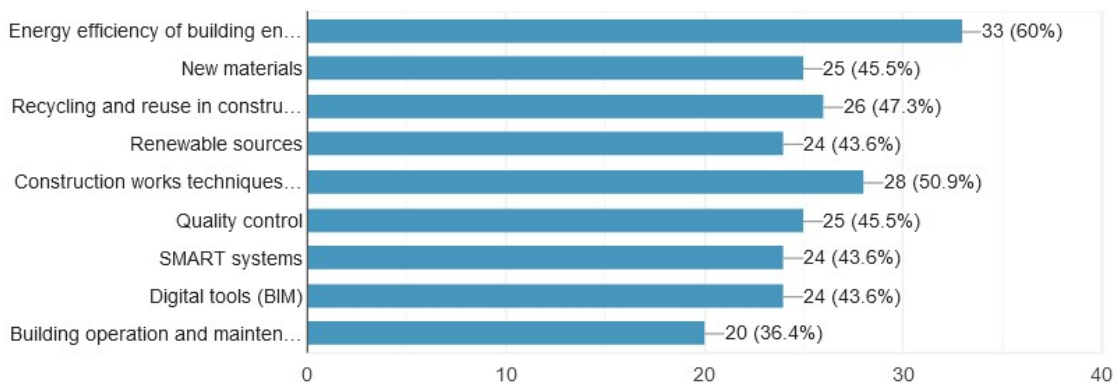
Q4. In the public procurement tenders in your country, in which way are the required competences for sustainable energy included and described:



The opinions are quite balanced, but they converge towards *not included* and *included with low details*.

R4. The recommendation resulting from these responses is to detail the requirements up to sufficient scope, as identified in Survey 1, recommendation R13

Q5. Please select in which relevant fields an improvement and extension of the competences for sustainable energy are needed or recommended (tick all that apply) :



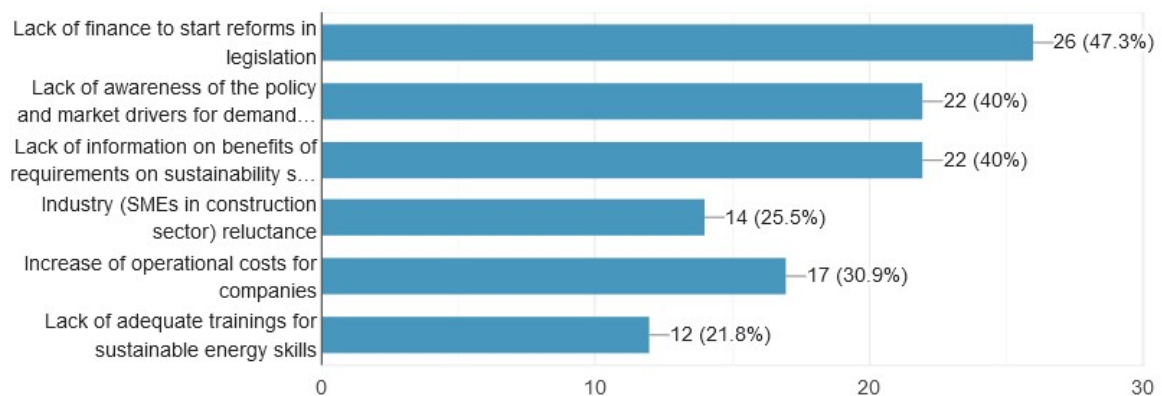
The three first-ranked fields are:

- Energy efficiency of buildings
- Renewable sources
- Digital tools (BIM)

These fields are: 1) in the direction of green and digital transition (respondents have a high level of knowledge and awareness on this), 2) in the direction of the most intensive technology progress.

R5.1: These competencies should be described in more relevant detail and in an appropriate method of combining them

Q6. Please identify two main barriers to change the current legislative framework in your country for public procurement of building in relation to th...sustainable energy skilled workers and professionals



The two highly ranked barriers are:

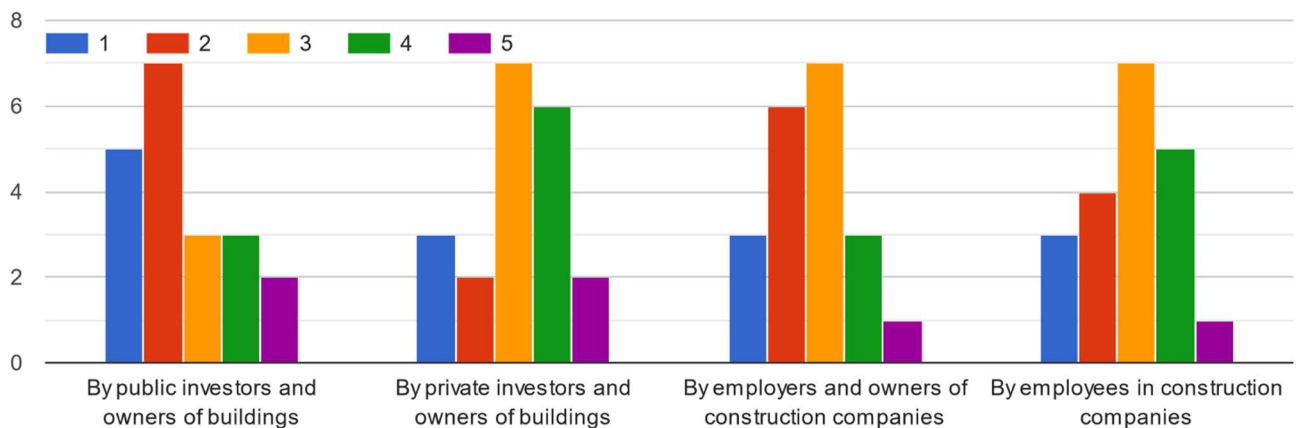
- Lack of finance to start reforms in legislation
- Lack of awareness of policy makers
- The difference from the Survey 1 results is the first-ranked barrier, which wasn't selected in the previous survey.

The two thirdly ranked options comply with the results of the same question in Survey 1:

- Lack of information on benefits
- Increase in operational costs for companies

R6.1: Stimulating measures should be profiled to overcome the barriers (taken into consideration in Report D7.5)

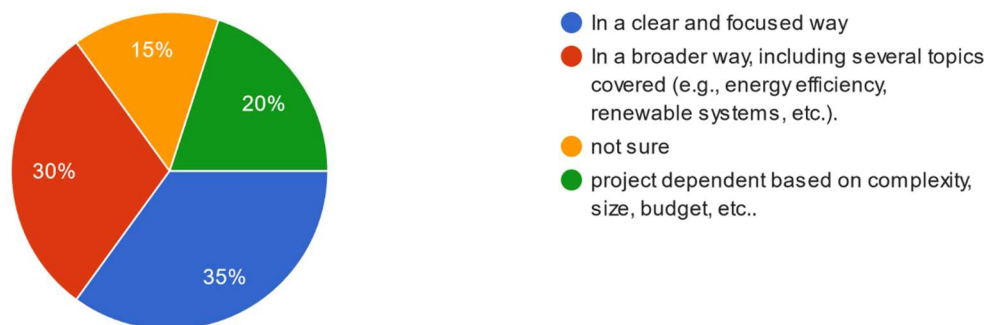
Q7. Please assess, on a scale from 1 (no awareness and willingness) to 5 (very high awareness and willingness), the awareness and willingness o...rocurement where they are not regulatory required:



The responses slightly differ (show a lower assessment of target groups’ awareness and willingness) from those obtained in Survey 1.

R7.1 However, the recommendation identified for the same question in Survey 1 is still valid: Awareness of all market drivers from both the demand and supply side of procured services. needs to be increased.

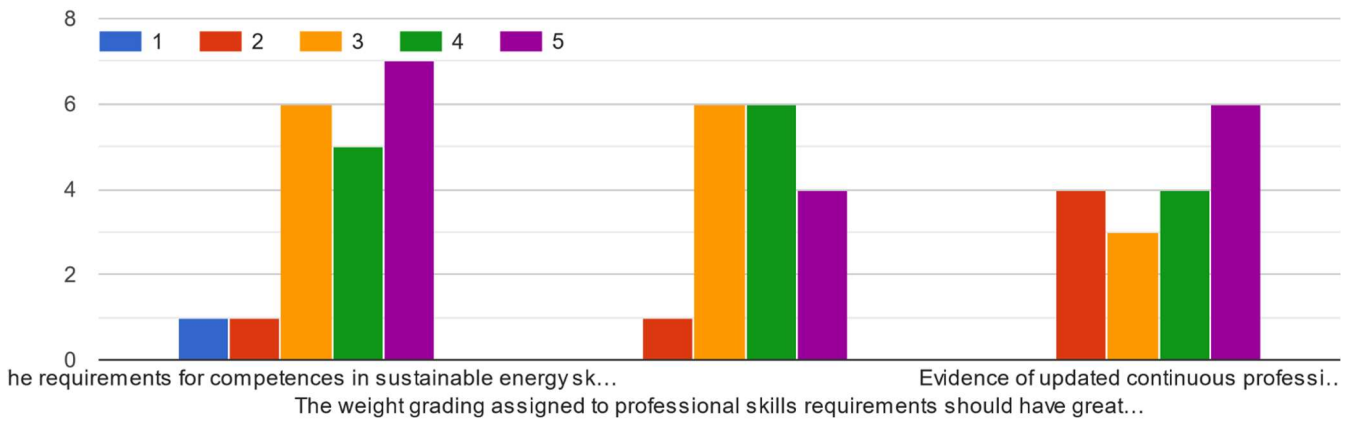
Q8 - a. The required competences of key persons in the bidders’ team should be described in the tender documents: :



Most respondents (36%) agree that competencies should be described in a clear and focused way.

