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AN INNOVATIVE VET PERSPECTIVE ON AGRICULTURE FOR CLIMATE CHANGE ADAPTATION

SMARTAGROVETS

A POLICY RECOMMENDATION REPORT FOR AN INNOVATIVE AGRICULTURAL VET SYSTEM

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1. Introduction

BOKU provides research and comparative analysis and conducts a report on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience in order to ensure quality of implementation of the main goals of the project:

- European quality assurance reference framework for vocational education and training (EQAVET)
- Establishment of ECTS for Vocational trainings
- Supporting future-oriented education – lifelong learning strategy
- Digital education plan 2021-2027
- New skills agenda for EU
- To foster mobility in VET- a lifelong learning approach
- Recommendation of the Council of the European Union on the validation of non-formal and informal learning
- Green Comp

PR1 is the policy report that will contain guidelines and recommendations such as CEDEFOP approach on using learning outcomes and EQF, guidelines on İnnovative pedagogical approaches, e-learning and learner centred approach.

2. Methodology

BOKU analyses the most relevant policies and regulations when it comes the vocational training and creates a list of the most appropriate policies and recommendation relevant for the SmartAgroVET project. For the project lifelong learning strategy and the future oriented education, the qualitative analysis is based on desktop-research to examine the relevant literature, policies and initiatives. The research gives a holistic overview of innovative teaching approaches that integrate social, economic, and pedagogical aspects that result in working capabilities and professional competences, personal development, and more activities in the digital era especially for lifelong learners. Furthermore, BOKU LLL expertise uses its relevant active membership in the EUCEN network and provides desktop-research to examine the relevant literature on how the student-centred approach in teaching and learning is operationalized. It involves literature search with scholarly databases comprising ScienceDirect, Scopus and Web of Science. The qualitative search was conducted with keywords comprising student-centred, learning, education, approach and pedagogy as well as a combination of the keywords such as student-centred learning and student-centred approach, micro credentials, micro credentials approach, micro credentials development.

Following the Recommendation of the Council of the European Union on the validation of non-formal and informal learning, BOKU analyses the established systems to identify, document, assess and certify (=validate) all forms of learning to use this learning for advancing their career and for further education and training.

3. Report on the most valid policies and recommendations

List of the most valid policies and recommendations

- European Skills Agenda (June 2020): identifies micro-credentials to up-skill and re-skill professionals, to value learning outcomes and to increase permeability and flexibility between different education sectors and pathways.
- Digital Education Action Plan 2021-2027 (Sept. 2020): considers micro-credentials a tool to support the relevance, quality and inclusiveness of European education and training at all levels.
- European Education Area (Feb. 2021): micro-credentials are seen to diversify the student population and to make higher education more inclusive by 2025 by supporting lifelong learning and providing more flexible and modular learning opportunities.
- The European Pillar of Social Rights Action Plan (2021): sees micro-credentials as an innovative instrument that 'can facilitate flexible learning pathways and support workers on their job or during professional transitions'.
- European Approach to micro-credentials (Feb. 2021): a common definition of micro-credentials, presentation of building blocks, and a roadmap of actions for their development and adoption in Europe. Final report delivered in February 2021 by a group of experts established by the European Commission.
- European strategy for universities (Jan. 2022): micro-credentials as a means of contribution to professional reskilling and upskilling to meet new and emerging needs in society and labour market, and to develop skills and competences and technological innovation for the digital and green transition.
- Council Recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability (June 2022): a common definition of micro credentials, sets out actions to develop 'ecosystems for micro credentials', make recommendations on their use for the benefit of learners, support the development and use of micro credentials.
- 2023 as the European Year of skills
- Role of European University Alliances in offering flexible learning opportunities and pathways for any age group, with some leading to micro-credentials
- Proposal for a Council Recommendation 'Europe on the Move' – learning mobility opportunities for everyone: promotion of micro-credentials as an element of the overall strategy for mobility within the European Education Area
- Higher Education Package
    - Blueprint for European Degree
    - Proposal for a Council Recommendation on a European Quality Assurance and Recognition System in Higher Education
    - Proposal for a Council Recommendation on attractive and sustainable careers in higher education

3.1. Current EU strategy documents

- Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030)

- The Recovery and Resilience Facility- NextGenerationEU plan: The mechanism will help EU to achieve its goal of climate neutrality by 2050 and ensure the digital transition, while creating jobs and boosting growth
- Osnabrück Declaration on VET: Resilience and excellence through quality, inclusive and flexible VET; Establishing a new lifelong learning culture – relevance of continuing VET and digitalisation; Sustainability – a green link in VET; European education and training area and international dimension of VET.
- European Skills Agenda for sustainable competitiveness, social fairness and resilience sets out policy priorities and actions aimed at increasing the employability of citizens and providing skills for the workplace by further promoting the green and digital transition.

