



Education for Digitalization of Energy

Deliverable 4.5

Synergy with other European education frameworks

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Abstract:

The deliverable emphasizes the synergies between the EDDIE project and analysed frameworks (ESCO, ECVET, EQF, Europass, ECTS, EQAVET, ECQA, EIT, EUA, DigComp, and EDUHub), promoting digital education, skills development, and a digitally competent workforce across the EU. The EDDIE project and analysed frameworks are aligned in their goals and stakeholders, emphasizing skills recognition, digital education, collaboration, and quality assurance. The EDDIE project aims to bridge skill gaps by prioritizing digital competencies in the energy sector, fostering its adaptability to the digital age. Collaboration and mobility initiatives facilitate knowledge exchange among European training centres, universities, and industries, in line with the broader vision of EU frameworks to promote cooperation and innovation. Collaboration fosters an ecosystem of stakeholders working together to address education challenges, driving advancement and equity within Europe. Quality assurance ensures the credibility of digital education and skills development programs, producing a competent workforce for the digital era. Ultimately, both EU frameworks and the EDDIE project strive to create an inclusive and responsive education system that meets the evolving needs of society and the economy, fostering a prosperous and digitally competent Europe.

Keywords:

D4.5 – European education frameworks, ESCO, ECVET, EQF, Europass, ECTS, EQAVET, ECQA, EIT, EUA, DigComp, EDUHub, Promotion of digital education and digital skills

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Acronyms and Abbreviations

ESCO	European Skills, Competences, Qualifications and Occupations
ECVET	European credit system for vocational education and training
EQF	European Qualifications Framework
ECTS	European Credit Transfer and Accumulation System
EQAVET	European Quality Assurance in Vocational Education and Training
ECQA	European Certification and Qualification Association
EIT	European Institute of Innovation and Technology
EUA	European University Association
DigComp	Digital Competence Framework for Citizens
EDUHub	European Digital Education Hub
CEDEFOP	European Centre for the Development of Vocational Training
EHEA	European Higher Education Area
QF-EHEA	Qualifications of the European Higher Education Area
EQFLLL	European Qualifications Framework for Lifelong Learning
VET	Vocational Education and Training
NRPs	National Quality Assurance Reference Points
KIC	Knowledge and Innovation Communities
EUA-CDE	EUA for Doctoral Education
IEP	Institutional Evaluation Programme
DSI	Digital Skills Index
CV	Curriculum vitae
BSDE	Blueprint Strategy for the Digitalisation of the Energy value chain

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Executive Summary

In this deliverable, the following frameworks are presented:

- European Skills, Competences, Qualifications and Occupations (ESCO),
- European credit system for vocational education and training (ECVET),
- European Qualifications Framework (EQF),
- Europass,
- European Credit Transfer and Accumulation System (ECTS),
- European Quality Assurance in Vocational Education and Training (EQAVET),
- European Certification and Qualification Association (ECQA),
- European Institute of Innovation and Technology (EIT),
- European University Association (EUA),
- Digital Competence Framework for Citizens (DigComp), and
- European Digital Education Hub (EDUHub).

The EDDIE project aligns with analysed European frameworks and collectively contributes to the promotion of digital education and skills development, preparing individuals for the digital challenges of the 21st century. The shared focus on digital education is a fundamental pillar that binds the analysed frameworks and the EDDIE project together. Recognizing the potential of digital technologies in education, the project and the frameworks prioritize the integration of digital tools and resources in teaching and learning processes. This common emphasis on digital literacy, digital competencies, and digital fluency prepares individuals to embrace the digital challenges in an increasingly digital-driven economy.

The underlying goal of both the analysed frameworks and the EDDIE project is to promote an education system that is inclusive, forward-thinking, and responsive to the evolving needs of society and the economy. By fostering collaboration, mobility, and excellence, they work towards a more integrated, prosperous, and equitable education system, where digital education and digital skills development are at the forefront of advancement and opportunity.

The collaboration among stakeholders, including education providers, employers, policymakers, students, and EU institutions, is crucial for the successful implementation of the EDDIE project and the advancement of digitalization in the energy sector. By fostering cooperation and knowledge-sharing, these frameworks and the EDDIE project strengthen Europe's position in the digital energy landscape.

In summary, the EDDIE project and the analyzed frameworks share common objectives and stakeholders, emphasizing skills recognition, digital education, collaboration, and quality assurance. Their collective commitment to advancing digital education and skills development contributes to creating a digitally competent workforce and an inclusive education system within the EU.

1. Introduction

The EDDIE project is a comprehensive initiative that sets out to achieve multiple objectives aimed at addressing the digital skills gap and promoting digitalization within the energy sector. Its goals encompass the development of a European Sectoral Skills Alliance, recognition of skill gaps, and the enhancement of digital skills at all levels of education, thereby increasing the attractiveness of the energy sector as a career path. The project further seeks to foster collaboration and mobility between European training centres, universities, and industries to facilitate knowledge exchange and cooperation. Additionally, the EDDIE project aims to provide a Blueprint Strategy for the Digitalisation of the Energy value chain (BSDE), which enables education providers to adapt and revise their programs in response to industry changes.

To effectively achieve its goals, the EDDIE project recognizes the importance of drawing insights and inspiration from various existing European frameworks that align with its objectives, especially concerning the recognition and improvement of digital skills within the energy sector. Consequently, analysis and research of several European frameworks were undertaken. These frameworks include ESCO, ECVET, EQF, Europass, ECTS, EQAVET, and ECQA. During this research, additional relevant frameworks emerged, such as EIT, EUA, DigComp, and EDUHub, which offer valuable insights and possibilities for enhancing the EDDIE project's outcomes.

This deliverable highlights the synergies between the EDDIE project and the previously analysed frameworks, emphasizing their shared objectives and common reference points. These frameworks collectively contribute to the promotion of digital education, digital skills development and its recognition among different institutions, the standardized language for certifications, and the cultivation of a digitally competent workforce across Europe. As the energy sector rapidly embraces digitalization, these frameworks play a crucial role in ensuring that education providers are equipped to address the evolving needs of the industry, by empowering students and professionals with relevant and up-to-date digital competencies.

Moreover, this deliverable recognizes the significance of fostering cooperation among various stakeholders within the European Union (EU). The collaboration between educational institutions, industry partners, policymakers, and researchers is vital to driving positive change and facilitating the successful implementation of the EDDIE project's goals. These frameworks and the EDDIE project collectively, provide a platform for stakeholders to engage in knowledge-sharing, best practices, and joint efforts to strengthen Europe's position in the digital energy landscape.

Within the context of the EDDIE project and the analysed frameworks, common stakeholders emerge as key players in realizing the shared vision of a digitally skilled and competitive energy workforce. These stakeholders include education and training providers, employers, industry associations, policy makers, students, individuals, EU institutions, and EU citizens. Their active involvement and collaboration are necessary for the success of the EDDIE project and the broader advancement of digitalization in the energy sector.

1.1. Structure of the Document

Deliverable D4.5 presents the following frameworks:

- European Skills, Competences, Qualifications and Occupations (ESCO),
- European credit system for vocational education and training (ECVET),
- European Qualifications Framework (EQF),
- Europass,
- European Credit Transfer and Accumulation System (ECTS),
- European Quality Assurance in Vocational Education and Training (EQAVET),
- European Certification and Qualification Association (ECQA),
- European Institute of Innovation and Technology (EIT),
- European University Association (EUA),
- Digital Competence Framework for Citizens (DigComp), and
- European Digital Education Hub (EDUHub).

Each of these frameworks are elaborated in the following way:

1. Presentation of the framework,
 2. Overview of main services, and
 3. Synergies with EDDIE.
-

2. Synergies with ESCO

The European Skills, Competences, Qualifications and Occupations (ESCO) framework is a European Commission project, run by Directorate General of Employment, Social Affairs and Inclusion, (DG EMPL) in collaboration with the European Centre for the Development of Vocational Training (CEDEFOP) and is freely accessible online. It is designed to facilitate mobility and employability across different sectors and countries, helping individuals, employers, and policymakers to identify and develop the skills needed for different types of work.

2.1. Overview of Main Services

Currently, the ESCO framework provides descriptions of 3008 occupations and 13.890 skills linked to these occupations, which are available in multiple languages. The framework is structured in three pillars:

- Occupations
An occupation is a grouping of jobs involving similar tasks and which require similar skills set. Occupations should not be confused with jobs or job titles. While a job is bound to a specific work context and executed by one person, occupations group jobs by common characteristics. Examples of occupations are "Project manager", "Aircraft engine specialist" or "Heating, ventilation, air conditioning engineer".
- Skills and competences
Both skills and competences rely on factual and theoretical knowledge, the difference lies in the way this knowledge is applied and being put into use. Competence is the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. Skill is the ability to apply knowledge and use know-how to complete tasks and solve problems. Examples of skills and competences are: "Programming computer systems" or "Collaborating in a team and network".
- Qualifications
Qualification is the formal outcome of an assessment and validation process, which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards. After the first release, the Commission decided to move the qualifications from ESCO into Europass.

Each skill/competence and occupation are assigned a unique code and a standardized description, which helps to facilitate communication and comparison across different sectors and countries. This allows individuals, employers, and policymakers to better understand the skills and competencies needed for different types of work and to identify opportunities for upskilling or reskilling.

2.2. Synergies with EDDIE

There are several synergies and connections between the EDDIE Project and the ESCO framework that can support the development of digital skills and competences in the energy sector:

- Standardized language
The ESCO framework provides a standardized language for defining and categorizing skills, competences, and qualifications across different sectors and professions. By using this common language, the EDDIE Project can ensure that their training programs are aligned with the needs of the energy sector and is based on a common understanding of the required digital competences.
- Identification of digital skills and competences
The ESCO framework can be used to identify the specific digital skills and competences that are most relevant to the energy sector. This can help the EDDIE Project to design training programs that address these needs and provide the necessary digital competences for the energy sector (i.e. it could be used to identify the specific digital skills and competences needed for the implementation of energy management systems or the integration of renewable energy sources into the grid).
- Recognition of skills and qualifications
The ESCO framework can help to ensure that the digital skills and competences developed as part of the EDDIE Project are recognized and valued across Europe. By aligning its work with the broader efforts of the European Union to develop a common language for skills and qualifications, the EDDIE Project can help to facilitate mobility and lifelong learning.