R8.1 The suggested manner of description of competences in a clear and focused will be taken into consideration when proposing stimulating measures

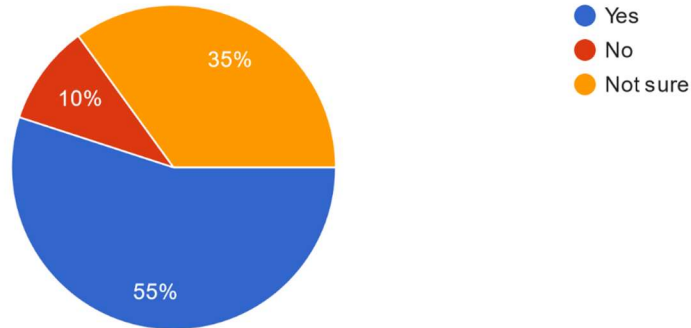
Q8 - b. Please assess, on a scale from 1 (strongly disagree) to 5 (strongly agree)



Most of the respondents strongly agree that:

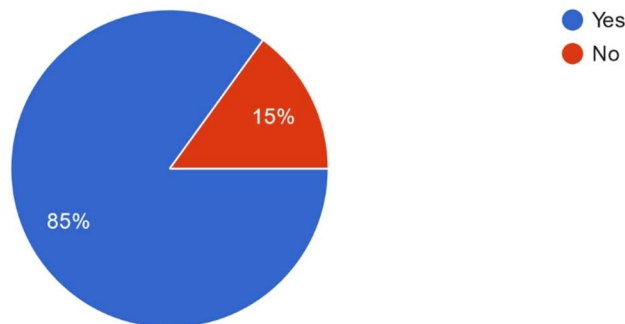
1. The requirements for competencies should be described in a clear and focused way
2. Evidence of updated continuous professional development should be provided in procurement procedures
3. The weight assigned to professional skills should have a higher value in the tenders

Q9. Would an internationally recognized qualification scheme for sustainable energy skills be of benefit to your sector at a national level, to enable mobility of workforce across jobs?



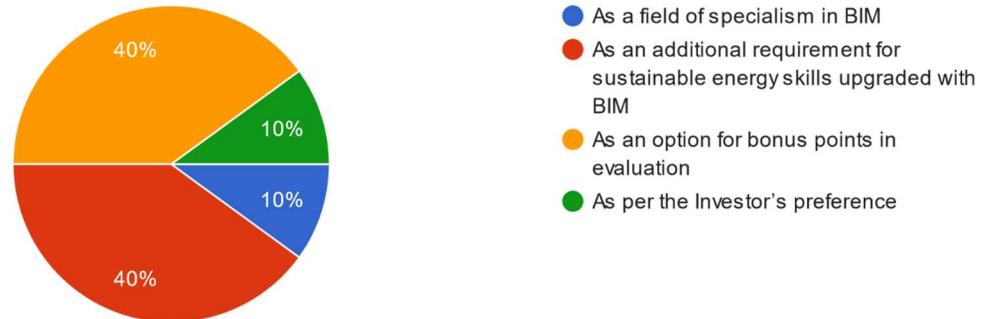
Most of the respondents (55%) agree that international recognition of skills and competencies would be beneficial for national construction sectors.

Q10. Are you familiar with the fact that digital technologies, such as BIM, enhance the effect of sustainable energy skills in building projects



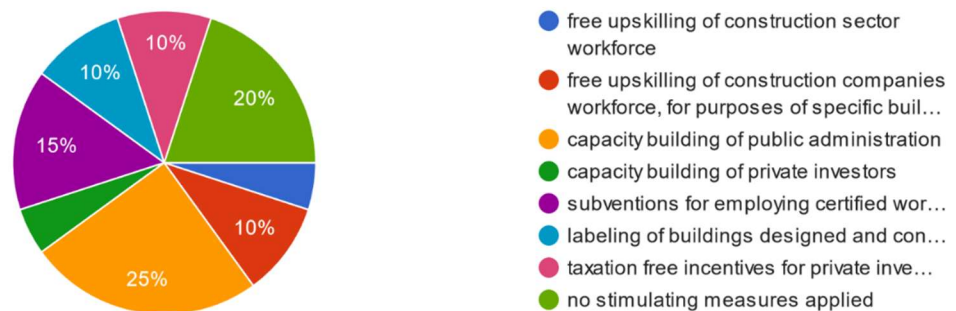
Over 86% of the respondents appreciate the role of BIM as a leverage tool for improving the energy performance of buildings.

Q11. How should the combined competences in digitization and in sustainable energy skills be combined and presented as a requirement in procurement procedure:



The largest part (40%) of the respondents believe that digital skills should be included as an additional requirement in procurement procedures for upgraded sustainable energy skills.

Q12. What is the most effective stimulating measure to boost (further) the inclusion of the requirements for qualifications for sustainable energy skills in procurement's your country ?



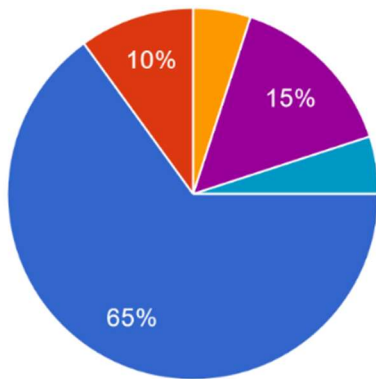
The three most effective stimulating measures identified by the respondents are:

- Free upskilling of construction sector workforce
- Capacity building of private investors
- Subventions for employment of certified workforce

Q13. Would you recommend additional stimulating measures for inclusion of the requirements for qualifications for sustainable energy skills in procurement procedures in your country? And, if yes, which ones?

The responses provided inspiring suggestions, presented below, to be included in the Report D7.5.

- New VET programs
- Implementation of the task takes place better
- More supervisor activities
- Government-supported training subventions for all the categories of people in the industry (proper training, not just a formality on paper)
- To change laws and increase the number of civil works inspectors
- Yes, giving back 80% of the investment to the investor if he builds the object referring to the project and energy standards
- qualification about inspecting the quality of materials that are in use
- free upskilling of construction sector workforce
- A process similar to Safe Pass / Manual Handling, where a renewal is required after so many years. Technologies are rapidly changing, so it is important to stay engaged and revisit qualifications and training when required.
- Examples were applied in other countries and benefits
- Additional focus on Sustainability at undergrad/college level in order to help students have a better understanding of how to achieve/calculate requirements before entering the industry. - At the undergrad level, there is an understanding of knowing the abbreviations of NZEB, BREEAM, LEED, etc., but not what achieving each one actually entails.
- Yes, promote these skills within college courses
- Build communities of practice and spread knowledge, use cases, etc
- Government campaigns
- Create a level playing field



- Public authorities, on national or regional level,
- Public investors in building projects
- Private investors in building projects
- Construction companies
- Professional associations of architects, engineers and blue collar workers
- Industry organizations, chambers and clusters
- Organizations for VET (vocational edu...)

Q14. In your opinion, who should take an initiative for introducing / improve stimulating the inclusion of the requirements for qualifications for sustainable energy skills competences in procurement's

According to most of the respondents (65%), public authorities on national and regional levels should take the initiative to introduce / improve the stimulating measures for market demand of skills in procurements.

Q15. Please add any further comments and observations specific to your country that were not addressed in the previous questions.

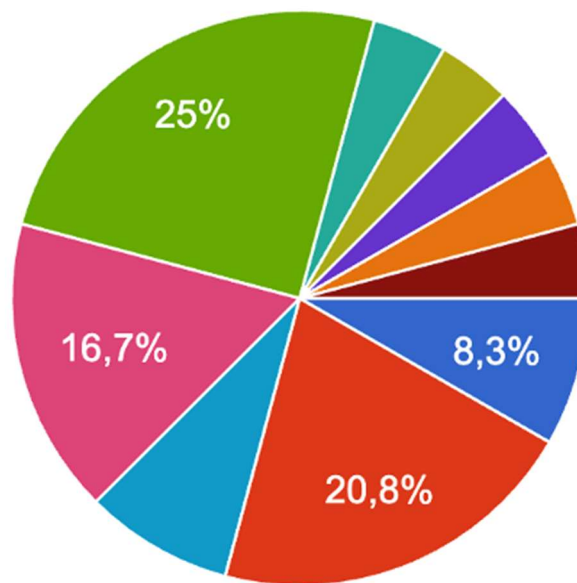
Respondents provided additional suggestions (listed below) that were very useful for the project team and were further taken into consideration for the development of Report D7.5: Recommendations for stimulating and supportive measures.