European Skills Agenda for sustainable competitiveness: Ambitious objectives for up and reskilling to be achieved within the next 5 years are:

- Pact for Skills
- Strengthening skills intelligence
- EU support for strategic national upskilling action
- Future-proof vocational education and training (VET)
- Rolling out the European Universities initiative and upskilling scientists
- Skills to support the green and digital transitions
- Increasing STEM graduates, fostering entrepreneurial and transversal skills
- Skills for life
- Initiative on individual learning accounts
- A European approach to micro-credentials
- New Europass platform
- Improving the enabling framework to unlock investment

GreenComp: the European sustainability competence framework

- GreenComp is a reference framework for sustainability competences. It provides a common ground to learners and guidance to educators, advancing a consensual definition of what sustainability as a competence entails.
- It responds to the growing need for people to improve and develop the knowledge, skills and attitudes to live, work and act in a sustainable manner. It is designed to support education and training programmes for lifelong learning. It is written for all learners, irrespective of their age and their education level and in any learning setting – formal, non-formal and informal.
- Sustainability competences can help learners become systemic and critical thinkers, as well as develop agency, and form a knowledge basis for everyone who cares about our planet's present and future state.

GreenComp consists of 12 competences organised into the four areas:

- Embodying sustainability values, including the competences
  1. valuing sustainability
  2. supporting fairness
  3. promoting nature

  Embracing complexity in sustainability, including the competences
  4. systems thinking
  5. critical thinking
  6. problem framing

  Envisioning sustainable futures, including the competences
  7. futures literacy
  8. adaptability
  9. exploratory thinking Acting for sustainability, including the competences
  10. political agency
  11. collective action
  12. individual initiative

3.2. Vocational Education and Training

EU Vocational Education and Training policy and COVID-19 recovery efforts.

On July 1, 2020, the Commission presented an ambitious agenda to guide COVID-19 recovery efforts in the areas of employment and social policy. The focus is on skills and Vocational Education and Training.

The proposals are an important contribution to President von der Leyen's Recovery Plan for Europe. The proposals

include:

- The Commission's Communication **on a European Skills Agenda for Sustainable Competitiveness**, Social Equity and Resilience. The communication proposes 12 EU actions to support skills partnerships, skills upgrading and retraining, and strengthening lifelong learning.
- One of the main outcomes of the communication is a **Skills Pact** launched in November 2020 during **European Skills Week**. It aims to mobilize various stakeholders to upskill and reskill people of working age and (where relevant) through partnerships.
- The communication is accompanied by a Commission staff **working paper on the evaluation of the 2012 Council Recommendation** on the validation of informal and non-formal learning.
- The **Commission's proposal for a Council Recommendation on Vocational Education and Training** (VET) for Sustainable Competitiveness, Social Equity, and Resilience aims to ensure that VET provides the workforce - young and old - with the skills to support the recovery of digital transitions in a socially equitable manner. The proposal was adopted by the Council on November 24, 2020.

In 2023 Cedefop has released the updated national "Vocational Education and Training (VET) Policy Briefs 2023". The document contains actions taken by individual countries to upgrade their VET policies and assess their impact on advancing the priorities outlined in the Council Recommendation on VET and the Osnabrück Declaration, and defined in the national implementation plans developed in 2022.

The highlights of this document reflect through diverse EU countries priorities and development of flexible learning pathways, and curriculum based on labour market and professional need, green and sustainable transition. 26 EU countries have implemented 400 measures to reach all these needs, recommendations and priorities.

The key measures among the EU countries in the VET Policy development and implementation are:

- **Agility and Attractiveness**: countries have implemented measures to make their VET systems agile, resilient, and attractive. However, efforts to make VET flexible, inclusive, and quality assured are lagging.
- **Curriculum Adaptation**: VET curricula and programmes are being revisited to align with industry and labour market changes.
- **Modular Approaches**: many EU-27+ countries are adopting modular frameworks and learning outcomes approaches to new and existing VET programs.
- **Flexible Pathways**: countries are introducing flexible pathways and approaches to quickly respond and adapt to change.
- **Teachers and trainers' Professional Development**: national policies are increasingly focused on ensuring systematic professional development opportunities for school leaders, teachers, and trainers.
- **Work-Based Learning**: countries have increased VET learners' participation in work-based learning (WBL), with expanded apprenticeship programs reaching higher education levels and adult learners.
- **Green Transition**: addressing the green transition in VET has been challenging, with few concrete actions implemented in national plans.

According to the report[1] Austria developed specific measures towards green transition and sustainability. In Austria, the Council of Ministers formally decided in 2022 to establish higher vocational education and training as an independent educational segment and to initiate the process of creating a Vocational Education and Training Act. The main objective is to consolidate the heterogeneous field of higher vocational education and training by defining common elements and creating a legal basis for a common understanding.

[1] *Unlocking VET: Cedefop Releases the 2023 National VET Policy Briefs | CEDEFOP*. (2024, July 10). https://www.cedefop.europa.eu/en/news/unlocking-vet-cedefop-releases-2023-national-vet-policy-briefs

The core of these latest VET policy briefs emphasis the need to accelerate policy developments to make national VET systems attractive, agile, innovative, flexible, inclusive, and quality assured. The goal of vocational education is to address current and future challenges.

The analysis of VET policies among the project partners enables the collection of strategies, action plans, legal acts, regulations, and practical measures in vocational education and training (VET) and lifelong learning (LLL) in the partner countries. These relevant information show how they are linked to European priorities in VET, expressed in the Council Recommendation on VET[2] and the Osnabrück Declaration[3].