- Collaboration and networking

Including the ESCO framework within the EDDIE Blueprint Strategy can support the development of best practices and innovative approaches for promoting digital skills and competencies in the energy sector.

Furthermore, the EDDIE Project and the ESCO framework have a similar range of stakeholders, as they both aim to support the development of skills and competences across different sectors and professions. Some of the key stakeholders that are relevant to both initiatives include:

- Education and training providers

Education and training providers are important stakeholders for both the EDDIE Project and the ESCO framework, as they are responsible for delivering the training and education programs that develop the skills and competences needed in different sectors.

- Employers and industry associations

Employers and industry associations have a key role to play in both the EDDIE Project and the ESCO framework, as they can help to identify the skills and competences that are needed in different sectors and ensure that education and training programs are aligned with these needs.

- Policy makers and regulators

Policy makers and regulators are important stakeholders for both the EDDIE Project and the ESCO framework, as they can help to create the policy environment that supports the development of skills and competences across different sectors.

- Students and workers

Students and workers are the ultimate beneficiaries of both the EDDIE Project and the ESCO framework, as they are the ones who develop the skills and competences that are needed in different sectors and use these skills in their work.

In conclusion, it can be stated that the ESCO framework is a valuable tool to be taken into consideration within the EDDIE project as it can provide a standardized method to define and classify the digital skills and competencies needed in the energy sector. In the future, the EDDIE Entity could create synergies with the ESCO project by collaborating on the identification of specific digital skills needed in the energy sector (see deliverable D3.3 for a reference to the EDDIE Entity).

3. Synergies with ECVET

The European Credit System for Vocational Education and Training (ECVET) is a framework developed to facilitate the recognition, transfer, and accumulation of learning outcomes in vocational education and training across different countries and systems within Europe. It is a technical framework that aims to promote transparency and coherence in VET qualifications, making it easier for individuals to have their learning achievements recognized and valued.

The ECVET framework is based on the division of qualifications into smaller units, each described in terms of learning outcomes, which encompass knowledge, skills, and competences. These units can be transferred and recognized between different VET systems, allowing learners to accumulate their achievements towards a full qualification. By using a common language and agreed-upon credit points, ECVET enables VET providers to understand and compare learning provisions in different European countries.

The main objectives of ECVET are to support student and employee mobility, facilitate lifelong learning, increase the attractiveness of vocational education and training, and ensure quality in the provision of qualifications. It aims to enhance the recognition and transferability of learning outcomes, promote flexibility in learning pathways, and foster collaboration and cooperation among VET stakeholders across Europe.

3.1. Overview of Main Services

ECVET relies in qualifications being defined in learning outcomes, which statements are defining what a learner will know and what the learner will be able to do by the end of the learning programme. Thus, ECVET is based on the description of learning outcomes for each unit of a learning programme using the three descriptors of EQF: knowledge, skills, and competences. These qualifications and units are then represented by a specific number of credit points, which express the volume of learning outcomes in each unit and provide information on the relative weight of the units which make up a qualification.

Credits mean a set of learning outcomes of an individual which have been assessed and which can be accumulated towards a qualification, or transferred to other learning programmes or qualifications. ECVET points are a numerical representation of the overall weight of learning outcomes in a qualification and of the relative weight of units in relation to the qualification. ECVET points provide information about the qualification and the units, and they provide information about the credit the learner has transferred and accumulated.

Overall, credits are related to a person and their achievements, while ECVET points are linked to the qualification structure and description, independent of whether someone has achieved the qualification or not. ECVET points are allocated to a qualification as a whole and to its units, based on using an agreement according to which 60 points are allocated to the learning outcomes expected to be achieved in a year of formal full-time VET.

The implementation of ECVET involves all steps associated with the planning (before mobility), delivery (during mobility) and follow up (after mobility) of mobility programmes.

- Before mobility, the sending and hosting organizations establish a learning agreement that defines the expected learning outcomes, the units to be acquired, the assessment procedures, and the credit allocation. The agreement also outlines the roles and responsibilities of the different parties involved and the means of recognition of learning outcomes.
 - During mobility, the learner participates in the training activities specified in the learning agreement and receives assessment and feedback on their progress. The sending and hosting organizations ensure that the agreed learning outcomes and assessment criteria are met and also monitor the learner's progress.
 - After mobility, the sending organization recognizes the learning outcomes acquired by the learner and ensures their transfer and accumulation towards a qualification. The hosting organization provides documentation of the learning outcomes achieved and the assessment results, which are used for recognition purposes. The receiving organization ensures that the learning outcomes acquired abroad are recognized in accordance with national regulations and are appropriately documented.
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3.2. Synergies with EDDIE

The EDDIE project, with its focus on the digitalization of the energy sector and the development of new skills and competencies, can benefit from the synergies and strategies of the European Credit System for Vocational Education and Training (ECVET) framework.

Overall, the ECVET framework, designed to facilitate the recognition and transfer of learning outcomes in vocational education and training, can support the development of digital skills and competencies in the energy sector in the following ways:

- Transparent Recognition and Transfer of Learning Outcomes

ECVET provides a common language and structure for describing learning outcomes in terms of knowledge, skills, and competencies. By aligning the learning outcomes developed within the EDDIE project with the ECVET framework, it will become easier to recognize and transfer these outcomes across different contexts and countries. This will enable individuals to accumulate their learning achievements towards qualifications and facilitate the mobility of skilled professionals within the energy sector in Europe.

- Modularization and Flexibility

The ECVET framework encourages the division of qualifications into smaller units, each defined by specific learning outcomes. This modular approach aligns well with the objectives of the EDDIE project, which aims to develop new profiles and specialized skills in the digitalization of the energy sector. By breaking down qualifications into units, EDDIE can design flexible learning pathways that will allow learners to acquire digital skills and competencies incrementally. This modularity also supports the recognition and transfer of partial achievements, enabling learners to build on their existing knowledge and skills.

- Credit Allocation and Accumulation

ECVET utilizes a credit system to represent the volume and relative weight of learning outcomes. The allocation of credits to units and qualifications provides valuable information about the extent and level of digital skills and competencies acquired by learners. By adopting ECVET credit points in the design of educational programs within the EDDIE project, it will become easier to compare, validate, and accumulate learning outcomes. This promotes transparency and coherence in recognizing and assessing digital skills and competencies across different learning contexts and countries.

- Learning Agreements and Documentation

ECVET emphasizes the use of learning agreements to define learning outcomes, assessment procedures, and credit allocation before mobility. These agreements establish a clear framework for collaboration among stakeholders involved in learning programs. By integrating the ECVET approach into the EDDIE project, it will become possible to develop learning agreements that align the digital skills and competencies targeted by the project, with the requirements and expectations of the energy sector. These agreements could also ensure transparency and consistency in assessing and documenting learners' achievements and facilitate the recognition and transfer of their digital skills and competencies.

- Quality Assurance and Evaluation

ECVET promotes quality assurance and evaluation practices throughout the whole learning process. It encourages ongoing monitoring and assessment to ensure the attainment of learning outcomes and the quality of education and training. The EDDIE project can leverage these methodologies of ECVET to monitor and evaluate the effectiveness of its educational programs and activities. Long-term, it will also help identify strengths and areas for improvement, ensuring the alignment of digital skills and competencies with the needs of the energy sector.

In conclusion, the ECVET framework offers synergistic opportunities for the EDDIE project to enhance the development of digital skills and competencies in the energy sector. By aligning the project's learning outcomes, modular approach, credit allocation, and documentation practices with the principles of ECVET, EDDIE can facilitate the recognition, transfer, and accumulation of digital skills and competencies, supporting the mobility and professional development of individuals within the energy sector in Europe. Additionally, the quality assurance and evaluation mechanisms of ECVET can contribute to ensuring the relevance and effectiveness of the developed digital skills and competencies in meeting the demands of the energy sector's digital transformation.

Furthermore, the EDDIE Project and the ECVET framework have a similar range of stakeholders. Some of the key stakeholders that are relevant to both initiatives include:

- VET practitioners

VET practitioners are the ultimate beneficiaries of both the EDDIE Project and the ECVET framework. VET practitioners are the ones who develop the skills and competences that are needed in different sectors and use these skills in their work.

- Policy makers and decision makers

Both the EDDIE Project and the ECVET framework count policymakers and regulators as important stakeholders since they can help shape the regulatory environment that fosters the development of skills and competencies across many industries.

- Social partners and researchers

In the EDDIE project and the ECVET framework, social partners and researchers are important stakeholders since they can design and offer the necessary trainings for the job market.

- Enterprises and sectoral organisations

Enterprises and sectoral organisations are important stakeholders in EDDIE and ECVET since the design of the necessary trainings are adjusted and, if necessary completely newly designed for their needs.

Overall, the framework of Mobility in VET is an important tool for promoting the mobility of VET learners and workers across Europe and for ensuring that their learning outcomes are recognized and valued by employers and educational institutions in different countries. EDDIE could benefit and create added value by aligning its activities with the principles of the ECVET framework, enhancing the transferability and recognition of digital skills and competencies acquired within the project, and facilitating the seamless integration of professionals into the evolving energy sector job market across Europe.

4. Synergies with EQF

The European Qualifications Framework, or EQF, is a common reference framework designed to facilitate the comparison of qualifications across different countries and education systems in Europe. The EQF system aims to promote transparency and mobility in education and employment by establishing a common language for describing qualifications and competences. It covers all levels of education and training, from basic skills to doctoral degrees, and it is based on learning outcomes rather than on the duration of studies or the type of institution that awards the qualification. The EQF was adopted by the European Parliament and the Council of the European Union in 2008 and has since been implemented by all EU Member States as well as several other countries.