- A great deal can be achieved through public procurement; this creates very great leverage
- North Macedonia is a small construction market that has a long way to go in order to even begin prioritizing sustainable construction. But that does not mean that nothing should be undertaken. A significant number of people within the industry are aware of the topic; what is

- missing is the incentives on a national level, company owners and institutions. Most of the time, the lack of budgeting is taken as an excuse.
- Maybe some standards for the design of the new buildings should be obligatory to have an option for additional installation of solar panels
- A low level of knowledge in sustainable development would prolong the implementation of any activities mentioned in the questionnaire
- Introducing sustainable energy skills is still in the beginning stage, so informative workshop sessions for raising awareness and benefits for all stakeholder groups may be a good way to put the initiative on a higher level
- It needs to be government/legislative-driven
- Promoting sustainability to the youngest generation will help to achieve an improvement in the industry's workflow
- Make skills part of contractual requirements, not tender

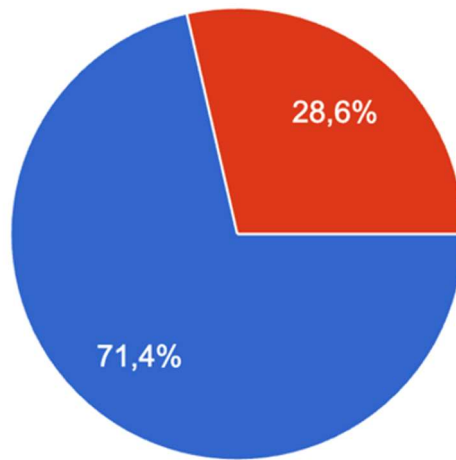
4.2. Survey in Italy

The survey was answered by 24 respondents representing a diverse range of stakeholders. These included 2 large companies in the construction sector, 5 small and medium-sized enterprises (SMEs) in the construction sector, 1 Energy Service Company, 2 University/Research Institutes, 4 Accredited training providers/VET institutions, 6 Professional associations in the construction sector, 1 Engineering association, 1 Architectural company, 1 Building cluster centre, and 1 Environmental agency. This comprehensive participation ensured insights from various perspectives within the construction and related industries.



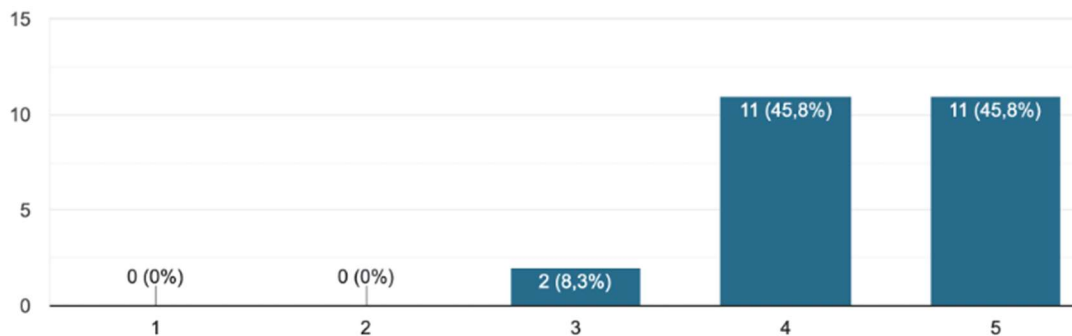
Question: In which phase the digitalization is developed?

Answer: Most answers come from the design domain. The digitalization is still developed mainly in the design phase, is now slowing moving in the construction phase but it is not developed for the management and maintenance where the most advantages for owners come.



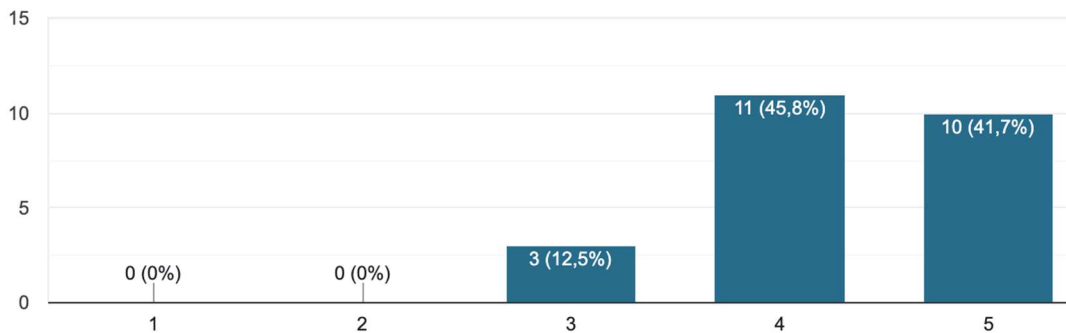
Question: To which extent implementing the demand for a qualified workforce (in energy efficiency) has a positive impact on energy performance of buildings is.

Answer: The majority answered that a qualified workforce has a high impact on the energy performance of a building.



Question: Do you agree that sustainable energy skills for professionals and workers should be a requirement included in private procurement for building design, construction, and renovation (even if not required by legislation)

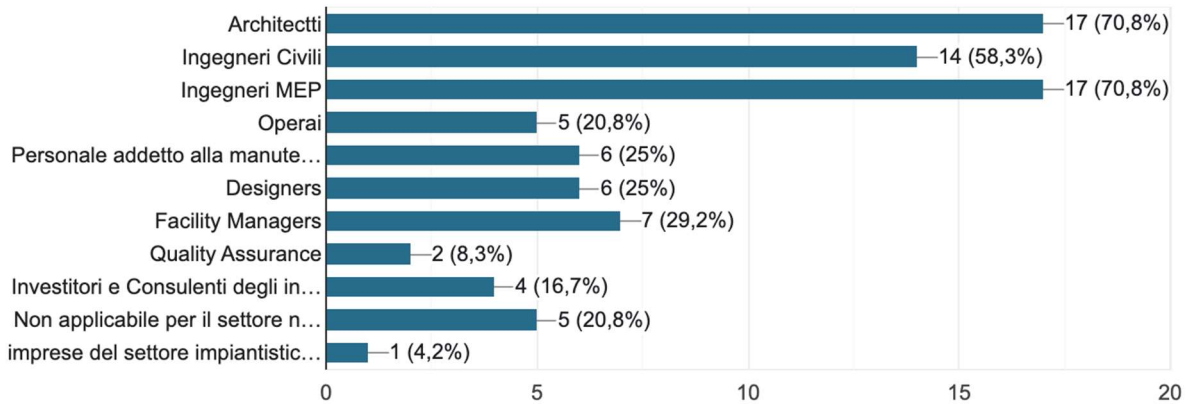
Answer: The majority answered that the workforce requirements should be compulsory in the public and private procurement to ensure the best performance.



Question: Please mark the professions for which a proof of competence in sustainable energy skills is required for public procurement tendering (tick all that apply; in case N/A for your country, please tick only the last option)

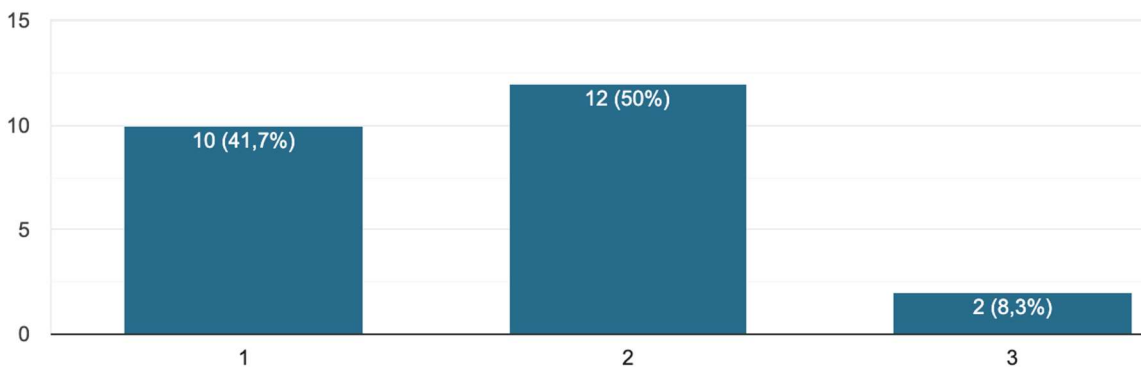
Answer: most tenders require competences in engineering and architectural fields but not for the technicians and workers

17 Architects; 14 Civil Engineers; 17 MEP Engineers; 5 Blue Collar Workers; 6 Maintenance Personnel; 6 Designers; 7 Facility Managers; 2 Quality Assurance; 4 Investors and Investor’s Consultants; 5 Not applicable for the country sector (competences for sustainable energy skills are not required in public procurement of buildings)



Question: In the public procurement tenders in your country, in which way are the required competences for sustainable energy included and described

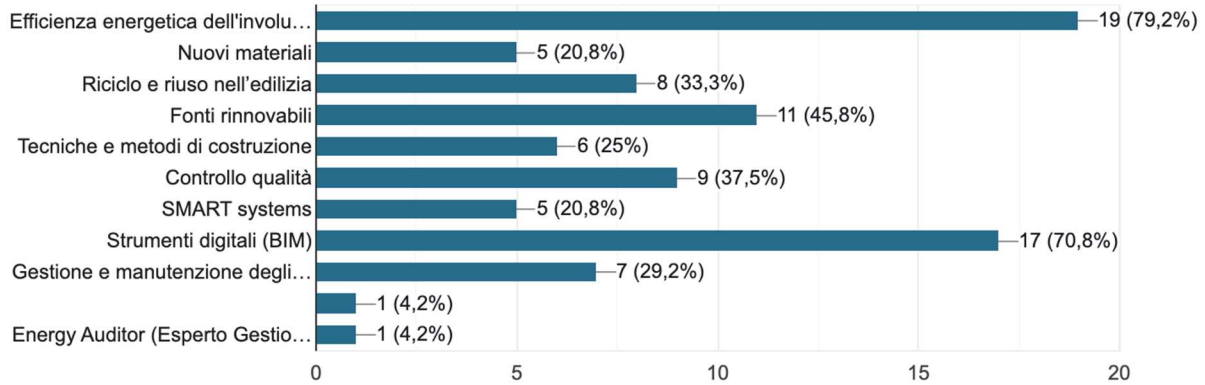
Answer: in most cases the competences are poorly described.