The timeline of vet policies development contains Information that is organised in thematic categories allowing for filtering and comparison of the policies and practices presented by different criteria, such as country or target group[4]:

[2] COUNCIL RECOMMENDATION of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience (2020/C 417/01) https://www.cedefop.europa.eu/files/celex_32020h120201_en_txt.pdf

[3] Osnabrück Declaration on vocational education and training as an enabler of recovery and just transitions to digital and green economies (2020) https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf

[4] *Welcome | CEDEFOP*. (2022, November 21). https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe

VET Policies for Teachers, trainers and school leaders' competences at EU partner countries

These policies support acquisitions of adequate competences, skills and tools for the green transition, digital teaching and learning.

3.2.1. Poland

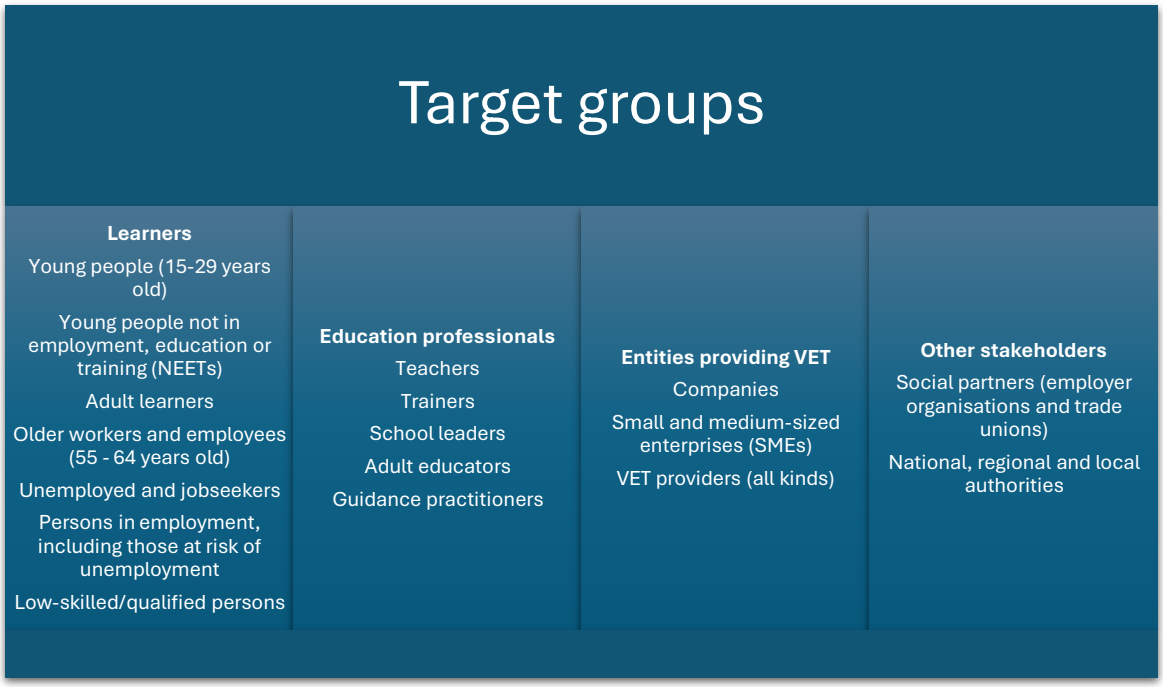
In Poland the **Vocational education and training action plan for 2022-25** was adopted by the Council of Ministers in August 2022.

Developing high-quality, relevant, effective and inclusive vocational education at all levels is the main objective of the action plan in preparing the workforce for the modern economy. Information on national challenges and main objectives in vocational education and training, as well as the most important tools and measures to be implemented are provided in the document.

The actions outlined in the plan were initiated prior to its adoption. The For-life initiative, development of the integrated qualification system, and development of e-resources for VET are some of the initiatives.

The action plan includes five specific measures and several ministers, including education, science, labour, culture and regional development, are implementing these specific measures:

1. The integrated skills strategy will be implemented through the development of professional skills in formal and non-formal education, including skills related to green and digital transitions.
2. The provision and professional development of staff for the VET system is provided by the VET system.
3. Career guidance and promotion of VET are developed and promoted.
4. Innovative and durable mechanisms of cooperation at national and international levels in VET will favour adequacy and quality of education, as well as resilience and professional excellence.
5. Support for the growth of modern vocational education and continuous learning in the regions, in collaboration with local governing bodies and other social entities.



3.2.2. Czechia

The strategy for the education policy of the Czech Republic up to 2030+ prioritizes the reform of teacher education. The strategy emphasizes the importance of upskilling teachers' competences in the professional life and seeks to define the quality of pedagogical work in the different stages of a teacher's career.

The main objectives aim

1. To focus education more on the acquisition of competences needed for an active civic, professional and personal life
2. To reduce inequalities in access to quality education and facilitate the maximum development of students' potential.

The reform seeks to improve competences of teacher training graduates in motivating their pupils and students to learn and to cultivate their critical thinking.