4.1. Overview of Main Services

National qualification levels, which range from basic (Level 1) to advanced (Level 8), are assigned to one of the central reference levels. This makes comparing national qualifications simpler and should save people from starting over when moving to a new country. EQF levels are gathered in

Table 1 - Description of EQF levels.¹

	Knowledge	Skills	Responsibility and autonomy
Level 1	- Basic general knowledge	- Basic skills required to carry out simple tasks	- Work or study under direct supervision in a structured context
Level 2	- Basic factual knowledge of a field of work or study	- Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	- Work or study under supervision with some autonomy
Level 3	- Knowledge of facts, principles, processes and general concepts, in a field of work or study	- A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	- Take responsibility for completion of tasks in work or study - Adapt own behavior to circumstances in solving problems
Level 4	- Factual and theoretical knowledge in broad contexts within a field of work or study	- A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	- Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change - Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities
Level 5	- Comprehensive, specialised, factual and theoretical knowledge	- A comprehensive range of cognitive and practical skills required to develop creative	- Exercise management and supervision in contexts of work

¹ Source: COUNCIL RECOMMENDATION on the European Qualifications Framework for lifelong learning and repealing the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning

	within a field of work or study and an awareness of the boundaries of that knowledge	solutions to abstract problems	or study activities where there is unpredictable change - Review and develop performance of self and others
Level 6	- Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	- Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	- Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts - Take responsibility for managing professional development of individuals and groups
Level 7	- Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research - Critical awareness of knowledge issues in a field and at the interface between different fields	- Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	- Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches - Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
Level 8	- Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	- The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	- Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

An analysis, made up of two main steps, was performed to find the structures within the EQF framework:

- Define structured attributes to describe with a higher degree of precision the knowledge, skills and responsibility columns defined in Table 1. Each of these dimensions in the table are split into two attributes which extract the essence of the information contained in the table.
- Apply these attributes to the EQF levels, to redefine Table 1 in a more intelligible way, with focus on the incremental upgrade associated with the EQF levels in several dimensions.

Attributes

First, we have found two attributes describing knowledge: type of knowledge and scope of knowledge. There are seven elements in the former categorical attribute, and four in the latter.

Analogously, there are two attributes associated with skills and two associated with responsibility. These attributes and their values are shown in Table 2.

Table 2 - Attributes for Knowledge, Skills and Responsibility.

Knowledge: theoretical and factual			
	Type of knowledge		Scope of knowledge, skills
1	Basic general	1	In a field
2	Basic factual	2	In a field, in broad contexts
3	Factual & theoretical	3	In a field with awareness of boundaries
4	General, factual, theoretical & specialised	4	In a field & interface with others
5	Advanced, critical understanding of theory		
6	Highly specialised, basis for research		
7	Most advanced frontier		
Skills: cognitive and practical			
	Type of skills		Description of application/purpose
1	Basic	1	Simple tasks
2	Basic theory and practice	2	Routine problems
3	Range of theory and practice	3	Select-apply basic methods, tools, materials, info
4	Wide range of theory and practice	4	Solve specific problems
5	Advanced, with mastery and innovation	5	Solve abstract problems
6	Specialised, for R&D&I	6	Solve complex and unpredictable problems
7	Most advanced & specialised, for R&D&I	7	Develop new knowledge and procedures
Responsibility and autonomy			
	Responsibility		Context
1	Direct supervision	1	Structured
2	Supervision, some autonomy	2	Adapt behaviour
3	Responsibility for tasks	3	Predictable, but subject to change
4	Follow guidelines, supervise routines of others, responsible for results	4	Unpredictable change
5	Manage, supervise, review and develop performance (self and others)	5	Unpredictable context
6	Manage activities/projects, decision-making. Development of individuals and teams	6	Complex, unpredictable, new strategies
7	Contribute to knowledge, strategy, performance of teams	7	Innovation, forefront, research
8	Authority, scholar and professional integrity		

Structured definition of the EQF levels

Table 3 shows a definition of the EQF levels making use of the attributes previously defined. The reader can see how for some attributes, an increase in the EQF levels sometimes does not imply any changes (shaded cells).

Table 3 - Structured definition of the EQF levels

EQF LEVEL	Knowledge: theoretical and factual		Skills: cognitive and practical		Responsibility and autonomy	
	Type of knowledge	Scope of knowledge/skills	Type of skills	Application/purpose	Responsibility	Context
1	1. Basic general	1. In a field	1. Basic	1. Simple tasks	1. Direct supervision	1. Structured
2	2. Basic factual	1. In a field	2. Basic theory and practice	2. Routine problems	2. Supervision, some autonomy	1. Structured
3	3. Factual & theoretical	1. In a field	3. Range of theory and practice	3. Select-apply basic methods, tools, materials, info	3. Responsibility for tasks	2. Adapt behaviour
4	3. Factual & theoretical	2. In a field, in broad contexts	3. Range of theory and practice	4. Solve specific problems	4. Follow guidelines, supervise routines of others, responsible for results	3. Predictable, but subject to change
5	4. General, factual, theoretical & specialised	3. In a field with awareness of boundaries	4. Wide range of theory and practice	5. Solve abstract problems	5. Manage, supervise, review and develop performance (self and others)	4. Unpredictable change
6	5. Advanced, critical understanding of theory	3. In a field with awareness of boundaries	5. Advanced, with mastery and innovation	6. Solve complex and unpredictable problems	6. Manage activities/projects, decision-making. Development of individuals and teams	5. Unpredictable context
7	6. Highly specialised, basis for research	4. In a field & interface with others	6. Specialised, for R&D&I	6. Solve complex and unpredictable problems	7. Contribute to knowledge, strategy, performance of teams	6. Complex, unpredictable, new strategies
8	7. Most advanced frontier	4. In a field & interface with others	7. Most advanced & specialised, for R&D&I	7. Develop new knowledge and procedures	8. Authority, scholar and professional integrity	7. Innovation, forefront, research

4.2. Synergies with EDDIE

The EDDIE Project and the EQF framework have a number of links and synergies that can help the development of digital competencies in the energy industry:

- Recognition of educational qualifications

The EQF presents significant relevance in the context of the activities being undertaken in WP5, particularly with regards to job and course marketplaces. Serving as a unified, standardized benchmark, the EQF enables categorization of various educational activities that the future EDDIE entity defined to guarantee the sustainability in time of the EDDIE project may host, advertise, or engage in, through any predetermined means of interaction. It allows us to ascertain the sophistication and the complexity of each activity, offering a holistic perspective of the education scenario.

- Tracking the interest of industry and academia towards education

By systematically applying the EQF levels, we can also track the degree of interest shown by industry professionals and the education system towards various education or training levels. Such a practice may even facilitate the identification of discrepancies, if any, between the demands of the industry and the education system. It becomes instrumental in closing gaps and promoting synergies, further strengthening the alignment between the two.

- Fostering clear communication and program understanding

The schematic representation of the EQF levels illustrated in performed analysis is actively employed to architect the layout of the template developed in WP5. This approach simplifies and structures the process of defining education programs. With this structured format, the description of programs becomes more comprehensible, fostering an environment conducive to clear communication and improved understanding of program details.

The EDDIE project and the EQF framework have several common stakeholders:

- Students

Students are important stakeholders for both the EDDIE Project and the EQF framework, as they are the ones who acquire the skills and competencies required in various industries and put those skills and competencies to use in their work.

- Education and training providers

Education and training providers are important stakeholders for both the EDDIE Project and the EQF framework, as they are responsible for delivering the training and education programs that develop the skills and competences needed in different sectors.

- Employers and industry associations

Employers and industry associations have a key role to play in both the EDDIE Project and the EQF framework, as they can help to identify the skills and competences that are needed in different sectors and ensure that education and training programs are aligned with these needs.

- Policy makers and regulators

Policy makers and regulators are important stakeholders for both the EDDIE Project and the EQF framework, as they can help to create the policy environment that supports the development of skills and competences across different sectors.

5. Synergies with Europass

Europass is a set of online tools and information to help individuals manage their learning and career. Europass allows individuals to effectively communicate their skills and qualifications in Europe. The European Commission provides this service free of charge and in 30 different languages. In addition, Europass provides reliable information on studying and working in different European countries by giving links to relevant European and national sources. This can help in finding courses, jobs, guidance and support with validation and recognition of qualifications.

5.1. Overview of Main Services

Europass is a set of five documents that help individuals to present their skills and qualifications effectively when looking for a job or further education:

1. The Europass CV: a document that allows individuals to present their education, work experience, and skills in a clear and standardized format.
2. The Language Passport: a document that allows individuals to present their language skills in a clear and standardized format.
3. The Europass Mobility: a document that records the skills and experience gained during a period of study, training, or work experience abroad.
4. The Europass Certificate Supplement: a document that provides detailed information about a vocational qualification, including the level, content, and context of the qualification.
5. The Europass Diploma Supplement: a document that provides detailed information about a higher education qualification, including the level, content, and context of the qualification.

Europass is closely connected to the European Skills Agenda in that it aims to support the development of a skilled workforce by making it easier for individuals to present their skills and qualifications effectively. By providing a standardized format for presenting skills and qualifications, Europass can help to improve the transparency and comparability of qualifications across the EU, making it easier for anyone who wants to apply for a job or continue their education, as well as aiding HR managers, educational and career counselors, teachers, and educational institutions in making their decisions. Europass records a number of 4,563,762 users (as of January 10, 2023).

5.2. Synergies with EDDIE

Europass and the EDDIE project have several synergies and connections. These include:

- Promotion of digital education and digital skills

Europass provides individuals with a standardized format to present their skills and qualifications effectively when looking for a job or further education opportunities, while the EDDIE project aims to develop a digital platform for creating, managing, and sharing digital educational credentials.

- Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda

The Digital Education Action Plan and the European Skills Agenda both aim to promote digital education and digital skills, and Europass and the EDDIE project are both closely connected to these plans.

- Development of a skilled workforce

Europass can help improve the transparency and comparability of qualifications across the EU, making it easier for employers and educational institutions to evaluate candidates for job or education opportunities. The EDDIE project, on the other hand, aims to promote the use of digital credentials in education and facilitate the integration of digital credentials into the education and training systems across the EU.

- Support of innovation and research in digital education

The EDDIE project aims to support innovation and research in digital education by developing a new digital platform for creating, managing and sharing digital educational credentials. Europass also aligns with the European Qualifications Framework (EQF) which is a common reference framework for qualifications in the EU and it helps individuals to understand and compare their qualifications with qualifications in other countries.

In summary, Europass and the EDDIE project have several synergies and connections in that they both aim to promote digital education and digital skills, are aligned with the goals of the Digital Education Action Plan and the European Skills Agenda, use the same platform Europass Digital Credentials, support the development of a skilled workforce, and support innovation and research in digital education.

Europass and the EDDIE project have a wide range of common stakeholders. These include:

- Individuals

Europass and the EDDIE project both aim to support individuals in presenting their skills and qualifications effectively when looking for a job or further education opportunities. Individuals can use Europass to create and share their skills and qualifications with potential employers and educational institutions, and they can use the EDDIE platform to create, manage, and share their digital educational credentials.