Question: Please select in which relevant fields an improvement and extension of the competences for sustainable energy are needed or recommended (tick all that apply)

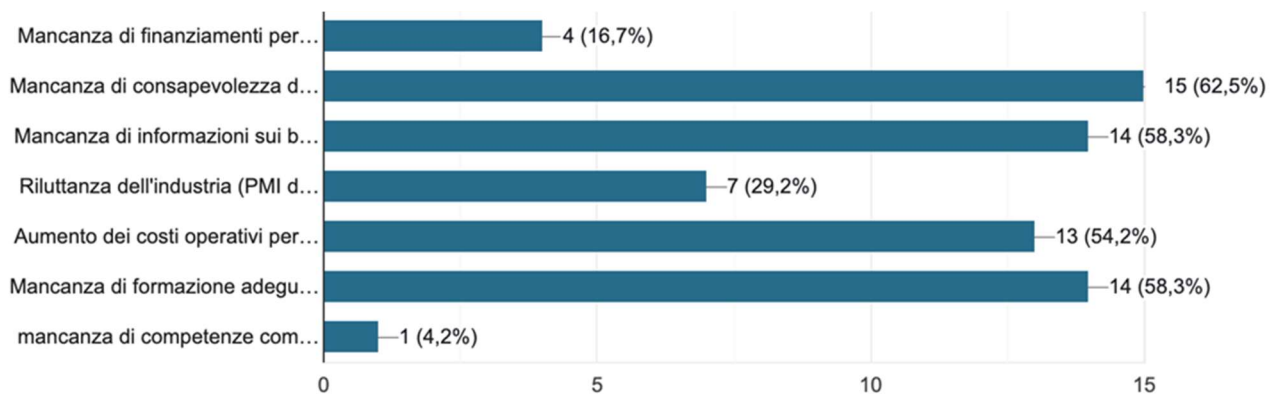
Answer: the competences improvement are especially required in the energy efficiency and building information modelling

19 Energy efficiency of building envelope; 5 New materials; 8 Recycling and reuse in construction; 11 Renewable sources; 6 Construction works techniques and methods; 9 Quality control; 5 SMART systems; 17 Digital tools (BIM); 7 Building operation and maintenance



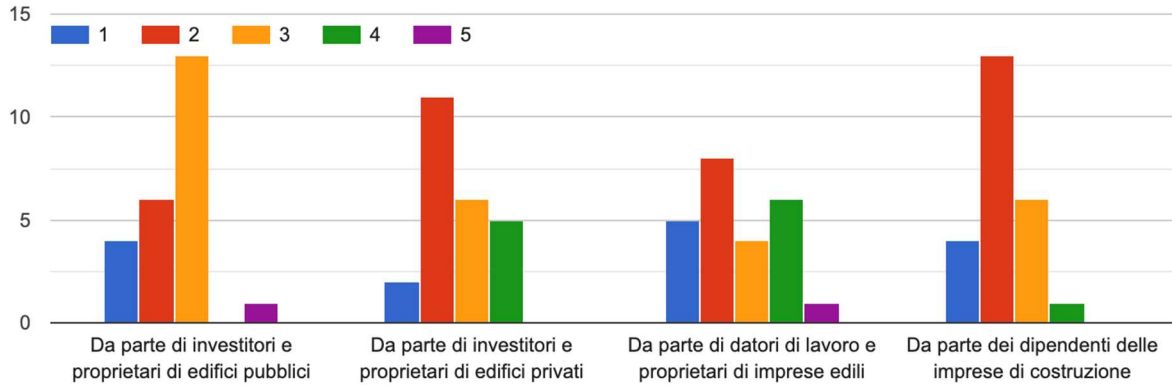
Question: Please identify two main barriers to change the current legislative framework in your country for public procurement of building in relation to the demand of qualified sustainable energy skilled workers and professionals

Answer: the main barriers are equally distributed among the lack of awareness of the importance of employing qualified workforce and lack of adequate training.



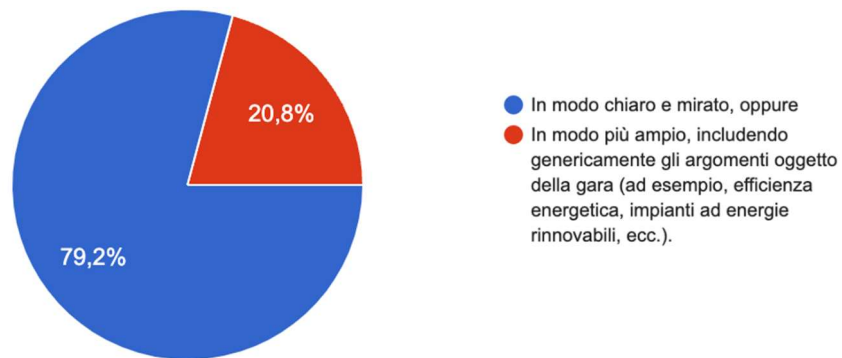
Question: Please assess, on a scale from 1 (*no awareness and willingness*) to 5 (*very high awareness and willingness*), the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required

Answer: this answer confirms the previous one, that is, there is a general lack of awareness



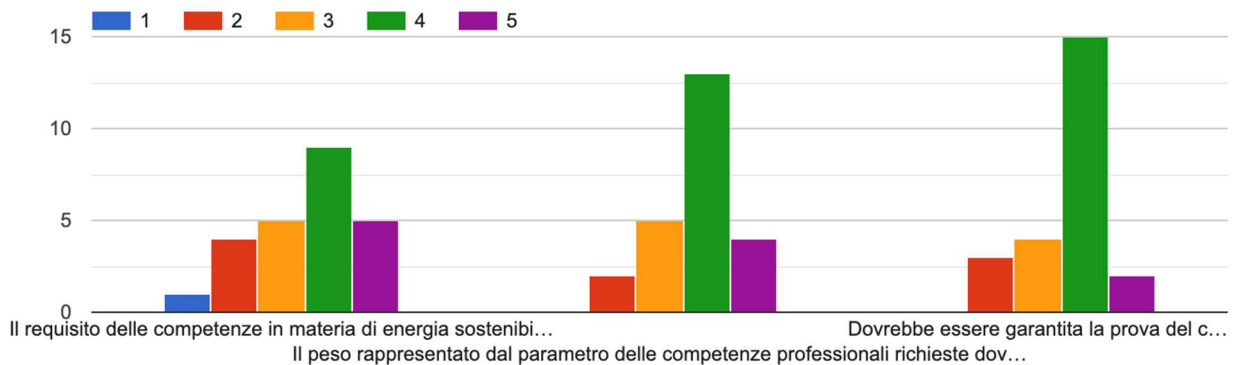
Question: The required competences of key persons in the bidders' team should be described in the tender documents

Answer: most of the stakeholders (80%) believes that competences should be better described in the tenders.



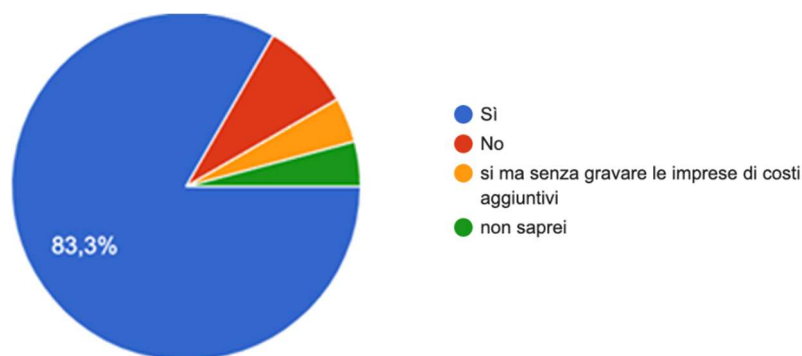
Question: Please assess, on a scale from 1 (strongly disagree) to 5 (strongly agree)

Answer: most stakeholders believe that the competences should be required and verified.



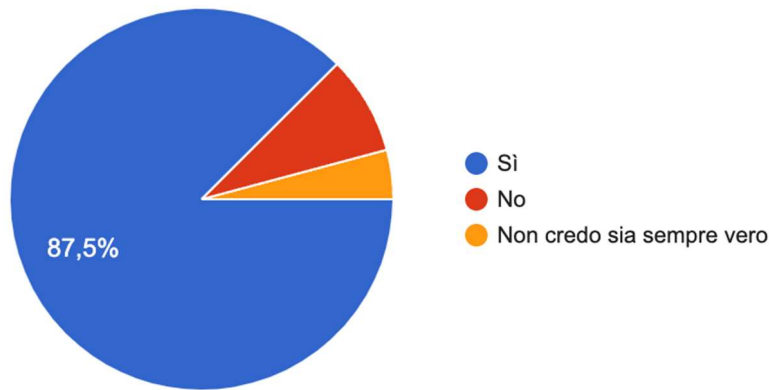
Question: Would an internationally recognized qualification scheme for sustainable energy skills be of benefit to your sector at a national level, to enable mobility of workforce across jobs?