The reform focuses on the following areas and activities *during the period 2022-24*[5]*:*

- *Introducing* a *standardized* teacher competence profile*, assessing* the professional *requirements* and *skills* of *recent* teacher training graduates. The competence profile will help the faculties to focus their training better and to be able to evaluate and improve its quality.
- *Transforming* practical training of undergraduate teacher trainees, improving its quality*,* and linking teaching practice more closely with the faculties *are some* of the *goals*.
- *The* system *is open* to innovation (e.g. through introducing completely new programmes based on the areas of the framework education programmes or with a higher share of

[5] *Teacher training reform to improve competences | CEDEFOP*. (2022, March 14). https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe/search/41974

practical training) and new methods of teacher training and ensuring relevant support from the education ministry.

- Internationalisation and openness to inspiration from abroad are supported by greater internationalisation and openness to inspiration from abroad.
- Increasing the appeal of teacher preparation for motivated and gifted candidates.
- Field didactics development.

In 2021, the Ministry of Education Youth and Sports, in cooperation with faculties educating teachers, developed a concept for the reform and distribution of responsibilities of stakeholders; they committed to observing this for the following 3 years, 2021-24, and possibly extending for another 3 years in 2024.

Thematic categories for the target groups teachers, trainers and school leaders' competences are Systematic approaches to and opportunities for initial and continuous professional development of school leaders, teachers and trainers aattractiveness of the teaching and training profession/career.

3.2.3. Austria

In the Austrian policy recommendations following the EU priorities special focus is given to the digital upskilling, following the labour market needs and challenges promoting equality of opportunities.

Green skills get a lot of attention in Austria. The transition of our societies towards an eco-friendly, resource-efficient, circular, and climate-neutral economic system also impacts the labour market and vocational training. Job applicants and employees' qualifications are evolving.

Integration of green competences into school-based VET (starting in 2022) through:

1. the development of a uniform teaching principle as the basis for a common understanding of the topic, which enables the teaching of relevant content across all subjects, forms and levels of VET
2. developing an implementation plan for each VET school sector
3. adaptation of existing curricula and development of new curricula
4. teacher training according to the new curricula

Picture [6]

[6] *Green transition in VET | CEDEFOP*. (2023, March 14). https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe/search/44498

3.2.4. Vocational Training System in Turkey

The vocational and non-formal education system in Turkey is structured to provide lifelong learning opportunities and develop a skilled workforce. It is primarily overseen by the Ministry of National Education (MoNE), with significant contributions from other ministries, local governments, professional chambers, and the private sector.

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1. Ministry of National Education (MoNE)

The Directorate General for Lifelong Learning under MoNE is responsible for:

Organizing apprenticeship training.

Providing public education through Adult Education Centers (Halk Eğitimi Merkezleri - HEMs).

Managing vocational training programs to enhance employability and skills development.

These programs target diverse groups, including youth, adults, unemployed individuals, and disadvantaged populations, ensuring access to quality education and training.

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2. Adult Education Centers (Halk Eğitimi Merkezleri - HEMs)

HEMs serve as the main providers of non-formal education, offering courses in various fields such as vocational training, language learning, personal development, and hobbies.

These centers aim to equip individuals with the skills needed for employment and active participation in society.

Over 1,000 centers operate nationwide, providing free or low-cost education to millions annually.

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3. Vocational Education Committee (VEC)

The Vocational Education Committee plays a central role in shaping vocational and technical education in Turkey. Its responsibilities include:

Planning, developing, and evaluating vocational education programs.

Identifying national and regional workforce needs.

Approving curricula and determining the duration of training programs.

Establishing policies for examinations and certification.

The committee collaborates with industry stakeholders to ensure training aligns with labor market demands.

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4. Role of the Ministry of Labor and Social Security

The Ministry of Labor and Social Security focuses on:

Developing vocational training programs for the unskilled workforce.

Implementing job adjustment and reskilling programs for employees.

Enhancing organizational skills to improve productivity and employability.

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5. Professional Chambers and Private Sector Contributions

Chambers of Commerce and Industry, under the umbrella of the Union of Chambers and Commodity Exchanges of Turkey (TOBB), play a key role in organizing and supporting vocational training programs.

The private sector, including employer organizations such as TÜSİAD and MÜSİAD, actively participates in:

Designing vocational courses in collaboration with MoNE.

Providing resources and facilities for training programs.

Supporting workforce development initiatives.

Private training providers also offer paid programs, which are subject to MoNE regulations regarding curriculum approval, admission criteria, training standards, and certification.

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6. Local Governments and Partnerships

Metropolitan municipalities are authorized to organize vocational and skills training courses. They collaborate with universities, vocational schools, public agencies, and civil society organizations to provide these services.

Municipalities often partner with MoNE and professional organizations to deliver training aligned with local workforce needs.

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7. International Projects and Initiatives

The Turkish government, in collaboration with international organizations, has implemented various projects to modernize and enhance vocational education, such as:

Erasmus+ programs focusing on cross-border cooperation and skill development.

World Bank-supported projects to improve vocational training infrastructure and teacher competencies.

EU-funded initiatives aimed at integrating innovative teaching methods and digital tools into vocational education.

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8. Provincial and Local Coordination

At the provincial level, the Provincial Vocational Education Board (İl Mesleki Eğitim Kurulu) ensures that vocational training aligns with local economic and labor market needs. Decisions taken at this level are implemented by local MoNE units and vocational schools.