- Employers

Europass and the EDDIE project both aim to make it easier for employers to evaluate candidates for job or education opportunities. Europass provides employers with a standardized format to evaluate the skills and qualifications of candidates, while the EDDIE project provides employers with access to a digital platform for evaluating digital educational credentials.

- Educational institutions

Europass and the EDDIE project both aim to support educational institutions in evaluating the skills and qualifications of students and applicants. Europass provides educational institutions with a standardized format to evaluate the skills and qualifications of students and applicants, while the EDDIE project provides educational institutions with access to a digital platform for evaluating digital educational credentials.

- National and European governments

Europass and the EDDIE project both aim to support national and European governments in promoting digital education and digital skills. National and European governments can use Europass and the EDDIE project to promote the development of a skilled workforce and support innovation and research in digital education.

- Research institutions and companies

Europass and the EDDIE project both aim to support research institutions and companies in promoting innovation and research in digital education. Research institutions and companies can use Europass and the EDDIE project to support the development of new technologies and pedagogical approaches in digital education.

6. Synergies with ECTS

The European Credit Transfer and Accumulation System (ECTS) is a tool created by an international collaboration of 49 countries called the European Higher Education Area (EHEA) with the aim of increasing the transparency of studies and courses. According to the information found on the EC's website, it is also supporting students in their endeavour to study abroad and to easily move between countries with different political, cultural and academic traditions by developing compatible higher education systems. Moreover, it represents a central pillar in the Bologna Process which is working to make national education systems more comparable internationally.

The main benefit of ECTS is that it allows students to use credits taken at one higher education institution in the qualification process of another education institution or, more precisely, one course or module is worth the same at any university. ECTS credits are representing the required effort to complete a study programme (do not indicate a grade) and can be applied to all programmes whatever the mode of delivery, the status of students or the learning contexts. Therefore, it can be used for classroom-based, work-based or distance learning; for full-time or part-time students that are following formal, non-formal or informal programmes. As a result, by using learning outcomes and workload in curriculum design and delivery, ECTS places the student at the centre of the educational process.

The higher education institutions can design such a programme only by planning a curriculum and its components in credits, indicating learning outcomes and associated workload, learning activities and teaching methods together with assessment procedures/criteria. Based on national legislation and existing qualification frameworks from different levels like European, national, sectoral or institutional, two EQFs can be considered: The Framework for Qualifications of the European Higher Education Area (QF-EHEA) and the European Qualifications Framework for Lifelong Learning of the EU (EQFLLL). In both cases learning outcomes are used to describe qualifications (e.g. Bachelor, Master, and Doctor). Additionally, both are compatible with each other as far as Higher Education is concerned (QF-EHEA cycles 1, 2 and 3 correspond to EQF-LLL levels 6, 7 and 8) and cover qualifications at ISCED levels 6, 7, 8. National education systems may include levels other than those included in the overarching frameworks as long as national frameworks are self-certified and referenced against the QF-EHEA and the EQF.

6.1. Overview of Main Services

The ECTS, as a learner-centred systems for credit accumulation and transfer, that intends to facilitate the planning, delivery and evaluation of study programmes and student mobility acknowledging students' learning achievements, qualifications and study intervals, considers, based on the *ECTS Users' Guide 2015*², the following:

- **ECTS credits:** represent the learning quantity based on the defined learning outcomes and their associated workload. For the learning outcomes and associated workload of a full-time academic year or its equivalent, an amount of 60 ECTS credits is allocated.
- **Learning outcomes:** consist of a description of what the individual knows, understands and is capable of completing at the end of a specific learning process. For ensuring an accurate assessment of these learning outcomes, precise and transparent procedures are needed. Learning outcomes are attributed to individual educational components and to programmes as a whole. In European and national qualification frameworks, learning outcomes have also the role of presenting the individual qualification level.
- **Workload:** is a time evaluation of the individual when they need to finish all learning activities like lectures, seminars, projects, practical work, work placements and individual study necessary for the achievement of the defined learning outcomes in formal learning settings. The correspondence of the full-time workload of an academic year to 60 credits is often formalised by national legal provisions. Usually, workload ranges from 1,500 to 1,800 hours for an academic year, which means that one credit corresponds to 25 to 30 hours of work. Therefore, it must be acknowledged that this represents the typical workload and that for individual students the actual time to achieve the learning outcomes will vary.
- **Allocation of credits:** in this case (of ECTS) it represents the process of assigning a certain number of credits to qualifications, degree programmes or single educational components. Credits are allocated to entire qualifications or programmes according to national legislation or practice, where appropriate,

² https://www.ehea.info/media.ehea.info/file/ECTS_Guide/00/0/ects-users-guide-2015_614000.pdf

and with reference to national and/or European qualifications frameworks. They are allocated to educational components, such as course units, dissertations, work-based learning and work placements, considering as a reference the allocation of 60 credits per full-time academic year, in agreement with the estimated workload needed to complete the defined learning outcomes for each component.

- Awarding credits: in this case (of ECTS) it is the action of formally granting students and other learners the credits that are assigned to the qualification and/or its components when they finish the defined learning outcomes. It must be mentioned that national authorities are in charge of indicating which institutions have this right of awarding ECTS credits. After students complete the required learning activities and achieve the defined learning outcomes, the credits are individually awarded to them as a result of an appropriate assessment. If students and other learners have achieved learning outcomes in other formal, non-formal, or informal learning contexts or timeframes, credits may be awarded based on an accurate assessment and recognition of these learning outcomes.
- Accumulation of credits: in this case (of ECTS) it consists in the process of collecting credits awarded for achieving the learning outcomes of educational components in formal contexts and for other learning activities carried out in informal and non-formal contexts. A student can accumulate credits both for obtaining qualifications, as required by the degree-awarding institution and documenting personal achievements for lifelong learning purposes.
- Transfer of credits: represents the award of the credits in one context (programme, institution) recognised in another formal context with the objective of earning a qualification. Credits awarded to students in one programme may be transferred from an institution to be accumulated in another programme offered by the same or another institution. For a successful study mobility, the key is to have the possibility to transfer credits. Such transfer and recognition of credits are ensured and guaranteed by institutions, faculties and departments through different internal/external agreements.
- ECTS documentation: there is a set of supporting documents such as Course Catalogue, Learning Agreement, Transcript of Records, and Work Placement Certificate when the ECTS credits are used with the aim to facilitate and enhance the programme quality. ECTS also supports the transparency in other documents such as the Diploma Supplement.

6.2. Synergies with EDDIE

The ECTS and the EDDIE project have several synergies and connections that include the following aspects:

- Promotion of digital education and digital skills

The ECTS credits help individuals by facilitating the recognition of their qualification to support mobility when looking for further education opportunities. Part of these qualification could also include the new skills and competences that will be identified as part of the EDDIE project. At the same time, the project long-driven strategy must consider the ECTS credits when addresses the sustainability of the Blueprint. The energy sector's successful digitisation depends on the harmonization of the higher education area since the energy transition is making the employment of skilled people difficult.
- Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda

The Digital Education Action Plan and the European Skills Agenda both aim to promote digital education and digital skills, and the ECTS and the EDDIE project are both connected to these plans and international comparability of qualifications is important in EU.
- Development of a skilled workforce

The ECTS is a key tool that maximize the educational opportunities around a large number of countries by creating a link between educational programmes and societal requirements and by enhancing interaction with all stakeholders, including the world of work and wider society. As an extension, ECTS could empower decision-makers to recognise qualifications in the context of their frameworks to better support learner, worker mobility and the skilled workforce.
- Support of innovation and research in digital education

The EDDIE project aims to support innovation and research in digital education by developing a new digital platform for creating, managing and sharing digital educational credentials. The improvement of

skills transferability is a common goal for EDDIE project and the ECTS based on the harmonisation of all existing and future skills needs.

- Support of the lifelong learning

ECTS can be used for various lifelong learning contexts with the same principles for credit allocation, awards, accumulation and transfer of credits also applying. The fast growth of diversified and flexible learning opportunities (e.g. Massive Open Online Courses or continuing professional development) need to be considered, in order to also satisfy the individual learners.

In summary, ECTS and the EDDIE project have several synergies and connections, in that they both aim to promote digital education and digital skills, are aligned with the goals of the Digital Education Action Plan and the European Skills Agenda, support the development of a skilled workforce, support innovation and research in digital education, as well as the development of lifelong learning.

Moreover, ECTS and the EDDIE project have a wide range of common stakeholders that can be considered such as:

- Individuals

The ECTS and the EDDIE project both aim to support individuals in presenting their skills and qualifications effectively when looking for a job or further education opportunities. Individuals can use the ECTS to present their skills and qualifications in the workforce field and educational institutions and based on the new platform that EDDIE is creating they will be able to improve these educational levels by enrolling in different courses that will be integrated with the job marketplace. As a result, after ending a specific learning plan, the individual (user of the platform) is enriching their profile with competences appropriate for the demands of the job offers on the market. Additionally, the certificates of courses offered by teachers could be in line with the ECTS credits allocation process.

- Employers

The ECTS and the EDDIE project both support the evaluation of job candidates since on one hand the EDDIE project is giving employers access to a digital platform for assessing digital educational credentials and on the other the employers can have access to the skills, abilities and competences of a potential employee by recruiting candidates with specific professional profiles.

- Educational institutions

The ECTS and the EDDIE project both intend to help educational institutions in the skills and qualifications assessment process of students and applicants. The ECTS credits are used by institutions as a comparable criterion, thus playing a high role in the growing international dimension of education. Moreover, ECTS increases the transparency and readability of the educational process stimulating the learner-centred approach. At the same time, the EDDIE project is giving access to a digital platform for evaluating digital educational credentials. Regarding lifelong learning, educational institutions can widen access opportunities for learners from professional life and a range of non-traditional learning environments by using the ECTS credits and EDDIE's platform.

- National and European governments

The ECTS and the EDDIE project both aim to facilitate the promotion of digital education and digital skills together with national and European governments. In promoting digital education and digital skills, National and European governments can use ECTS and the EDDIE project to promote the development of a skilled workforce and support innovation and research in digital education.

- Research institutions and companies

The ECTS and the EDDIE project both aim to support research institutions and companies in promoting innovation and research in digital education. Research institutions and companies can use both the ECTS and the EDDIE project to support the development of new technologies and pedagogical approaches in digital education especially when EQFs are becoming more and more frequent.