Answer: most stakeholders (83%) believe that an international recognition could be beneficial for the building industry



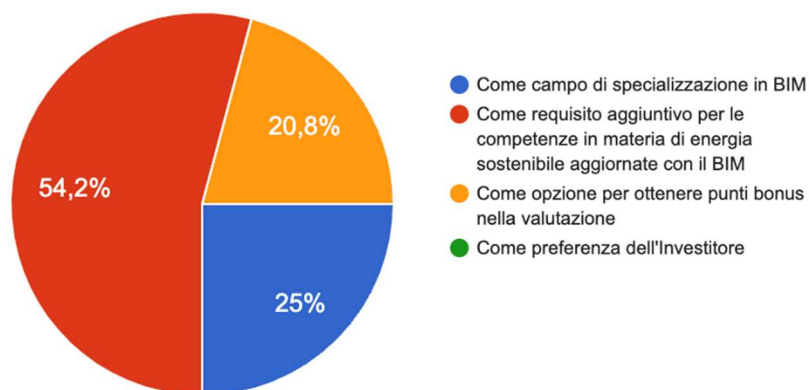
Question: Are you familiar with the fact that digital technologies, such as BIM, enhance the effect of sustainable energy skills in building projects

Answer: most stakeholders (87%), believe that an extended use of BIM would be beneficial to improve energy performance of buildings.



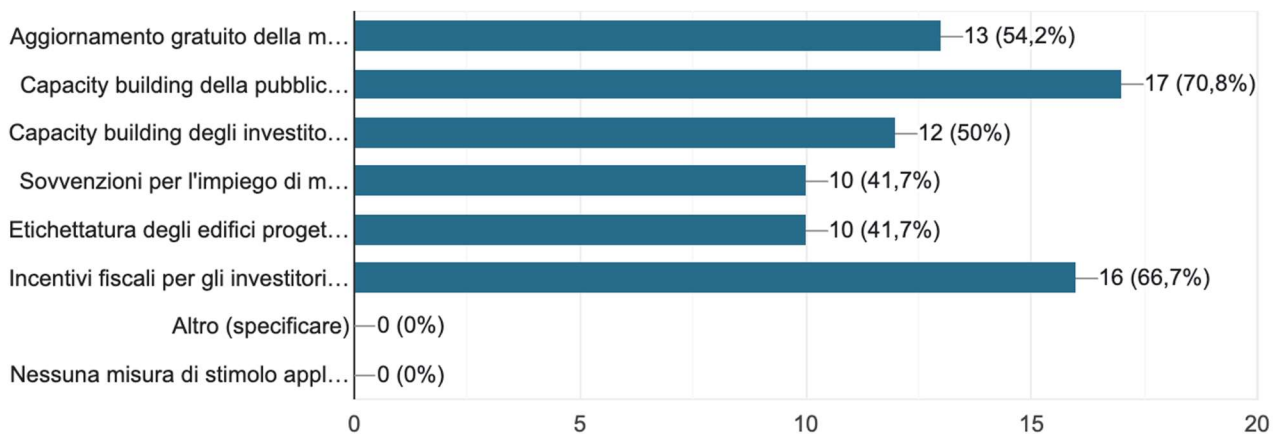
Question: How should the combined competences in digitization and in sustainable energy skills be compiled and presented as a requirement in procurement procedure

Answer: 54% of stakeholder believe that energy performance should be a specialization for BIM experts, 25% as a requirement for upgrading the competences in both BIM and energy performance and 25% to obtain “rewards” during the tender



Question: What is the most effective stimulating measure to boost (further) the inclusion of the requirements for qualifications for sustainable energy skills in procurements in your country

Answer: to increase the requirements for qualification there are two main actions and are related to the raise of the demand, therefore public administration training, and fiscal incentives for virtuous companies. Other two actions are important and are the free training for companies and competences increase of investors.



Question: Would you recommend additional stimulating measures for inclusion of the requirements for qualifications for sustainable energy skills in procurement procedures in your country? And, if yes, which ones?

Answer: Incentives for integrated urban aggregates together with greater effectiveness and quality of interventions

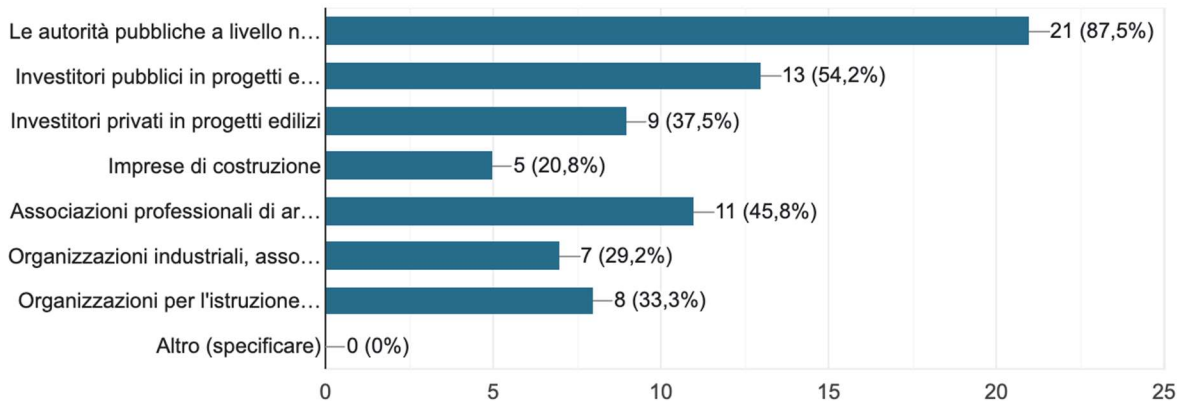
An updated law on access to the building profession,

Tie the value of the local taxes payment to the achieved and certified energy class

Economic rewards to technicians who use BIM together with BIM energy model (BEM)

Question: In your opinion, who should take an initiative for introducing / improvement of the requirements for sustainable energy competences in procurement procedures?

Answer: most of stakeholder believes in the main role of public administration, then follows investors and professional association.



Question: Please add any further comments and observations, specific for your country, that were not addressed in the previous questions.

Answer: The authority closest to the citizens, the Municipalities, must play a role of promotion, management, control and verification in the field of sustainable energy.

Qualitative and quantitative increase in the hours that university education dedicates to these topics.

For Italy, the current binding legislation Legislative Decree 36/2023 requires BIM for public works but does not provide operating tools, e.g., BIM Guidelines, check list for the approval of a BIM tender, standard tender for BIM projects, etc.

5. Summary of findings and recommendations

The **main findings from** the surveys are:

1. Skills and competencies for sustainable energy skills are not required in procurement procedures in all survey - included countries
2. Even in countries where competencies are required in procurement procedures, the following shortcomings and gaps were identified:
 - The complete supply chain of professional profiles is not included in the tender requirements, and the required competencies are fragmented, although team-completed competencies are of importance for the quality of work, and that is one of the main recommendations for improvement of procurement stipulation.
 - Requirements are not applied for all types of buildings (mostly public buildings are included)
 - Competencies are mostly required only for the design phase; all phases of a building life cycle are not included.
 - Private building projects rarely require confirmation of competences,
3. Competences for sustainable energy for one professional profile are usually merged; examples of good practices in some of the countries show different competences for energy efficiency and renewable sources
4. Competences for sustainable energy skills acquired in one country rarely can be used in another one – there is a need for an improved international recognition for all professional profiles.
5. As an example of a good practice applied in some of the countries, competencies are acquired and periodically maintained by a combination of formal education (to achieve the basic qualification), VET programmes accredited in the subject fields, in conjunction with professional associations in charge of CPD (to justify it periodically).

6. Periodical update of competencies is recommended because the fields of sustainable energy and digitalization are amongst the most changing technological improvement.
7. Competence for sustainable energy, required for the successful completion of work, should be described with a sufficient scope and level of detail in the procurement (tender) documents
8. An example of a good practice applied in some of the partner countries is establishing a register (a database) of qualified white- and blue-collar workers with achieved competencies in the subject field; registers of companies with qualified workforce are also a good and recommended practice.
9. Most of the respondents assess a high extent of interest in the service supply side (companies). The main constraints for SMEs are costs to be born for their employees to achieve certificates required in procurement.
10. The main barriers to more intensive inclusion of sustainable energy competencies in the procurement are lack of awareness at the demand side (public administration, investors) and lack of finance at the supply side (industry, contractors)
11. Most of the responses to the Survey 2 (total number of received responses: $55+24 = 79$) are in alignment or very similar to the opinions collected in Survey 1. Therefore, only the summary and specifics of the Survey 2 are listed below. Most of the respondents found that:
 - The demand for sustainable energy competencies in public and private procurement procedures would have a significant impact on the energy performance of buildings.
 - The requirements for competences should be described in a clear and focused way, with sufficient number of details
 - Evidence of updated continuous professional development should be provided in procurement procedures
 - The weight assigned to professional skills should have a higher value in the tender's evaluation

- BIM is a leverage tool for improving the energy performance of buildings; digital skills should be part of competence the requirement in procurement
- The three most effective stimulating measures are: 1) Free upskilling of construction sector workforce, 2) Capacity building of private investors, 3) Subventions for employment of certified workforce
- Public authorities, on national and regional levels, should take the initiative to introduce / improve the stimulating measures for market demand of skills in procurements.

Therefore, **the main recommendation**, based on the two surveys, to be further developed in Report D7.5, is to enhance competence requirements in procurement by a set of measures that apply a combination of capacity building, policy change, financial support and stimulus, and advanced upskilling.

6. Conclusions

The two-phase survey enabled the collection of information about:

- Current national practices for demand of sustainable energy skills in procurement procedures
- Identification of examples of good practices and possibilities to be replicated and introduced in other countries
- Identification of gaps, needs and barriers for improvement of current state
- Opinions and preliminary recommendations for improvement of procurement procedures towards an increased market demand for skills.

As a general conclusion, both surveys 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 and private procurement 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.