At the local level, metropolitan municipalities organize additional training programs, often targeting specific groups like women, youth, and disadvantaged communities.

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9. Enterprise-Based Training

Large enterprises are required to establish training units within their organizations to upskill their employees. Many companies also offer internships and apprenticeship opportunities, providing hands-on experience in real-world settings.

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10. Key Features of the System

Apprenticeship Training: A dual-system approach combining theoretical education in vocational schools and practical training in workplaces.

Certification: All vocational training programs lead to recognized certifications, ensuring graduates meet national and international standards.

Focus on Lifelong Learning: The system emphasizes continuous education, enabling individuals to reskill or upskill as needed throughout their careers.

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11. Challenges and Ongoing Efforts

While Turkey's vocational training system has made significant progress, it faces challenges such as:

Bridging the gap between education and industry demands.

Expanding access to vocational training in rural areas.

Integrating digital tools and technologies into training programs.

To address these issues, the Turkish government is investing in infrastructure, teacher training, and innovative practices to modernize the system and improve outcomes.

This comprehensive system aims to foster a skilled and adaptable workforce, contributing to Turkey's economic development and global competitiveness.

3.2.5. Establishment of ECTS for Vocational trainings7

Extract taken from:
https://www.eumonitor.eu/9353000/1/j4nvk6yhcbpeywk_j9vvik7m1c3gyxp/vitgbgirtxxs

European Commission defines the European Credit system for Vocational Education and Training (ECVET) as a methodological framework that can be used to describe qualifications in terms of units of learning outcomes with associated points.

Learning outcomes in vocational education and training in Europe are accumulated and transferred through the ECVET system. Learning outcomes acquired in various settings, both in other countries and through formal, informal or informal learning, can be attested and recorded. Transferring knowledge to a person's 'home' system can count towards acquiring a certification.

ECVET is system that encourages learner mobility within the European Union (EU), such as Europass and the European Quality Charter for Mobility.

ECVET also complements the European Credit Transfer and Accumulation System (ECTS) by linking vocational education and training with higher education. The ECTS was set up in 1989 and has encouraged transparency and the recognition of periods of study spent in other countries.

The aim of ECVET is to facilitate the transfer of credits for learning outcomes from one qualifications system to another. It is different from the European Qualifications Framework (EQF), which is a common reference framework. With ECVET better comparability and compatibility among national qualification systems is what it is intended to achieve.

More information and recommendations are available in the ACT Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Credit system for Vocational Education and Training (ECVET) (OJ C 155, 8.7.2009, pp. 11-18).

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[7] *Establishment of a European Credit System for Vocational Education and Training (ECVET)—EU monitor*. (n.d.). Retrieved 30 October 2024, from https://www.eumonitor.eu/9353000/1/j4nvk6yhcbpeywk_j9vvik7m1c3gyxp/vitgbgirtxxs

4. Quality Assurance - EQAVET - European Quality Assurance in Vocational Education and Training

Quality assurance systems focus on education and training *delivery*, for example, teaching and training quality. The shift to learning outcomes and diversified modes of learning now taking place across Europe allows qualifications to be acquired through different learning pathways. *It is important to develop* reliable ways of ensuring that the required/expected learning outcomes have been achieved.

The 2020 Council Recommendation on VET extended the *2009 EQAVET framework* to address elements such as the quality of learning outcomes, certification and assessment, stakeholder consultation, *and* the role of teachers and trainers.

Quality of VET in the EU Member States has been monitored by Cedefop. By 2019, all countries had developed a national approach to quality assurance in line with the European Quality Assurance Reference Framework for Vocational Education and Training (EQAVET), according to its analysis. By 2019, all countries had developed a national approach to quality assurance in line with the European Quality Assurance Reference Framework for Vocational Education and Training (EQAVET).

Cedefop works on quality assurance in VET by[8]:

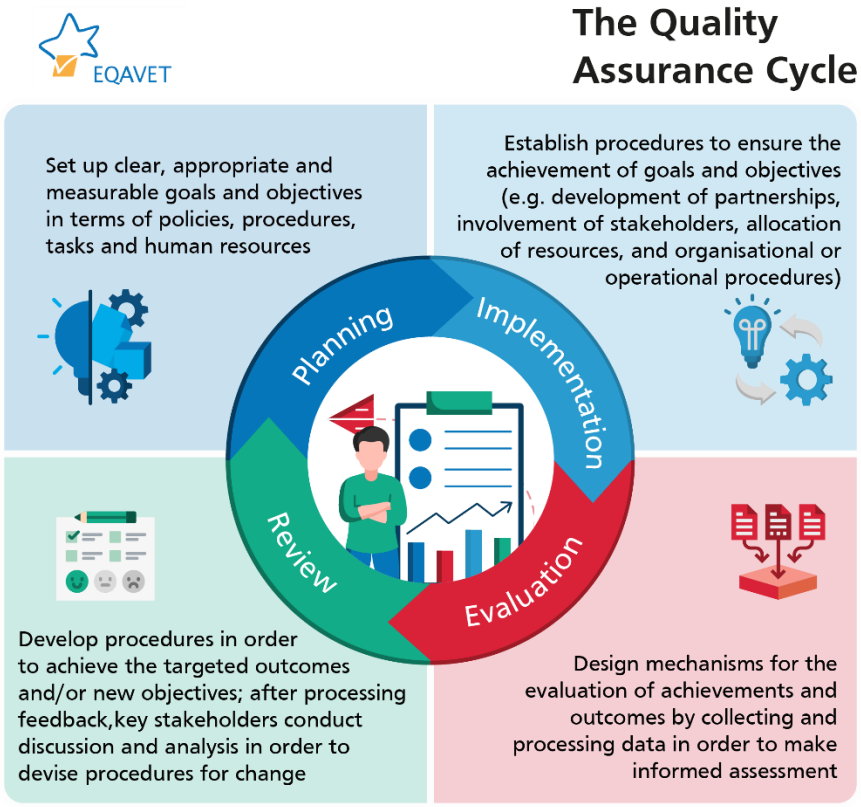
- providing advice and expertise to the European Commission and the EQAVET network on the implementation of the EQAVET framework;
- reporting on trends and challenges in quality assurance mechanisms in the EU Member States line with the 2020 Council Recommendation on VET and the Osnabrück Declaration;
- carrying out research and analysis on topics such as the internal quality management of VET providers, the quality assurance of certification and other related areas.