In conclusion, considering that the ECTS helps avoid problems raised by the differences between national higher education systems in terms of recognition of qualifications and mobility intervals abroad, it creates a good synergy

with the EDDIE Project. Both entities can work together to facilitate the recognition of prior learning and experience and encourage a higher level of completion and wider participation in lifelong learning of individuals.

7. Synergies with EQAVET

The European Quality Assurance Reference Framework for Vocational Education and Training (**EQAVET**) emerged from the 2009 recommendation of the European Parliament and Council³, as a European wide framework to support quality assurance in vocational education and training (VET) across Europe.

EQAVET is based on a quality assurance and improvement cycle⁴ (planning, implementation, evaluation/assessment, and review/revision) and a selection of descriptors and indicators applicable to quality management at both VET system⁵ and VET provider⁶ levels.

EQAVET does not prescribe a particular quality assurance system or approach, but provides a framework of common principles, indicative descriptors and indicators that may help in assessing and improving the quality of VET systems and VET provision. EQAVET can therefore be regarded as a “toolbox” from which the various users may choose descriptors and indicators that they consider most relevant to the requirements of their quality assurance system.

The implementation of the 2020 Council recommendation is supported by National Quality Assurance Reference Points (NRPs)⁷, that bring together relevant stakeholders at a national and regional level to:

- implement and further develop the EQAVET framework;
- inform and mobilise a wide range of stakeholders, including Centres of Vocational Excellence, to contribute to the implementation of the EQAVET framework;
- support self-evaluation as one way to measure success and identify areas for improvement, including the digital readiness of VET systems and institutions;
- participate actively in the EQAVET network;
- provide updated descriptions of the national quality assurance arrangements based on EQAVET;
- engage in EU level peer review to enhance the transparency and consistency of quality assurance arrangements, and to reinforce trust between Member States.

Together with national representatives from ministries and other responsible bodies, the NRPs are at the core of the European EQAVET network. By working collaboratively, the EQAVET network produces case studies and guidance on diverse ways to develop and improve the quality assurance of VET. Each year, the EQAVET network organises a range of support activities, including an annual meeting, for those with an interest in the quality assurance of VET at a European level.

The European Commission (DG EMPL) chairs the EQAVET Network, supported by the EQAVET Secretariat.

The EQAVET Network works with a “bottom-up” approach, encouraging members to own the activities and decisions through active involvement of the EQAVET National Reference Points (EQAVET NRPs) and EQAVET national representatives from ministries and other responsible bodies.

7.1. Overview of Main Services

The EQAVET Framework can be used by VET providers and in VET systems to support the quality assurance of:

- Quality assurance of learning environments (e.g., school-based provision, work-based learning, apprenticeships, formal, informal and non-formal provision);

³ [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009H0708\(01\)&qid=1611571795661](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009H0708(01)&qid=1611571795661)

⁴ <https://ec.europa.eu/social/main.jsp?catId=1546&langId=en>

⁵ <https://ec.europa.eu/social/main.jsp?catId=1547&langId=en>

⁶ <https://ec.europa.eu/social/main.jsp?catId=1548&langId=en>

⁷ <https://ec.europa.eu/social/main.jsp?catId=1571&langId=en>

- Quality assurance of all types of learning contexts (e.g., digital, face-to-face and blended);
- Quality assurance of public and private sector VET providers;
- Quality assurance of VET awards and qualifications at all levels of the European Qualifications Framework.

A multiannual EQAVET work programme is developed jointly between the European Commission and the EQAVET Network, represented by the Steering Committee. The 2021-2023 work programme outlines the key activities and thematic priorities for discussion and collaboration at EU level. The thematic priorities for 2021-2023 include:

- Reinforcing Quality Assurance for all VET sectors (initial vocational education and training, continuing vocational education and training, apprenticeships etc.);
- Reinforcing Quality Assurance for all formats of VET delivery, including work-based learning, individualised and digital learning (e-based/blended learning), and its assessment/recognition/certification;
- Reinforcing Quality Assurance for non-standard forms of learning (outside the formal education system), like validation of non-formal and informal learning and micro-credentials;
- Actively supporting the development and integration of indicative descriptors to promote flexibility and mobility in VET;
- Actively supporting the process of building capacity and knowledge on standards for VET graduate tracking at national and EU level;
- Actively exploring new ways to disseminate EQAVET Network knowledge and learning to other stakeholders, including VET/adult learning providers, Centres of Vocational Excellence, National Agencies, etc.

The EQAVET Framework includes reference indicators which can support the development, evaluation and quality improvement of national/regional VET systems and/or VET providers⁸. The same indicators can be used to measure the quality of provision at the system and provider level. In many contexts, there are agreements on the definitions of these indicators and how data is collected. This enables information from individual VET providers to be collated and analysed in order to provide system level data. The list of the 10 assessment indicators is provided following:

- Indicator 1: Relevance of quality assurance systems for VET providers
- Indicator 2: Investment in training of teachers and trainers
- Indicator 3: Participation rate in VET programmes
- Indicator 4: Completion rate in VET programmes
- Indicator 5: Placement rate of graduates from VET programmes
- Indicator 6: Utilisation of acquired skills at the workplace
- Indicator 7: Unemployment rate in the country
- Indicator 8: Prevalence of vulnerable groups
- Indicator 9: Mechanisms to identify training needs in the labour market
- Indicator 10: Schemes used to promote better access to VET and provide guidance to (potential) VET learners

7.2. Synergies with EDDIE

The EDDIE project aims to develop a Blueprint Strategy that aims to mitigate the skills gaps emerging from the digitalisation of the energy sector process. EQAVET framework provides valuable guidance and standards for ensuring the quality of VET programs within the energy sector. The framework promotes the use of quality assurance mechanisms, such as monitoring, evaluation, and continuous improvement, to enhance the effectiveness and relevance of VET. Considering these, EDDIE and EQAVET present several synergies, including:

- Establishment of quality assurance principles and practices

The EDDIE project can benefit from established quality assurance principles and practices. It can incorporate EQAVET indicators and criteria into the design, implementation, and evaluation of its pilot

⁸ <https://ec.europa.eu/social/main.jsp?catId=1548&langId=en>

activities, ensuring that they meet the quality standards set by EQAVET. This alignment can enhance the credibility and recognition of the EDDIE project's outcomes and contribute to the overall improvement of VET in the energy sector.

- Collaboration and networking

EQAVET framework emphasizes the importance of stakeholder involvement and cooperation in VET quality assurance. The EDDIE project, with its industry-driven approach, can actively engage with stakeholders, including employers, industry associations, and training providers, to ensure their participation in the development and implementation of the Blueprint Strategy. This collaboration can foster the exchange of best practices, knowledge sharing, and the identification of common priorities and challenges.

In summary, the EDDIE project and the EQAVET framework share the common goal of enhancing the quality and relevance of VET. By leveraging the principles and mechanisms of the EQAVET framework, the EDDIE project can strengthen its quality assurance processes, promote stakeholder engagement, and contribute to the overall improvement of VET in the energy sector.

Moreover, EQAVET and the EDDIE project targeting various similar stakeholders that can be considered such as:

- Individuals

The EQAVET and the EDDIE project both aim to support individuals in presenting and validating their skills and qualifications in the reskilling/upskilling procedure of participating in VET programs. EQAVET aims to ensure the quality assurance of the awards and qualifications of learners, as well as the EDDIE project is highly related with the connection of the labour market needs with the VET programs content.

- Educational institutions

The EQAVET and the EDDIE project both intend to help educational institutions in the quality assurance procedure of VET programs' content. EQAVET provides the general principles and guidelines for ensuring the quality of environment, context, providers, awards & qualifications of VET. In the same direction the EDDIE project aims to equip VET providers with example of best practices in education content related to the digitalisation of the energy. Moreover, one of the indicators of EQAVET focuses on the identification of the needs in the labour market, which is a principal goal of the industry driven Blueprint strategy of the EDDIE project.

- National and European authorities

EQAVET and the EDDIE project's main objective is to ensure the high quality of VET programs. National and European authorities can utilize EQAVET and the EDDIE project to strengthen the quality standards of VET programs.

In conclusion, the engagement of the common stakeholders with the outcomes and guidelines of EQAVET and the EDDIE project will help ensure the sustainability of both the EQAVET framework and the EDDIE project, ultimately fostering innovation, excellence, and continuous improvement in vocational education and training for the digitalization of the energy sector.

8. Synergies with ECQA

The European Certification and Qualification Association (ECQA) is a not-for-profit association that aims to unify the certification processes for various professions. It joins institutions and thousands of professionals from all over Europe and abroad.

Members of the ECQA Association represent training bodies / organisations which support the concept of a European common test and certification system which is applied in many countries with the same processes and quality criteria. ECQA services are being offered in 24 countries across Europe by 60 ECQA members. The ECQA is also enhancing its activities by expanding to all over the world (e.g. USA, Thailand, India etc.).

The association members should become a member of either the job role committees (active interest in one of the job roles) or the exam committees (active interest in acting as an exam / certification partner in one of the job roles), or become one of the trainers (active in training related to one of the job roles)

In ECQA, there are different business flows to be managed. These include:

1. Student Certificate Related Flow,
2. Training Certification Related Flow,
3. Job Role Committee Related Flow,
4. Training Material License Flow, and
5. Contracted Certification Body Related Flow.

The ECQA ensures that the same knowledge is presented to participants across Europe and all participants are tested according to the same requirements (quality criteria). Knowledge to be provided and tested for certain professions are defined by experts from industry and research, who know best what the requirements of the market are and what the state-of-the-art knowledge is within certain domains.

8.1. Overview of Main Services

The ECQA GmbH ® is joining projects to sustainably fulfil the needs of European training. The aim is to make sure that the trainings and their certifications last long after the end of the projects. For this, ECQA cooperate with partners that are highly interested in going on with their trainings and in developing the generated job profiles or competencies long after the end of the projects. ECQA brings in also expertise in the different domains as the knowledge on EQF and NQF. ESCO is often a basis to go more into detail with partners to be able to assess the chosen competence level and choose a proper way of training/exam. In the table below, there are current examples of finished projects which collaborated with ECQA.