These measures will be taken in consideration for development of recommendations within the Report D7.5

7. References

1. ARISE Deliverable *D2.2 First overview of EU directives implementation:*
2. ARISE Deliverable *D2.3 First overview of the national and regional qualification framework*
3. ARISE Deliverable *D2.4 First overview of other EU-wide certification schemes*
4. ARISE Deliverable *D3.3: Qualification Framework of sustainable energy skills incl. BIM*

8. Appendices

8.1 Appendix 1: Questionnaire 1 (responded by Representatives of partner organizations)

ARISE PROJECT

SURVEY ON BEST PRACTICES OF MARKET RECOGNITION OF SKILLS FOR PARTNER ORGANISATIONS

A country-based survey, analysis and summary of national legal and regulatory frameworks for skills demand in procurement and execution procedures.

Dear Madam/Sir,

We would like to ask you to take part in the survey Best Practices of Market Recognition of Skills, prepared within the project ARISE (<https://www.ariseproject.eu/>).

About the Project

ARISE is a European-funded project (by H2020 Grant Agreement No 101033864), started in September 2021, that aims to support the upskilling of the design and construction professionals on the topics of energy-efficient buildings and Building Information Modelling (BIM) processes.

ARISE's global goal is to revolutionize the learning process by changing both the delivery and recognition of sustainable energy skills in the construction sector. The new system of training and recognition of skills will be valid across the EU, thus increasing the spread of skilled workforce in the building market. By providing clear learning interactions, transparency of upskilling transactions and recognition of qualifications achieved, ARISE will inspire demand for sustainable energy skills.

About the Survey

The aim of this survey is to collect, analyse and summarize information about national legal and regulatory frameworks for sustainable energy skills demand in procurement and execution procedures in different European countries in the specific sector of construction.

Sustainable energy skills, in the context of the survey, include energy efficiency and implementation of renewable energy sources in buildings.

This questionnaire has been created by the ARISE Project partner IECE North Macedonia and will be completed by national stakeholders in project partner countries: the UK, Ireland, the Netherlands, Italy, Belgium, Denmark, Portugal and North Macedonia, as well as in other countries included in project dissemination activities.

The survey consists of a mix of 25 multi-choice and open questions. Its completion takes about 20 minutes. The survey team is aware that the standard questions cannot capture the full complexity of the subject topic. Therefore, respondents are encouraged to provide additional comments to explain the situation related to their country. The survey team will consider the received comments and statements for analysis and establishment of findings.

The provided answers will be used to develop the ARISE project report D7.4: Overview of best practices in market recognition of skills. Report on experience and effects of the market appreciation of skills in procurement procedures and execution of projects, which will be public and available on the project website in September 2023.

On behalf of the survey lead organization, IECE North Macedonia, thank you in advance for your contribution.

Survey Link:

<https://docs.google.com/forms/d/e/1FAIpQLSdJomem7fNLIwz57Esa3NEWIGWNI N924nbxzs86SPy-Gui3A/viewform>

Data about the respondents:

1. Country (*mandatory*)
 - The UK
 - Ireland
 - The Netherlands
 - Italy
 - Belgium
 - Denmark
 - Portugal
 - North Macedonia
 - Other (please specify)

2. Type of organization (*mandatory*)
 1. Large companies in the construction sector
 2. SME in the construction sector
 3. Field of operations:
 - Design and consultancy
 - Construction
 - Maintenance
 - Manufacture of construction materials
 - Other (please specify)
 4. Public institution in charge of the construction sector
 5. Public institution in charge of energy and environment issues
 6. Public institution in charge of education
 7. University/ Research Institute
 8. Accredited training provider / VET institution
 9. Professional association in the construction sector
 10. Public investor in building projects
 11. Private investor in building projects
 12. Manufacturer of construction materials and products

13. Other (please specify)

3. Name of the organisation you work in (mandatory)
4. Work position (mandatory)
5. Name (optional)
6. Email address (optional)

SURVEY QUESTIONS:

Please share your opinion on the following statements and questions.

1. Are there policies and regulations in your country for the demand for sustainable energy skills and qualifications of the construction workforce in public procurements of building projects?
 - Yes
 - No

(If No, go to Q4)
2. Which types of buildings does it include (tick all that apply)?
 - Public buildings
 - Private buildings
 - All sizes of buildings
 - Residential buildings
 - Not residential buildings
 - Buildings of specific size (specify in m2)
 - Heritage buildings
3. For which stage of a building life cycle are the qualifications for sustainable energy skills required in the procurement procedure (thick all that apply)?
 - Design stage
 - construction stage
 - Quality control in the design and construction stage

- operation and maintenance
 - renovation
 - other (please specify)
4. The extent to which the implementation of demand for engagement of qualified workforce has a positive impact on energy performance of buildings is:
- From 1 no impact – To 5 very high impact*
5. Sustainable energy skills for professionals and workers should be included in private procurements for building design, construction and renovation (even if not required by legislation)
- From 1 strongly disagree – To 5 strongly agree*
6. Are the qualifications for sustainable energy skills different for energy efficiency of buildings and application of renewable energy sources applied in buildings?
- Yes, there are different qualifications for the two fields
 - No, there is one qualification for the both fields
 - No, there are mainly qualifications for renewable energies
7. Can the qualifications for sustainable energy skills achieved in your country be used in other countries?
- Yes
 - No
 - Partially
8. Can the qualifications for sustainable energy skills from other countries be applied in a public procurement in your country without notification?
- Yes
 - No

9. How is the technical capability of the bidders checked in a tendering procedure regarding sustainable energy skills and competence of their workforce (thick all that apply):
- By years and / or number and type of projects in professional experience,
 - By a qualification acquired by formal education,
 - By a qualification acquired by vocational education and training.
 - Other (please specify)
10. What are the means for providing proof of possession of sustainable energy skills and expertise in a public procurement procedure (tick all that apply)?
- A Professional CV
 - A Formal education degree
 - A Certificate issued by an accredited training provider
 - A Certificate issued by a not - accredited training provider
 - An Employer's statement
 - A Professional's statement
11. Which institution in your country issues the certificates for qualifications for sustainable energy skills in construction? (Tick all that apply.)
- Government authorities (e.g. ministries, agencies, etc.)
 - Professional associations of engineers, architects, blue-collar workers,
 - Formal education institutions
 - VET institutions and training providers
 - Other (please specify)

12. Please mark the professions for which the proof of qualifications for sustainable energy skills are required in public procurements for building projects:

- Architects
- Civil Engineers
- MEP Engineers
- Blue Collar Workers
- Maintenance Personnel
- Designers
- Facility Managers
- Quality Assurance
- Investors and Investor's Consultants
- Other (please specify)
- Not applicable for the country sector

13. In the public procurement tenders in your country, the required competencies for sustainable energy are described:

With low details (only the general title of qualifications) – 1

Very detailed (all required skills and competencies are described) - 5

14. Please select for which fields improvement and extension is needed:

- The energy efficiency of the building envelope
- New materials
- Renewable sources
- Construction works techniques
- Quality control
- SMART systems
- Digital tools (BIM)
- Building operation and maintenance
- Other (please specify)
- Not applicable for the country sector

15. Are the acquired competencies:
- Permanent, or
 - Needed to be updated periodically
16. Are databases for qualified workforce available and accessible for investors and employers?
- Yes
 - No
 - not applicable for the country sector
17. Are the competencies of the construction workforce related to sustainable energy?
- mandatory in procurement procedures or
 - Only bring bonus points to the bid
 - not applicable for the country sector
18. Is there a sustainable energy qualification clause in public procurement?
- Yes
 - No
19. How are the requirements considering qualifications for sustainable energy for professionals and workers formulated?
- As an explicate title of the qualification
 - As a content and description of the competence
 - As a requirement for a certificate achieved by an accredited training
 - As a requirement for a certificate achieved by a non-accredited training
 - The qualifications are only generically defined

20. Do the requirements for qualifications for sustainable energy skills cause additional costs for construction sector companies, more precisely?
- For Employers (yes / no)
 - For Employees (yes /no)
 - For Investors (yes/no)
21. Please identify two main barriers to changing the current legislative framework in your country for public procurement of building projects concerning the requirements on sustainability skills for workers and professionals (tick all that apply)
- Lack of finance to start reforms in legislation
 - Lack of awareness of the policy and market drivers
 - Lack of information on benefits
 - Industry (SMEs in the construction sector) reluctance
 - Increase of operation costs for companies
 - Lack of adequate training for sustainable energy skills
 - Other (please specify)
22. Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required:
- a) By public investors and owners of buildings
1 no awareness and willingness – 5 very high awareness and willingness 4
 - b) By private investors and owners of buildings
1 no awareness and willingness – 5 very high awareness and willingness 4
 - c) By employers and owners of construction companies
1 no awareness and willingness – 5 very high awareness and willingness 3
 - d) Employees in construction companies
1 no awareness and willingness – 5 very high awareness and willingness 4

23. Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders.

- a) The required competences of the key persons of the bidders' team should be described in the tender documents:
- In a clear and focused way, or
 - In a broader way, including several topics covered (e.g. energy efficiency, renewable systems, etc.).

- b) The requirement for competencies in sustainable energy skills should include all key professions in the complete contractor's team.

From 1 strongly disagree – to 5 strongly agree

- c) The weight represented by the parameter of the professional skills requirements should have much relevance in the bid.

From 1 strongly disagree – to 5 strongly agree

- d) Evidence of continuous professional updating of competencies in sustainable energy skills should be ensured.