A cycle of quality assurance and improvement (planning, implementation, evaluation/assessment, review/revision) and a selection of descriptors and indicators applicable to quality management are the foundations of EQAVET (Figure)

Figure: The Quality Assurance Cycle[9]

[8] *Quality assurance | CEDEFOP*. (2009, June 10). https://www.cedefop.europa.eu/en/projects/quality-assurance

[9] *EQAVET quality assurance cycle*. (n.d.). Retrieved 30 October 2024, from https://ec.europa.eu/social/main.jsp?catId=1546&langId=en



Europe employs this cycle for initial and ongoing vocational education and training, job-based learning, apprenticeships, blended learning, the accreditation of prior knowledge and experience, and the creation of full and partial qualifications.

The EQAVET Framework can be used by VET providers and in VET systems to support the quality assurance of:[10]

- Learning environments (e.g., school-based provision, work-based learning, apprenticeships, formal, informal and non-formal provision)
- All types of learning contexts (e.g., digital, face-to-face and blended)
- Public and private sector VET providers
- VET awards and qualifications at all levels of the European Qualifications Framework

According to the 2020 recommendation on vocational education and training for sustainable competitiveness, social fairness, and resilience flexibility and progression opportunities are at the core of vocational education and training. Vocational education and training programmes are learner-centered, offer access to face-to-face and digital or blended learning, flexible and modular pathways based on the recognition of the outcomes of non-formal and informal learning, and open up career and learning progression.

[10] *EQAVET - European Quality Assurance in Vocational Education and Training*. (n.d.). Retrieved 30 October 2024, from https://ec.europa.eu/social/main.jsp?catId=1536&langId=en

Analysing the report from the EQAVET Annual Network Meeting 2024[11], the main skills challenges and opportunities in the EU that emerged during the Year include:

1) critical skills shortages for employers,
2) pressing skills and training gaps and
3) skills for new opportunities, such as the substantial job growth expected from the green and digital
transitions.

Due to these ongoing challenges, skills will remain centre stage at European, national, regional and local level, e.g. through the Pact for Skills and the European Alliance for Apprenticeships.

5. Report on micro credentials and quality assurance

On 16 June 2022, the Council of the European Union (EU) adopted a Recommendation on a European approach to micro-credentials for lifelong learning and employability. The Recommendation seeks to support the development, implementation and recognition of micro-credentials across institutions, businesses, sectors and borders. The Recommendation provides building blocks including a definition, standard elements for describing micro-credentials, and principles for designing and issuing micro-credentials.

The Council Recommendation aims to:

- Enable individuals to acquire, up/reskill and improve the knowledge, skills and competences to be better equipped to deal with current and future challenges. Furthermore, the Council highlights importance of collaboration between labour market and society towards transitions towards a green and digital economy

- Enhance the quality, transparency and flexibility of micro credential offers for learners that search for personalised and professional oriented learning pathways

- Foster inclusiveness, access and equal opportunities

1. Definition of micro credentials:

The COVID-19 crisis has led to rapid growth in demand for short forms of tailored learning opportunities such as micro credentials.

[11] *Latest developments in Vocational Education and Training—2024 EQAVET Annual Network Meeting overview*. (n.d.). Retrieved 30 October 2024, from https://ec.europa.eu/social/main.jsp?langId=en&catId=1548&furtherNews=yes&newsId=10686

The European Union (EU) defines a micro-credential as:

the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes will have been assessed against transparent and clearly defined criteria. Learning experiences leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs. Micro-credentials are owned by the learner, can be shared and are portable. They may be standalone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity.

Source: Council of the EU (2022).

The European approach to micro-credentials offers a common definition that is valid across sectors of education and the world of work and mirrors the societal mission of education and training institutions, including higher and vocational education and training (VET) institutions, and non-formal providers as well as employers and labour market actors[12]:

A micro-credential is the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes have been assessed against transparent and clearly defined standards.

Courses leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs.

Micro-credentials are owned by the learner, can be shared and are portable.
They may be standalone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity.