Table 4 - Current and examples of finished projects which collaborated with ECQA

Current Projects	Keywords	Examples of finished projects	Keywords
@go4DiGreen@	Sustainability	Steps2Scale	Entrepreneurship, ScaleUp
Chaise	Blockchain	ACT	Accessibility
EDRIVETOUR	E-Mobility, Sustainability	AQUA	Automotive, Quality
GreenSCENT	Sustainability	IBM+	Entrepreneurship, Energy

According to the ECQA policies, a successful experience and product/service that was created has to be exploited inside the community (ECQA members should act as marketing promoters of the ECQA portfolio – different certifications action related to different professions). This action is related to the sustainability of each project,

universities and companies as partners (through international, trans-national collaborations) gain experiences and knowledge that affect their internal processes in terms of education strategies and training, coaching, tutoring improvement.

The main services offered by ECQA are following:

- **Certification and Qualification Development:** ECQA works with industry experts, professional associations, and educational institutions to develop standardized certification schemes and qualification frameworks for specific professions or industries. These certifications and qualifications are designed to validate the knowledge, skills, and competencies required for different roles.
- **Certification Assessment and Examination:** ECQA collaborates with authorized certification bodies to conduct assessments and examinations for candidates seeking to obtain ECQA certifications. These assessments are typically based on predefined competence criteria and are administered through accredited examination centres.
- **Competence Catalogues and Job Profiles:** ECQA develops competence catalogues and job profiles that outline the skills and competencies required for specific professional roles. These catalogues serve as a reference for employers, individuals, and training providers to understand the expectations and requirements of different positions.
- **Training and Preparation Programs:** ECQA supports educational institutions and training providers in developing training programs and courses aligned with the competence requirements of ECQA certifications. These programs aim to prepare candidates for the certification assessments.
- **Quality Assurance and Accreditation:** ECQA ensures the quality and integrity of its certification processes and materials. It collaborates with recognized accreditation bodies to maintain high standards and credibility for its certifications.
- **Recognition and Endorsement:** ECQA seeks recognition and endorsement of its certification schemes and qualification frameworks by relevant industry bodies, government agencies, and regulatory authorities. This recognition enhances the value and acceptance of ECQA certifications in the job market.
- **Networking and Collaboration:** ECQA facilitates networking opportunities for professionals, employers, and educational institutions within specific industries or domains. It promotes collaboration and knowledge exchange among stakeholders.
- **Research and Innovation:** ECQA may be involved in research and innovation projects related to certifications and qualifications. This involvement helps ensure that the certification schemes stay up-to-date and relevant to the evolving needs of the industries they serve.

8.2. Synergies with EDDIE

In EDDIE the useful projection could be to engage training organisations and training bodies which support the concept of a European common test and certification system to create certifications that are related to the Digitalisation of Energy.

Projects developed with the support of the ECQA offer new challenging opportunities for trainees and trainers, but also, for other members and organizations of the ECQA community. Therefore, in the context of EDDIE related training there are relevant aspects to be considered like the following:

- Recognition of skills and qualifications

EDDIE skill related trainees, employees from different organizations in Europe (from different industries and/or economic field) can certify their competencies and become more efficient in their workplace and/or relocate in other/better positions. Trainees may be unemployed persons and students (from master and PhD programs). According to the ECQA sources, trainees that register on the IT platform, are in the range of a few thousands and about 80% of them have been certified.

- Dissemination of digital education and digital skills
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EDDIE skill related trainers certified by ECQA could be provided from different higher education and/or VET institutions in Europe and from training and consulting organizations. The important part of the idea here is that EDDIE related trainers will be members of the Job Role Committees for different professions and they could be involved in 'train the trainers' procedures and events in order to coach and mentor new trainers.

- Collaboration and networking

EDDIE related training organizations will join a large community since all types that have been certified by ECQA and their members define a large part of the ECQA community; EDDIE related trainers will participate in community knowledge and experience sharing/dissemination through annual events taking place: the EuroSPI conference and ECQA Days. During these events new partners are introduced and most new project ideas arise.

The ECQA framework and the EDDIE project share the following stakeholders:

- Employers

Employers are stakeholders for both, the ECQA framework and the EDDIE project, as ECQA certifications can serve as a means to validate the skills and competencies of potential employees or for professional development of their current workforce.

- Industry associations

Industry associations are key stakeholders in ECQA's certification and qualification initiatives as well as in the EDDIE project. They collaborate with both to define the competence requirements for specific professional roles and to ensure that the certifications are relevant and also meet the industry's needs.

- Educational institutions

Educational institutions are stakeholders in ECQA and in EDDIE as they may offer training programs and courses. These institutions may work closely with ECQA and EDDIE to align their curricula with the certification requirement and job market necessities.

- EU institutions

EU institutions may have an interest in the development and recognition of certification and qualification frameworks at a European level.

9. Synergies with EIT

The European Institute of Innovation and Technology (EIT) is an EU body created by the European Union in 2008 to strengthen Europe's ability to innovate. The EIT supports the development of dynamic, long-term pan-European partnerships among leading companies, research labs and companies where each one is dedicated to finding solutions to a specific global challenge. These challenges range from climate change and sustainable energy to healthy living and food. These are called Knowledge and Innovation Communities (KIC) and the EIT is Europe's largest innovation network and it works to connect the dots. The EIT Community offers a wide range of innovation and entrepreneurship activities:

- education courses that combines technical and entrepreneur skills through training and education programmes
- tailored business creation (business incubators) and acceleration services
- innovation driven research projects

9.1. Overview of Main Services

The EIT mainly aims to make innovation happen. In order to achieve this, they support innovation projects based on solutions for the proposed challenges, provide entrepreneurial education and help with business creation. With regards to innovation projects, nine new companies have joined the EIT-InnoEnergy, working on new challenges concerning climate tech, such as renewable energy, green hydrogen, the circular economy and transport and mobility. The EIT supports a solution or idea that can become a service or a product, giving the entrepreneurial education and helping with business creation, together with accelerating the transition of the service or product from the lab to the market. The only criteria that needs to be met in order for the EIT's network of experts, educators and businesses to support and promote the cause is that the idea or solution has to help deal with global challenges and that it advances the cause of sustainability.

The EIT provides innovators, investors and the industry with access to key players and commercially viable technologies, spanning the entire supply chain. This expertise helps to industrialize the innovations that the EIT supports, providing industry with a wide spectrum of sustainable energy solutions.

The EIT's Knowledge and Innovation Communities offer access to talent, knowledge, funding and new business sectors to:

- train a new generation of entrepreneurs
- develop innovative products and service
- kick-start companies

The EIT Knowledge and Innovation Communities are divided into different sectors such as:

- EIT InnoEnergy: pioneering change in sustainable energy
- EIT Digital: for a strong digital Europe
- EIT Climate-KIC: innovation for climate action
- EIT Manufacturing: leading manufacturing innovation is Made by Europe
- EIT Urban Mobility: smart, green and integrated transport
- EIT RawMaterials; developing raw materials into a major strength for Europe
- EIT Food: addressing sustainable supply chains from resources to consumers.

9.2. Synergies with EDDIE

The EIT and EDDIE project are closely linked as they have several synergies and connections:

- Integration of business, education and research to pressing global challenges
Both EIT and EDDIE integrate business, education and research to pressing global challenges such as the digital skills and the changes in sustainable energy.
 - Training and education programs for research and industry
Both EIT and EDDIE involve training, education programs, and innovation projects linked to research labs and companies. Through the education courses, the business and innovation projects bring new ideas and
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solutions to the market, turn students into entrepreneurs, and deliver innovation and change. Through these activities, both try to create a better and more sustainable future (economically, industrially, and socially).

- Collaboration and networking
Both EIT and EDDIE are innovation networks that work towards connecting the dots.
- Alignment with EU policies
Both EIT and EDDIE work are fully aligned with EU policy priorities and strategic objectives.

The EIT aims to increase the ability to innovate European regions not yet working in this large innovation community. The EIT and EDDIE project have several different stakeholders including companies, universities, research labs and stakeholder organizations:

- Individuals
EIT and the EDDIE project both offer the opportunity for individuals to share their skills and credentials to look for a job or improve their education opportunities, especially in the digitalisation of the energy sector education, through their platforms
- Educational institutions
EIT and EDDIE project both support the educational institutions in order to offer a wide range of education opportunities, EDDIE in VET and university. Both aim to promote the educational and innovative learning.
- National and European Governments
EIT and EDDIE work closely to National and European Governments and Institutions organizing forums.
- Research institutions and companies
EIT and the EDDIE project support research through companies and institutions in order to finding solutions to a specific global challenge (such as the digitalisation of the energy sector) through the innovation, research and creativity and turn the best ideas into products, services, jobs or growth.

In summary, both EIT and EDDIE project work in the areas of digitalisation, the energy sector and the digitalisation of the energy through the educational and innovative learning linked to the collaboration between universities, companies and research centers and with a wide range of stakeholders.

10. Synergies with EUA⁹

The European University Association (EUA) is an organization that represents universities and national rectors' conferences from across Europe. Founded in 2001, EUA works towards the advancement of Europe's higher education sector by advocating for the interests and values of its member institutions. With over 850 members in 49 European countries, EUA plays a crucial role in shaping European higher education policies and fostering collaboration among universities. EUA supports its members in their commitment to excellence in learning, teaching, research, innovation and community engagement, optimising efficiency, discharging accountability and ensuring timely responsiveness to emerging opportunities and threats.

The association also supports the worldwide agenda for achieving the United Nations' Sustainable Development Goals (SDGs), where the universities play a key role, through research and education. EUA serves as a member of SDG Watch Europe and provides support to its members for achieving the SDGs through advocacy and project work.

The association actively engages with policymakers and stakeholders at the European level to ensure that the voice of universities is heard in decision-making processes. EUA also provides valuable expertise and guidance on various policy issues, helping institutions navigate complex regulatory frameworks and contribute to the development of effective policies.

10.1. Overview of main services

The European University Association (EUA) offers a diverse range of services to its member institutions, supporting their development and contributing to the advancement of higher education in Europe, including EUA for Doctoral Education, EUA Solutions (tailor-made services in higher education) and Institutional Evaluation Programme (IEP).

The Strategic plan of the Association is to serve Europe's universities, through activities designed to fulfil its four strategic priorities: Effective Advocacy, Horizon Scanning, European Solidarity, Enabling Enhanced Performance. The mission of EUA is to support its members to excel in the service of society, focusing on:

- Effective advocacy impacting public policy in order to enable members' success.
- Timely and reliable identification of emerging opportunities, as well as threats to society and our sector
- An Association that is alert and responsible to the needs of members, committed to solidarity and collective actions.
- Understanding the practices and capacity of our members to address societal needs and optimizing this capacity through collaboration and sharing of good policies, practices, expertise and resources.