From 1 strongly disagree – 5 strongly agree

24. What are the stimulating measures for procurement demand of qualified construction sector workforce applied in your country (tick all that apply)?

- free upskilling of construction sector workforce
- capacity building of public administration
- capacity building of private investors
- subventions for employing certified workforce
- taxation free incentives
- other (please specify)

25. Would you recommend additional stimulating measures for the demand for qualified construction sector workforce and, if yes, which ones? By bringing the energy requirements and carbon footprint into the concept phase of the design so that targets are formed and met throughout the design and not as a post-exercise after the design.

.....

8.2 Appendix 2: Questionnaire 2 (responded by Stakeholders – specific target groups in partner countries)

ARISE PROJECT

SURVEY ON BEST PRACTICES OF MARKET RECOGNITION OF SKILLS

A country-based survey, analysis and summary of national legal and regulatory frameworks for skills demand in procurement and execution procedures.

Dear Madam/Sir,

We would like to ask you to take part in the survey *Best Practices of Market Recognition of Skills*, prepared within the project ARISE (<https://www.ariseproject.eu/>).

About the Project

ARISE is a European-funded project (by H2020 Grant Agreement No 101033864), started in September 2021, that aims to support the upskilling of the design and construction professionals on the topics of energy-efficient buildings and Building Information Modelling (BIM) processes.

ARISE's global goal is to revolutionize the learning process by changing both the delivery and recognition of sustainable energy skills in the construction sector. The new system of training and recognition of skills will be valid across the EU, thus increasing the spread of skilled workforce in the building market.

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

About the Survey:

This survey aims to collect, analyse and summarize information about national legal and regulatory frameworks for sustainable energy skills demand in

procurement and execution procedures in different European countries in the specific construction sector.

In the context of the survey, sustainable energy skills include energy efficiency and implementation of renewable energy sources in buildings.

This questionnaire has been created by the ARISE Project partner IECE North Macedonia and will be completed by national stakeholders and professionals in the field.

The survey consists of a mix of 12 multi-choice and open questions. Its completion will take about 15 minutes. The project team is aware that the standard questions cannot capture the full complexity of the subject topic. Therefore, respondents are encouraged to provide additional comments to explain the situation related to their country. The research team will consider the comments and statements for further analysis and establishment of findings.

The provided answers will be used to develop the ARISE project report D7.4 *Overview of best practices in market recognition of skills. Report on experience and effects of the market appreciation of skills in procurement procedures and execution of projects*, which will be public and available on the project website in September 2023.

GDPR provisions will be respected for survey participants who decide to share their name and email address.

On behalf of the survey lead organization, IECE North Macedonia and the ARISE team, thank you in advance for your contribution.

Survey Link:

https://docs.google.com/forms/d/1RZLzT01R-ead89t14La07x7cbrbPpuhL4d3_Mpil_jk

SURVEY

Data about the respondents:

1. Country (*mandatory*)
 - The UK
 - Ireland
 - The Netherlands
 - Italy
 - Belgium
 - Denmark
 - Portugal
 - North Macedonia
 - Other (please specify)

2. Type of organization (*mandatory*)
 1. Large companies in the construction sector
 2. SME in the construction sector
 3. Field of operations:
 - Design and consultancy
 - Construction
 - Maintenance
 - Manufacture of construction materials
 - Other (please specify)
 4. Public institution in charge of the construction sector
 5. Public institution in charge of energy and environment issues
 6. Public institution in charge of education
 7. University/ Research Institute
 8. Accredited training provider / VET institution
 9. Professional association in the construction sector
 10. Public investor in building projects
 11. Private investor in building projects
 12. Manufacturer of construction materials and products

13. Other (please specify)

3. Name of the organisation you work in (mandatory)
4. Work position (mandatory)
5. Name (optional)
6. Email address (optional)

SURVEY QUESTIONS:

Please share your opinion on the following statements and questions.

1. The extent to which the implementation of demand for engagement of qualified workforce has a positive impact on energy performance of buildings is:
From 1 no impact – to 5 very high impact

2. Sustainable energy skills for professionals and workers should be included in private procurements for building design, construction and renovation (even if not required by legislation)
From 1 strongly disagree – to 5 strongly agree

3. Please mark the professions for which the proof of competencies for sustainable energy skills is required in a public procurement (thick all that apply):
 - Architects
 - Civil Engineers
 - MEP Engineers
 - Blue Collar Workers
 - Maintenance Personnel
 - Designers

- Facility Managers
 - Quality Assurance
 - Investors and Investor's Consultants
 - Other (please specify)
4. In the public procurement tenders in your country, the required qualifications for sustainable energy are described:
- 1 - With very low details (only the general title of qualifications) –*
5 Very detailed (all required skills and competencies are described)
5. Please select for which fields improvement and extension is needed:
- The energy efficiency of the building envelope
 - New materials
 - Renewable sources
 - Construction works techniques and methods
 - Quality control
 - SMART systems
 - Digital tools (BIM)
 - Building operation and maintenance
 - Other (please specify)
6. Please identify two main barriers to change of the current legislative framework in your country for public procurement of building projects concerning the requirements on sustainability skills for workers and professionals
- Lack of finance to start reforms in legislation
 - Lack of awareness of the policy and market drivers
 - Lack of information on benefits
 - Industry (SMEs in the construction sector) reluctance
 - Increase of operation costs for companies
 - Lack of adequate training for sustainable energy skills
 - Other (please specify)

7. Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required:
- a) By public investors and owners of buildings
1 no awareness and willingness – 5 very high awareness and willingness
 - b) By private investors and owners of buildings
1 no awareness and willingness – 5 very high awareness and willingness
 - c) By employers and owners of construction companies
1 no awareness and willingness – 5 very high awareness and willingness
 - d) Employees in construction companies
1 no awareness and willingness – 5 very high awareness and willingness
8. Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders:
- a) The required competences of the key persons of the bidders' team should be described in the tender documents:
 - In a clear and focused way, or
 - In a broader way, including several topics covered (e.g. energy efficiency, renewable systems, etc.).
 - b) The requirement for competencies in sustainable energy skills should include all key professions in the team.
From 1 strongly disagree – to 5 strongly agree
 - c) The weight represented by the parameter of the professional skills requirements should have much relevance in the bid.
From 1 strongly disagree – 5 strongly agree
 - d) Evidence of continuous professional updating of competencies in sustainable energy skills should be ensured.
From 1 strongly disagree – to 5 strongly agree

9. Would an internationally recognized qualification scheme for sustainable energy skills be of benefit to your national sector, enabling mobility of the workforce?
 - Yes
 - No

10. To what extent do digital technologies, such as BIM, enhance sustainable energy skills in building projects?
1 no impact – 5 very high impact

11. What are the stimulating measures for procurement demand of qualified construction sector workforce applied in your country:
 - free upskilling of the construction sector workforce
 - capacity building of public administration
 - capacity building of private investors
 - subventions for employing certified workforce
 - taxation free incentives
 - other (please specify)

12. Would you recommend additional stimulating measures for the demand for qualified construction sector workforce and, if yes, which ones?

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8.3. APPENDIX 3 Responses from the Survey 1 (provided by representatives of project partner organizations)

	Q1	Q2	Q3	Q4
Country of residence	Are there policies and regulations in your country for the demand for sustainable energy skills and qualifications of the construction workforce in public procurements of building projects?	Which types of buildings does it include (tick all that apply)?	For which stage of a building life cycle are the qualifications for sustainable energy skills required in the procurement procedure (tick all that apply)?	The extent to which the implementation of demand for engagement of qualified workforce has a positive impact on energy performance of buildings is (on the scale from 1 to 5):
Italy	Yes	Public buildings, Buildings of specific size (specify in m2, in other)	design stage	5
Netherlands	No	None	None	4
Ireland	Yes	Public buildings, Not residential buildings	design stage, construction stage, operation and maintenance	3
North Macedonia	Yes	Public buildings, Residential buildings, Not residential buildings	design stage, quality control in the design and construction stage, operation and maintenance	5
Denmark	Yes	Public buildings, Private buildings, All sizes of buildings, Residential buildings, Not residential buildings, Buildings of specific size, Heritage buildings,	design stage	5
United Kingdom	No	n/a	n/a	4
Portugal	No	n/a	n/a	4



awakening | relevant | innovative | scalable | equitable

	Q5	Q6	Q7	Q8
Country of residence	Sustainable energy skills for professionals and workers should be included in private procurements for building design, construction and renovation (even if not required by legislation) – on the scale from 1 (disagree to 5- strongly agree)	Are the qualifications for sustainable energy skills different for energy efficiency of buildings and application of renewable energy sources applied in buildings?	Can the qualifications for sustainable energy skills achieved in your country be used in other countries?	Can the qualifications for sustainable energy skills from other countries be applied in a public procurement in your country without nostrification?
Italy	5	Yes, there are different qualifications for the two fields	Yes	No
Netherlands	5	Yes, there are different qualifications for the two fields	No	No
Ireland	5	Yes, there are different qualifications for the two fields	Yes	Yes
North Macedonia	5	Yes, there are different qualifications for the two fields	No	No
Denmark	5	No, there is one qualification for the both fields	Yes	No
United Kingdom	5	Yes, there are different qualifications for the two fields	Partially	Partially
Portugal	4	No, there are mainly qualifications for renewable energies	No	No