For ensuring transparency and stackability of micro credentials, the European approach to micro-credentials suggests a list of mandatory and optional elements that any micro-credential should provide:

[12] European Union (2021). *A EUROPEAN APPROACH TO MICRO-CREDENTIALS.* https://education.ec.europa.eu/sites/default/files/2022-01/micro-credentials%20brochure%20updated.pdf

Mandatory elements:

- Identification of the learner
- Title of the micro-credential
- Country/Region of the issuer
- Awarding body
- Date of issuing
- Learning outcomes
- Notional workload needed to achieve the learning outcomes (in ECTS credits, wherever possible)
- Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF, QF-EHEA), if applicable
- Type of assessment
- Form of participation in the learning activity
- Type of quality assurance used to underpin the micro-credential

Optional elements:

- Prerequisites needed to enrol in the learning activity
- Supervision and identity verification during assessment (unsupervised with no identity verification, supervised with no identity verification, supervised online or onsite with identity verification)
- Grade achieved
- Integration/stackability options (standalone, independent micro-credential / integrated, stackable towards another credential)
- Further information

Micro-credentials should be measurable, comparable and understandable with clear information on learning outcomes, workload, content, level, and the learning offer. The workload should be in alignment with ECTS and EQF level descriptors. Furthermore, micro credentials may be included in national qualifications frameworks/systems, where relevant and in line with national priorities and decisions.

Higher institutions and other providers should provide transparent and clear information on micro credential offers as well as guidance.

Micro credentials are designed to follow flexible learning pathways that are learner-centred and meet the needs of the target group of learners. Learning outcomes are assessed against transparent standards and learners feedback is considered as part of the continuous improvement of the micro credential. The modularisation approach allows other micro-credentials to be added to create larger credentials.

5.1. Quality Assurance

Quality assurance processes apply to the delivery of courses leading to micro-credentials (where applicable), assessment and certification and can be external and internal.

External quality assurance combines self-assessment, external review and processes for improvement. The essential principle is that micro-credential providers' internal QA system needs to be evaluated externally, ideally by an entity independent from the organisation running the QA system.

Internal quality assurance for micro-credentials should be adapted to reflect the lower risk profile and unique characteristics of these programs. This will ensure that the micro-credentials remain relevant, effective, and responsive to the needs of both learners and other stakeholders.

It is recommended for micro credential developers to include learners as equal partners in the internal quality assurance process.

The overall quality of the micro-credential depends on the quality standards including EQF levels, the European Standards and Guidelines for Higher Education, and the European Quality Assurance Framework for VET.

5.2. The Recognition and Lisbon Recognition Convention - LRC

The applicability of the LRC to micro-degrees means that recognition authorities, such as higher education institutions and ENIC/NARIC centers, must have quality-assured procedures and mechanisms for their recognition. If the micro-degree is awarded by an accredited higher education institution and the quality, workload, level and learning outcomes are certified, it will be subjected to the usual assessment process for academic recognition.

The MicroHE project aims to create a recognition framework for micro-credentials by examining the adequacy of European recognition instruments for micro credentials. This would provide more detailed information about micro-credentials compatibility with ECTS. Furthermore, the MicroHE project developed a micro credential Meta-data Standard[13] for recording ECTS based on the European Qualifications Framework (EQF) meta-data schema and ESCO data schema.

5.3. The Growth of Micro Credentials

According to the BOKU research there are no comprehensive statistics on the implementation of micro-credentials globally. Followed by the COVID-19 post pandemic global situation, development of the MOOCS is in expansion worldwide.

Micro-credentials can be delivered online or can be applied in face-to-face or blended formats.

The micro credentials are provided by higher education institutions, businesses and non-governmental organisations, agencies, professional associations, companies, and even peer reviewers.

Table 1 shows that the major global digital learning platforms for micro-credentials already have almost a 100 million of registered learners annually reflecting different types of micro credentials.

[13] MicroHE Meta-Data Standard. (n.d.). *MicroHE*. Retrieved 22 August 2024, from https://microhe.microcredentials.eu/home/microhe-outputs/wp4/mds/

According to the MICROBOL project findings, higher education institutions provide credit-bearing micro-credentials (for which a learner earns credits at the completion) and non-credit-bearing micro-credentials (for which a learner does not earn credits).

While MOOCs have been offered by hundreds of providers since their appearance, higher education institutions have offered most of them either as separate learning modules or as part of a conventional degree.

The project MicroCredex developed a course catalogue among the project partners that will be regularly adapted. More details can be found using the following link: https://microcredx.microcredentials.eu/micro-credentials-catalogue/ .