The EUA for Doctoral Education (EUA-CDE) is considered the largest European network in this field. It leads the transformation and strengthening of doctoral education in Europe, by implementing the Salzburg principles and recommendations together with the promotion of doctoral education as the main intersection between the European higher education and research.

EUA Solutions offers services adapted to the specific needs of universities, national rectors' conferences, decision-making bodies, national authorities and other organisations working in key areas of expertise, through the following services:

- Specialised expert advice and consultancy services
- Thematic analyses and strategic studies
- Audits and targeted views
- Benchmarking of universities

IEP, launched in 1994, supports institutional autonomy, aiming to support institutions in fulfilling their responsibility for assessing and improving the quality of their own activities. IEP evaluation procedure includes:

- Context driven approach reflecting the institution's specific mission and goals
- Independent evaluation that complies with the Environmental, Social and Governance (ESG)

⁹ [EUA Strategic Plan](#)

- Focus on the institution as a whole
- Peer review by European experts

10.2. Synergies with EDDIE

The EUA and the EDDIE project have several synergies and connections that include the following aspects:

- Policy and Advocacy

EUA actively engages in policy discussions at European level, to advocate for the interests of universities. Similarly, EDDIE aims to contribute to the development of policies and strategies related to digitalization in the energy sector. In this direction, both EDDIE and EUA enhance their advocacy efforts and promote the importance of digital education in energy on a policy level.
- Capacity Building and Professional Development

Both EDDIE and EUA recognize the need for capacity building and professional development in the context of digitalization. EUA offers capacity building activities and professional development opportunities for university leaders and staff, sharing also best practices by participating in projects, events and other mutual-learning activities. The EDDIE project focuses on the identification of best practices in education/training towards the digitalisation of the energy sector, the identification of emerging skill needs and the development of a self-sustainable long-driven Blueprint Strategy to match the current and future demand of digital skills. Both EUA and EDDIE target to increase capacity when it comes to building initiatives and aim to provide valuable support to universities in adapting to digital challenges.
- Collaboration and Networking

Both EDDIE and EUA emphasize the importance of collaboration and networking among universities and stakeholders. EUA's networking and collaboration initiatives provide a platform for universities to share experiences, exchange best practices, and form partnerships. EDDIE focuses on the creation of a joint European ecosystem for digital education in energy, including universities, VET providers and other relevant stakeholders.

In summary, EUA and EDDIE share various synergies, as they strive to advance digital education and foster digital skills whilst also supporting universities at a European level. By fostering collaboration and exchange among universities, industry stakeholders, and policymakers, the EDDIE project and EUA aim to drive forward the digital transformation when it comes to higher education.

Moreover, EUA and the EDDIE project have a wide range of common stakeholders that can be considered, such as:

- Educational institutions

The EUA and the EDDIE project both intend to support universities in advancing the quality of their educational structures. EUA empowers its university members to achieve their highest potential and possess the adaptability required to navigate change and flourish amidst global challenges. At the same time, the EDDIE project's Blueprint strategy aims to address the current and future demand of the energy sector, providing universities with various information regarding emerging skill gaps, best practices in the education for the digitalisation of the energy sector and networking with various relevant stakeholders.
 - National and European authorities

Both EUA and EDDIE aim to influence European policies in the direction of expressing and securing the needs and interests of universities during the digital era of the energy sector. EUA promotes the legislative, regulatory, funding, governance and structural reforms to create and optimize the environment for universities to be successful, while EDDIE aims to contribute to the development of policies and strategies related to digitalization in the energy sector whilst promoting the importance of digital education in energy at the policy level.
 - Research institutions and companies

EUA and the EDDIE project both focus on the area of research, aiming to support research institutions in promoting innovation and research in digital education. Research institutions have the opportunity to utilize
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the outcomes of the EDDIE project and the work of EUA-CDE to support the research and training development on new technologies in the area of digitalisation of the energy sector.

- Individuals

EUA and the EDDIE project both aim to support individuals in reskilling or upskilling when it comes to their competences, through their participation in educational/training activities.

In conclusion, the European University Association (EUA) and the EDDIE project share common stakeholders and a mutual commitment to continue advancing digital education, fostering innovation, and addressing the skills needs of the energy sector. Through their synergies, EUA and EDDIE have the potential to drive positive change in digital education, contribute to the sustainable development of the energy sector, and empower individuals and institutions to thrive in the digital era.

11. Synergies with DigComp

The Digital Competence Framework for Citizens (DigComp) is part of the EU Digital Education Action Plan and is used for designing assessment tools, creating training courses and materials, and identifying professional digital profiles for employment, education and further training. Examples of its implementation include the Europass CV Online tool that allows users to list and organise their digital skills in the Europass Profile following the DigComp model and then add it to their Curriculum Vitale (CV). Europass has notably been identified as a synergetic framework to EDDIE in this deliverable. Additional implementation is Digital Skills and Jobs Platform, where any EU citizen can access a self-assessment tool on their digital competence. The tool is based on DigComp and it is available in all EU languages. The platform will give matching suggestions of courses and learning opportunities and suggest which digital skills one should focus on.

11.1. Overview of Main Services

The European Commission has monitored the level of EU citizens' digital activities using the Digital Skills Index (DSI). Until 2019, this composite indicator was based on DigComp's four competence areas (information, communication, content creation and problem solving), and since 2022, the fifth area of Safety is added.

The new version of the ESCO classification (ESCO v1.1) includes the titles and descriptions of the DigComp five areas in its Skills/competences pillar. ESCO has notably been identified as a synergetic framework to EDDIE in this deliverable. The DigComp conceptual reference model of the 5 key Areas of Digital Competence are:

1. Information and data literacy
 - 1.1. Browsing, searching and filtering data, information and digital content
 - 1.2. Evaluating data, information and digital content
 - 1.3. Managing data, information and digital content
 2. Communication and collaboration
 - 2.1. Interacting through digital technologies
 - 2.2. Sharing through digital technologies
 - 2.3. Engaging in citizenship through digital technologies
 - 2.4. Collaborating through digital technologies
 - 2.5. Netiquette
 - 2.6. Managing digital identity
 3. Digital content creation
 - 3.1. Developing digital content
 - 3.2. Integrating and re-elaborating digital content
 - 3.3. Copyright and licences
 - 3.4. Programming
 4. Safety
 - 4.1. Protecting devices
 - 4.2. Protecting personal data and privacy
 - 4.3. Protecting health and well-being
 - 4.4. Protecting the environment
 5. Problem solving
 - 5.1. Solving technical problems
 - 5.2. Identifying needs and technological responses
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5.3. Creatively using digital technologies

5.4. Identifying digital competence gaps

In addition, DigComp offers more than 20 tools. Two of them are highlighted below:

- **DigCompSat** is a self-reflection tool for the Digital Competence Framework for Citizens to assess all 21 DigComp competences corresponding to proficiency levels 1 to 6 (foundation, intermediate and advanced).
- **MyDigiSkills** is an online tool that allows citizens to self-reflect on their digital competence using the DigCompSat.

11.2. Synergies with EDDIE

The Digital Competence Framework and the EDDIE project have several synergies and connections. These include:

- Promotion of digital education and digital skills in the EU

DigComp provides a framework and platform for standardised tests that can be accessed by all EU citizens in multiple languages. After evaluation it then suggests specific areas and methods to improve with regard to digital competence.

- Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda

DigComp and EDDIE are aligned with the goals of the Digital Education Action Plan and the European Skills Agenda: The Digital Education Action Plan and the European Skills Agenda both aim to promote digital education and digital skills, and DigComp and the EDDIE project are both closely connected to these plans.

- Support in increment of digital competence in the workforce

The DigComp framework is used within the ESCO classification, making it easier for employers to evaluate the digital skills and competence of candidates. The EDDIE project, on the other hand, aims to promote the use of digital credentials in education and facilitate the integration of digital credentials into the education and training systems across the EU.

- Support of innovation and research in digital education

The EDDIE project aims to support innovation and research in digital education by developing a new digital platform for creating, managing and sharing digital educational credentials. The Digital Skills Index created with the DigComp Framework allows easy categorization of the areas of competence and these educational efforts focus on and can be used to assess individual progress and aptitude.

DigComp and the EDDIE project have a wide range of common stakeholders. These include:

- EU Citizens

DigComp and the EDDIE project both aim to support individuals in evaluating and improving their digital skills effectively when looking for a job or further education opportunities. EU Citizens can use Digital Skills and Jobs Platform to test their digital skills and receive feedback for improvement, and they can use the EDDIE platform to create, manage, and share their digital educational credentials.

- Employers

DigComp and the EDDIE project both aim to make it easier for employers to evaluate candidates for job or education opportunities. The Digital Skills Index and the ESCO classification provides employers with a standardised format to evaluate the digital competence of candidates, while the EDDIE project provides employers with access to a digital platform for evaluating digital educational credentials.

- Education

DigComp and the EDDIE project both aim to support educational institutions in evaluating the digital competence of students. The DSI provides educational institutions with a standardised format to evaluate the skills of students and applicants, while the EDDIE project provides educational institutions with access to a digital platform for evaluating digital educational credentials.

- Research
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DigComp and the EDDIE project both aim to support research institutions and companies in promoting innovation and research in digital education. Research institutions and companies can use the DigComp Framework and the EDDIE project to support the development of new technologies and pedagogical approaches in digital competence education.

DigComp as a framework is used to assess and improve on all forms of digital competence, including within education and employment. Applied to the energy sector and its technical education DigComp is therefore particularly compatible to the EDDIE Project.

12. Synergies with EduHub

The European Digital Education Hub (EDUHub) is part of the EU Digital Education Action Plan and provides an online community that shares its expertise, best practices and solutions for digital education across education and training sectors; promotes discourse, co-creation and action. It also encourages exchange and cooperation, information-sharing and mapping and accelerates the uptake of digital innovation in education. Registration to the community of the Education Hub is available through an EEA portal.