	Q9	Q10	Q11	Q12
Country of residence	How is the technical capability of the bidders checked in a tendering procedure regarding sustainable energy skills and competence of their workforce (thick all that apply):	What are the means for providing proof of possession of sustainable energy skills and expertise in public procurement procedures:	Which institution in your country issues the certificates for qualifications for sustainable energy skills in construction:	Please mark the professions for which the proof of qualifications for sustainable energy skills are required in public procurements for building projects:
Italy	By a qualification acquired by vocational education and training.	A Certificate issued by an accredited training provider	Other (please specify)	It is not a real obligation unless it is related to the installation of RES
Netherlands	By years and / or number and type of projects in professional experience,	A Professional CV, An Employer's statement	Formal education institutions, VET institutions and training providers	None
Ireland	By years and / or number and type of projects in professional experience, By a qualification acquired by formal education, By a qualification acquired by vocational education and training.	A Professional CV, A Certificate issued by an accredited training provider	Professional associations of engineers, architects, blue-collar workers, VET institutions and training providers	Architects, Civil Engineers, MEP Engineers, Blue Collar Workers, Maintenance Personnel, Designers, Facility Managers, Quality Assurance, Investors and Investor's Consultants
North Macedonia	By a qualification acquired by formal education, By a qualification acquired by vocational education and training.	A Professional CV	Formal education institutions, VET institutions and training providers	Architects, MEP Engineers, Designers, Energy Auditors
Denmark	By a qualification acquired by formal education,	A Formal education degree	Formal education institutions	Architects, Civil Engineers, MEP Engineers
United Kingdom	By years and / or number and type of projects in professional experience, By a qualification acquired by formal education, By a qualification acquired by vocational education and training.	A Professional CV, A Formal education degree, A Certificate issued by an accredited training provider, A Certificate issued by a not - accredited training provider	Professional associations of engineers, architects, blue-collar workers, Formal education institutions, VET institutions and training providers	Not applicable for the country sector, the qualifications and skills required are usually set in each procurement and not as a general mandatory rule. so it will vary. So will the professionals involved.
Portugal	By years and / or number and type of projects in professional experience,	A Professional CV, A Formal education degree	Formal education institutions	Not applicable for the country sector

	Q13	Q14	Q15	Q16
Country of residence	In the public procurement tenders in your country, the required competencies for sustainable energy are described (on a scale from 1 to 5):	Please select for which fields improvement and extension is needed:	Are the acquired competencies:	Are databases for qualified workforce available and accessible for investors and employers?
Italy	1 (With low details (only the general title of qualifications))	Energy efficiency of building envelope, New materials, Construction works techniques, SMART systems, Digital tools (BIM), Building operation and maintenance	Needed to be updated periodically	No
Netherlands	1	Energy efficiency of building envelope, New materials, Renewable sources, Quality control, SMART systems, Digital tools (BIM), Building operation and maintenance	Needed to be updated periodically	Yes
Ireland	3	Energy efficiency of building envelope, New materials, Renewable sources, SMART systems, Digital tools (BIM), Building operation and maintenance	Needed to be updated periodically	No
North Macedonia	1	The energy efficiency of the building envelope, New materials, Quality control, Digital tools (BIM)	Needed to be updated periodically	Yes
Denmark	5	The energy efficiency of the building envelope, New materials	Permanent.	Yes
United Kingdom	1	Energy efficiency of building envelope, New materials, Renewable sources, Construction works techniques, Quality control, SMART systems, Digital tools (BIM), Building operation and maintenance	Needed to be updated periodically	Yes
Portugal	2	Not applicable for the country sector	Permanent.	Not applicable for the country sector

	Q17	Q18	Q19	Q20 / Q20a
Country of residence	Are the competencies of the construction workforce related to sustainable energy	Is there a sustainable energy qualification clause in public procurement?	How are the requirements considering qualifications for sustainable energy for professionals and workers formulated:	Do the requirements for qualifications for sustainable energy skills cause additional costs for construction sector companies, more precisely to [Employers]
Italy	Only bring bonus points to the bid.	No	As an explicate title of the qualification, As a requirement for a certificate achieved by an accredited training	No
Netherlands	Only bring bonus points to the bid.	No	As a content and description of the competence	Yes
Ireland	mandatory in procurement procedures	Yes	As a requirement for a certificate achieved by an accredited training	Yes
North Macedonia	mandatory in procurement procedures	No	As a requirement for a certificate achieved by an accredited training	Yes
Denmark	mandatory in procurement procedures	Yes	As a requirement for a certificate achieved by an accredited training	Yes
United Kingdom	mandatory in procurement procedures	Do not know	The qualifications are only generically defined	Yes
Portugal	Not applicable for the country sector	Do not know	The qualifications are only generically defined	Yes

	Q21/ Q20 B	Q21 / Q20 C	Q23 / Q21	Q24/ Q22 a
Country of residence	Do the requirements for qualifications for sustainable energy skills cause additional costs for construction sector companies, more precisely to [Employees]	Do the requirements for qualifications for sustainable energy skills cause additional costs for construction sector companies, more precisely to [Investors]	Please identify two main barriers to changing the current legislative framework in your country for public procurement of building projects concerning the requirements on sustainability skills for workers and professionals	Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required: [By public investors and owners of buildings]
Italy	No	No	Lack of awareness of the policy and market drivers, Lack of information on benefits, Industry (SMEs in the construction sector) reluctance, Lack of adequate training for sustainable energy skills	2
Netherlands	No	No	Lack of demand	2
Ireland	No	Yes	Lack of information on benefits, Industry (SMEs in construction sector) reluctance	3
North Macedonia	No	No	Lack of finance to start reforms in legislation, Increase of operation costs for companies	3
Denmark	No	Yes	Lack of information on benefits, Industry (SMEs in construction sector) reluctance	4
United Kingdom	Yes	Yes	Increase of operation costs for companies, Lack of adequate training for sustainable energy skills, impact on cost and market. also can hinder the flexibility of procurement. UK government is looking for more flexible approaches to procurements and to have a general rule regarding that may not be the most adequate. There is currently room to maneuverer for each procurement of set criteria on a case-by-case basis	5 very high awareness and willingness
Portugal	Yes	Yes	Lack of awareness of the policy and market drivers, Lack of adequate training for sustainable energy skills	3

	Q25 / Q22 b	Q26/ Q22 c	Q27 / Q22 d	Q28 / Q23 a
Country of residence	Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required: [By private investors and owners of buildings]	Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required: [By employers and owners of construction companies]	Please assess, on a scale from 1 to 5, the awareness and willingness of market stakeholders in your country to request qualified and certified workforce in procurement where they are not regulatory required: [By employees in construction companies]	Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders: [The requirement for competencies in sustainable energy skills should include all key professions in the team.]
Italy	3	3	2	Strongly agree
Netherlands	2	3	2	Agree
Ireland	4	3	4	Strongly agree
North Macedonia	3	2	2	Strongly agree
Denmark	4	3	4	Strongly agree
United Kingdom	2	2	1. No awareness and willingness	Strongly agree
Portugal	4	3	3	Agree

	Q29 / Q23 b	Q30/ Q23 c	Q31 / Q23 d	Q32/ Q24	Q33/ Q25
Country of residence	Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders: [The requirement for competencies in sustainable energy skills should include all key professions in the team.]	Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders: [The weight represented by the parameter of the professional skills requirements should have much relevance in the bid.]	Please share your opinion on how the requirements for sustainability skills should be formulated in public tenders: [Evidence of continuous professional updating of competencies in sustainable energy skills should be ensured.]	What are the stimulating measures for procurement demand of qualified construction sector workforce applied in your country:	Would you recommend additional stimulating measures for the demand for qualified construction sector workforce and, if yes, which ones?
Italy	Strongly agree	Strongly agree	Strongly agree	capacity building of public administration, capacity building of private investors, taxation-free incentives	involve insurance company that could decrease the cost if all the workers are qualified for the right task
Netherlands	Agree	Strongly agree	Strongly agree	capacity building of public administration, capacity building of private investors, subventions for employing certified workforce	Skills assessments at team level
Ireland	Strongly agree	Strongly agree	Strongly agree	free upskilling of construction sector workforce, capacity building of public administration, capacity building of private investors	Introduce energy and carbon requirements from the outset of the project. The concept is explored in the Leti Carbon Primer (https://www.leti.uk/ecp), in which embodied carbon tasks and targets are overlaid to the RIBA Plan of Work stages. Similar to planning information exchanges in BIM projects, having the energy and carbon targets set out early on will allow careful planning to take place.

North Macedonia	Strongly agree	Strongly agree	Strongly agree	free upskilling of construction sector workforce, capacity building of public administration	Access to investment funds (e.g., green building funds) for investors willing to employ a contractor with qualified workforce in sustainable energy skills.
Denmark	Strongly agree	Strongly agree	Strongly agree	capacity building of public administration, capacity building of private investors	By bringing the energy requirements and carbon footprint into the concept phase of the design so that targets are formed and met throughout the design and not as a post-exercise after the design.
United Kingdom	Strongly agree	Agree	Strongly agree	free upskilling of construction sector workforce, capacity building of public administration, capacity building of private investors, subventions for employing certified workforce, not sure. There are programmes of funding for training for innovation and business support, which therefore can be used as leverage to help companies and individuals respond to procurement demand... but I am unsure if there are some of the above incentives in place... the apprenticeship model of study could potentially fall under the 4th option...	more bonus points in procurement when related to workforce skills. The submission of digital files and data-driven assessments regarding further mandatory but subsidised certification for designers and installers.
Portugal	Agree	Agree	In a clear and focused way	free upskilling of the construction sector workforce, capacity building of public administration, capacity building of private investors, subventions for employing certified workforce, taxation-free incentives	No