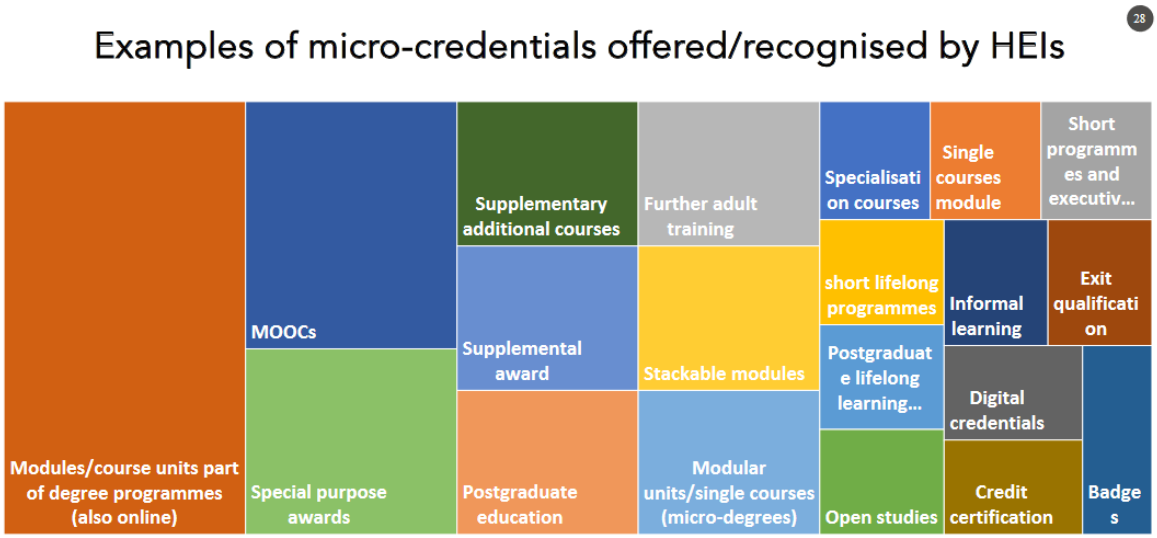
The European Commission has launched the Digital Education Action Plan and Europass platform for the integration of digitally signed qualifications.

Table 1: Number of registered learners and type of micro-credentials provided by the world's major EdTech platforms

Platform	Registered Learners	Types of Micro-Credentials (as of 2022)
Coursera	97 million (as of 2021)	Specialisation, MasterTrack, Professional Certificate
edX	42 million (as of 2021)	XSeries, MicroBachelors, MicroMasters, Professional Certificate, Professional Education
Udacity	11.5 million (as of 2019)	Nanodegree
Future Learn	17 million (as of 2021)	Program, ExpertTrack, Microcredential
LinkedIn Learning	17 million (as of 2020)	Path

Source: GUIDE TO DESIGN, ISSUE AND RECOGNISE MICRO-CREDENTIALS, European Training Foundation, 2022

A survey among European higher education institutions indicated that the most common types of credentials offered by them were certificates (41%) and badges (52%).



Source: Micro-GEAR

Table 2,3 and 4 reflect examples of European higher education institutions offering alternative credentials.

Table 2

University	Courses	Level	Relation to HEIs	Delivery mode
Baden-Württemberg Cooperative State University (DHBW)	Language courses, Intercultural Communication Scientific writing	Bachelor level		Online Own platform
Dublin City University (DCU)	Fintech, Computing	Master level		FutureLearn
Tampere University		All levels. Open university offers it at bachelor's and master's degree levels while CPD offers for working professionals.		Own platform
Linnaeus University	Open courses that offer certificates.	They provide short programmes for which a specific number of ECTS is allocated and which are part of the regular syllabus for Lifelong Learning & Continuing Professional Development.		Canvas.net and Eliademy
International University of La Rioja (UNIR)		Titulos proprios - 10 ECTS (250 hours, duration 4 months)		Own platform

Source: MicroBOL (2020)

Table 3

Fundacio per a la Universitat Oberta de Catalunya	Own degree/ Own training: master's degree, postgraduate, specialisation, seminars, online vocational training, professionalizing courses, master's degree, specialized diplomas Non-Official Titles:- Expert, university extension, Extended Study	Diploma or certificate Varying between < 1 and 60 ECTS	The system of specializations allows progressive access to the master certificate. Not in other cases.	100% online and Scalable
The Open University UK	Certificate in higher education, Higher national certificate	Certificate Level 4; 60 ECTS	The certificate of Higher Education is a recognised exit award in the UK framework. It can also be seen as a stepping stone to a formal Degree.	Online and Scalable FutureLearn
Open Universiteit NL	Certified Professional Programmes, Praktijkleergang, Focus programmes, Premasters.	Certificate or diploma Level 6-7 Varying between 5 and 60 ECTS	Can often be added within a bachelor, MBA or provides access to a master	100% online or Blended and scalable

Source: MicroBOL (2020)

Table 4

Politecnico di Milano	2 different offers: 1. Possibility for students to subscribe to single courses, obtaining credits after assessment. It can be done in almost all the Italian universities. Students can use the acquired credits to enrol on full course degrees. 2. Ongoing experimentation with open badges, used to promote innovative didactics practices.	A student can subscribe to any single course and have the extra credits added to the Diploma Supplement.		1. Not digital 2. Bestr -Cineca
Università Europea di Roma	Certificate of Specialisation Course for Credential Evaluator awarded by the Università Europea di Roma and the first micro-credential certified by CIMEA in the higher education sector, i.e. the Professional Certificate on Credential Evaluation	University certificate (12 ECTS), level 6/7	Italian Universities can award "diploma di perfezionamento", that is a form of micro-credential	Online Own platform Micro- credential awarded in blockchain (on the Diplome application)

Source: MicroBOL (2020)

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