12.1. Overview of Main Services

In the 2020 Communication on the Digital Education Action plan it is stated that the European Digital Education Hub will:

- Support European Union (EU) Member States by setting up a network of national advisory services on digital education to exchange experience and good practice on the enabling factors for digital education.
- link national and regional digital education initiatives and strategies, and connect national authorities, the private sector, experts, education and training providers and civil society through various activities.
- monitor the implementation of the Action Plan and the development of digital education in Europe, including through results from EU-supported projects.
- Share best practices by contributing to research experimentation and the systematic collection and analysis of empirical evidence, in part through peer learning.
- support cross-sector collaboration and new models for the seamless exchange of digital learning content whilst addressing issues such as interoperability, quality assurance, environmental sustainability, accessibility and inclusion and also EU common standards for digital education.
- Support the agile development of policy and practice by acting as a ‘think-and-do-tank’ for digital education and engaging stakeholders in user-driven innovation through the Digital Education Hackathon.

To achieve these objectives, the European Digital Education Hub provides:

- a community for cooperation on digital education.
- a network of National Advisory Services (NAS) for cooperating on the implementation of digital education policies.
- a new Support, Advanced Learning and Training Opportunities (SALTO) resource centre for digital education.
- opportunities for proposing solutions to digital education issues through the Digital Education Hackathon.

12.2. Synergies with EDDIE

The Digital Education Hub and the EDDIE project have several synergies and connections. These include:

- Promotion of digital education and digital skills in the EU
The Education Hub project brings together the community working on digital education and provides a dedicated space for its information-sharing and cooperation needs.
- Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda
The digital hub will monitor the implementation of the Action Plan and the development of digital education in Europe, including through results from EU-supported projects.
- Support in increment of digital competence in the workforce
The Digital Education Hub and EDDIE enable innovation and research in digital education: The EDDIE project aims to support innovation and research in digital education by developing a new digital platform for creating, managing and sharing digital educational credentials.
- Collaboration and Networking
Both EDDIE and EUA emphasize the importance of collaboration and networking among universities and stakeholders.

The Digital Education Hub and the EDDIE project have a wide range of common stakeholders. These include:

- EU Institutions
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With its effort towards establishing the NAS, the digital hub links national and regional digital education initiatives, and connects national authorities. The hub also promotes dialogue among member states with a network of national advisory services on digital education to exchange experience and good practice. The hub further monitors the implementation of the Digital Education Action Plan. In this connection the EDDIE projects is showcasen the common stakeholders of the hub and the project through the stakeholder analysis in WP3.

- Education

The Digital Education Hub and the EDDIE project both aim to support educational institutions to advance the digital competence of students. The hub links national and regional digital education initiatives and strategies, and connect national authorities, the private sector, experts, education and training providers through various activities.

- Research

The Digital Education Hub and the EDDIE project both aim to support research institutions and companies in promoting innovation and research in digital education. The hub's best practices and contributions to research on digital education can be shared. The latter also includes user-driven innovation through the Digital Education Hackathon.

13. Conclusion

In this deliverable, 11 different EU frameworks are presented, and synergies and common stakeholders between EDDIE and the different frameworks are drawn. Presented frameworks, their goals, usage, synergies, and stakeholders are summarized in Table 5. Please note that Table 5 is condensed and not exhaustive in terms of the goals of the frameworks.

Based on this table and research performed in this deliverable, the following conclusions can be drawn:

- The common goals of analysed frameworks are:
 1. to enhance mobility of students, researchers, workers, and professionals across EU countries
 2. to ensure quality and improve recognition of qualifications at university level, VET and LLL training (qualifications earned in one country should be valued and easily accepted in another),
 3. to address common challenges such as skills gaps, digitalization, and environmental sustainability,
 4. to promote collaboration among EU member states.
- The analysed frameworks focus more on the skill/qualification recognition and evaluation rather than on job role assessment. The framework which focuses on job role assessment is EIT.
- The most common synergies between analysed between the frameworks and the EDDIE project are:
 1. Promotion of digital education and digital skills,
 2. Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda,
 3. Collaboration and networking,
 4. Recognition of skills and qualifications,
 5. Support of innovation and research in digital education,
 6. Establishment of quality assurance principles and practices.
- The most common stakeholders are the following:
 1. Education and training providers,
 2. Employers and industry associations,
 3. Policy makers and regulators,
 4. Students,
 5. Individuals,
 6. EU institutions,
 7. EU Citizens.

The analysed frameworks and the EDDIE project are aligned in their objectives and stakeholders, emphasizing key areas such as enhanced mobility, skills/qualifications recognition, digital education, collaboration, and quality assurance. This convergence underscores the collective commitment to advancing digital education and fostering the development of digital skills.

The EDDIE project, with its focus on creating a European Sectoral Skills Alliance, plays a crucial role in recognizing skill gaps and addressing them through targeted interventions that prioritize digital competencies. By identifying and acknowledging areas of improvement, the project seeks to bridge the gap between industry demands and the skills of the workforce, thus rendering the energy sector more attractive and adaptable to the digital age.

The shared focus on digital education and recognition of skills and qualifications is a fundamental pillar that binds the analysed frameworks and the EDDIE project together. Recognizing the potential of digital technologies in education, they prioritize the integration of digital tools and resources in teaching and learning processes as well as recognizing the skills and qualification obtained in different institution enhancing the mobility of stakeholders such as individuals, students, employers, researchers. This common emphasis on digital literacy, digital competencies, and digital fluency prepares individuals to embrace the digital challenges in an increasingly digital-driven economy.

Another synergy is the emphasis on quality assurance. By ensuring that digital education and skills development programs meet the highest standards, both the analysed frameworks and the EDDIE project contribute to enhancing the overall credibility and value of education within the EU. This commitment to quality assurance underscores the importance of producing a digitally competent workforce equipped to address the complexities and demands of the digital era.

In conjunction with the analysed frameworks, the EDDIE project aligns with the broader vision of EU frameworks to foster a cohesive and inclusive education system that supplies the needs of a rapidly evolving digital landscape. Through collaboration and mobility initiatives, the project facilitates the exchange of knowledge and expertise among European training centres, universities, and industries. This synergy is in line with the overarching goals of EU frameworks to promote cooperation, integration, and mobility among member states, thereby strengthening Europe's collective capacity for innovation and growth.

Furthermore, the commitment to collaboration resonates with both EU frameworks and the EDDIE project. Through partnerships and networking, they create an ecosystem of stakeholders working collectively to develop and implement innovative solutions to pressing challenges in education and skills development. This interconnection fosters a supportive environment that encourages the sharing of best practices, the exchange of ideas, and the exploration of novel approaches to digital education and skills enhancement.

In conclusion, the synergies between EU frameworks and the EDDIE project are evident and relevant in their shared goals and stakeholders. Their collective commitment to digital education, skills recognition, collaboration, and quality assurance demonstrates a cohesive approach towards advancing digitalization in education and equipping individuals with the skills needed to succeed in the digital age. Through their combined efforts, they contribute to creating a digitally competent workforce and a resilient education system that drives innovation, growth, and prosperity within the EU.

Table 5 - Summary of presented frameworks, their goals, usage, synergies, and stakeholders

Framework	Goal of framework	Job role	Skill/qualification recognition and evaluation	Synergies	Stakeholders
ESCO	- Facilitate mobility and employability across different sectors and countries to identify and develop the skills needed for different types of work	No	Yes	<ul style="list-style-type: none"> - Standardized language - Identification of digital skills and competences - Recognition of skills and qualifications - Collaboration and networking 	<ul style="list-style-type: none"> - Education and training providers - Employers and industry associations - Policy makers and regulators - Students and workers
ECVET	- Facilitate the recognition, transfer, and accumulation of learning outcomes in vocational education and training	No	Yes	<ul style="list-style-type: none"> - Transparent Recognition and Transfer of Learning Outcomes - Modularization and Flexibility - Credit Allocation and Accumulation - Learning Agreements and Documentation - Quality Assurance and Evaluation 	<ul style="list-style-type: none"> - VET practitioners - Policy makers and decision makers - Social partners and researchers - Enterprises and sectoral organisations
EQF	- Facilitate the comparison of qualifications across different countries and education systems in Europe	No	Yes	<ul style="list-style-type: none"> - Recognition of educational qualifications - Tracking the interest of industry and academia toward education - Fostering clear communication and program understanding 	<ul style="list-style-type: none"> - Students - Education and training providers - Employers and industry associations - Policy makers and regulators
Europass	- Allows individuals to effectively communicate and present their skills and qualifications in Europe	No	Yes	<ul style="list-style-type: none"> - Promotion of digital education and digital skills - Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda - Development of a skilled workforce - Support of innovation and research in digital education 	<ul style="list-style-type: none"> - Individuals - Employers - Educational institutions - National and European governments - Research institutions and companies
ECTS	- Facilitate mobility of students	No	Yes	<ul style="list-style-type: none"> - Promotion of digital education and digital skills - Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda - Development of a skilled workforce - Support of innovation and research in digital education - Support of the lifelong learning 	<ul style="list-style-type: none"> - Individuals - Employers - Educational institutions - National and European governments - Research institutions and companies

EQAVET	- Support of quality assurance in (VET) across Europe	No	Yes	- Establishment of quality assurance principles and practices - Collaboration and networking	- Individuals - Educational institutions - National and European authorities
ECQA	- Unification of the certification processes for various professions	No	Yes	- Recognition of skills and qualifications - Dissemination of digital education and digital skills - Collaboration and networking	- Employers - Industry associations - Educational institutions - EU institutions
EIT	- Support of the development of dynamic, long-term pan-European partnerships among leading companies, research labs and companies	Yes	Yes	- Integration of business, education and research to pressing global challenges - Training and education programs for research and industry - Collaboration and networking - Alignment with EU policies	- Individuals - Educational institutions - National and European Governments - Research institutions and companies
EUA	- The advancement of Europe's higher education sector by advocating for the interests and values of its member institutions	No	Yes	- Policy and Advocacy - Capacity Building and Professional Development - Collaboration and Networking	- Educational institutions - National and European authorities - Research institutions and companies - Individuals
DigComp	- Used for designing assessment tools, creating training courses and materials, and identifying professional digital profiles for employment, education and further training	No	Yes	- Promotion of digital education and digital skills in the EU - Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda - Support in increment of digital competence in the workforce - Support of innovation and research in digital education	- EU Citizens - Employers - Education - Research
EDUHub	- Encourages exchange and cooperation, information-sharing and mapping and accelerates the uptake of digital innovation in education	No	No	- Promotion of digital education and digital skills in the EU - Alignment with the goals of the Digital Education Action Plan and the European Skills Agenda - Support in increment of digital competence in the workforce	- EU Institutions - Education - Research

