Council of the European Union

Brussels, 14 July 2026
(OR. en)

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EDUC 331
SOC 493
EMPL 277
JEUN 196
COMPET 955
ECOFIN 1005

COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	10 July 2026
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union
No. Cion doc.:	SWD(2026) 181 final
Subject:	COMMISSION STAFF WORKING DOCUMENT Accompanying the REPORT FROM THE COMMISSION TO THE COUNCIL on the implementation of the Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience

Delegations will find attached document SWD(2026) 181 final.

Encl.: SWD(2026) 181 final

EUROPEAN
COMMISSION

Brussels, 10.7.2026
SWD(2026) 181 final

COMMISSION STAFF WORKING DOCUMENT

Accompanying the

REPORT FROM THE COMMISSION TO THE COUNCIL

on the implementation of the Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience

{COM(2026) 363 final}

Contents

1 Introduction

Over the years, co-operation in vocational education and training (VET) at the European level, provided for in Articles 165 and 166 TFEU, has played an increasingly important role. In 2002, the Copenhagen process was launched to align VET systems with EU-wide goals for sustainable economic growth, lifelong learning, and social inclusion. It responded to the need for transparent qualifications across Europe and support for the quality of VET systems. This process was brought forward through a series of declarations adopted at informal meetings of the ministers in charge of VET, European social partners and the European Commission. At the same time, a need to consolidate policy developments in the field of VET became more evident. This paved the way for the first ever Council Recommendation in the field of VET, adopted in November 2020 as the Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience (hereafter: "2020 Council Recommendation on VET").

The 2020 Council Recommendation on VET defined a vision for VET with relevant long-term reform principles. The Osnabrück Declaration, also adopted in November 2020 as part of the Copenhagen process, complemented the 2020 Council Recommendation on VET with more concrete, shorter-term actions at both national and EU level, specifically aimed at modernising VET by ensuring its rapid adaptation to labour market needs, enhancing flexibility of learning pathways, and preparing learners for the green and digital transition. The 2020 Council Recommendation on VET and the Osnabrück Declaration framed the EU VET policy cycle from 2020 until 2025, in combination with other strategic documents and policies, such as the European Pillar of Social Rights action plan and the European skills agenda.

The 2020 Council Recommendation on VET covers the following priorities:

- VET being agile in adapting to labour market changes,
- Flexibility and progression opportunities being at the core of VET,
- VET being a driver for innovation and growth that prepares learners for digital and green transition, as well as occupations in high demand,
- VET being an attractive choice based on modern and digitalised provision of training and skills,
- VET promoting equality of opportunities,
- VET being underpinned by a culture of quality assurance.

More recently, the 2025 Competitiveness Compass highlighted skills and quality jobs as a horizontal enabler for competitiveness and innovation policy. The 2025 Clean Industrial Deal also aims to turn decarbonisation into a driver of economic growth. Since 2020, labour and skills shortages have intensified in sectors linked to vocational training programmes such as construction, transport, healthcare, manufacturing, defence and clean technologies, making VET even more important for economic growth. According to the EURES 2024 Report on

Labour Shortages and Surpluses, nine out of the ten main shortages occupations in the EU[1] require vocational qualifications. These shortages are due to the rapid transition to a green economy and a digital society, a changing geopolitical landscape as well as demographic change and an ageing population.

Since VET systems are closely related to the industries that are adapting to these developments, they are essential for preparing a workforce that can support productivity, adapt to these transformations, and support European competitiveness. VET systems are also crucial in facilitating practical training opportunities for people to rapidly enter the labour market, thereby increasing overall employment rates, and in providing flexible learning opportunities for the existing workforce, including workers who need to re-train in sectors that are emerging or fundamentally transforming.

To address these challenges and to ensure that VET can deliver the skills needed for the competitiveness of the EU, its social resilience and sustainability, the 2025 Communication on the Union of Skills announced the upcoming European strategy for VET. Furthermore, in September 2025, the ministers in charge of VET of the Member States of the EU, the EU candidate countries and the European Economic Area (EEA) countries, the European social partners and the European Commission endorsed the Herning Declaration on attractive and inclusive VET for increased competitiveness and quality jobs during the period 2026-2030.

The report on the implementation of the 2020 Council Recommendation on VET represents an important input to the forthcoming European VET strategy announced in the Union of Skills. This staff working document (SWD) accompanies that report and builds on the national implementation plans (NIPs) of Member States which were developed following the adoption of the 2020 Council Recommendation on VET[2].

1.1 Purpose, scope and methodology of the reporting

Purpose

In line with Article 36 of the 2020 Council Recommendation on VET, the purpose of this exercise is to report on the implementation of European VET policies by tracking relevant measures implemented by Member States five years after its adoption. This reporting does not aim to evaluate measures and reforms or assess their impact. Its purpose is rather to take stock of relevant measures five years following the adoption of the 2020 Council Recommendation on VET. This was done based on the qualitative and quantitative monitoring of the common objectives defined in the Recommendation.

[1] Welders and flame cutters, nursing professionals, cooks, building and related electricians, plumbers and pipe fitters, heavy truck and lorry drivers, sheet metalworkers, metalworking machine tool setters and operators, butchers, fishmongers and related food preparers.

[2] All EU Member States but Czechia and Ireland have prepared their National Implementation Plan, published on the Commission website.

Scope

The report is built on data that is available at national and European level including through the Education and Training Monitor and evidence collected and analysed by the European Centre for the Development of Vocational Training (Cedefop). It is informed by numerous exchanges with Member States in the Advisory Committee for Vocational Training (ACVT) since 2020 and statistical evidence, notably on the three quantitative targets set in the 2020 Council Recommendation on VET. Cedefop has a long-term mandate and expertise in following the implementation of EU common priorities in VET, which the 2020 Council Recommendation on VET reaffirmed. Since 2020, Cedefop and the European Training Foundation (ETF) have been conducting an 'integrated monitoring' proposed by the European Commission and agreed by the ACVT to cover the priorities of the 2020 Council Recommendation on VET and the Osnabrück Declaration. The report has been consolidated by the European Commission and it also covers the Commission's reporting on EU level actions to support VET policies including policy guidance, governance, tools and networks, and funding.

Methodology

The current SWD provides a detailed overview of the Member States' implementation of measures related to the EU priorities between 2020 and 2025. It is based on the VET policy monitoring carried out by Cedefop and on the analysis of about 450 policy developments reported by ReferNet, Cedefop's European network of expertise in VET, between 2020 and 2025. It also builds on EU level actions including the European Alliance for Apprenticeships (EAfA) which aims to enhance the supply, quality and image of apprenticeships, as well as the learning mobility of apprentices; the activities organised by the EQAVET network to foster quality assurance arrangements in VET; the Erasmus+ Centres of Vocational Excellence (CoVEs) which aim to foster innovation, skills development, and regional cooperation in VET; and measures to raise VET attractiveness through campaigns, events and forward-looking projects. The analysis is supported by findings from Cedefop's interviews with national VET stakeholders, carried out from April until September 2024. Representatives of ministries of education, labour and employment, national agencies for VET and other areas, employer and employee organisations, economic chambers, VET providers, public employment services, and local authorities as well as ReferNet national representatives and coordinators took part in these interviews. Some representatives also took part in the validation workshop that took place in October 2024[3].

The structure of this SWD mirrors that of the 2020 Council Recommendation on VET. Chapter 2 presents the state of play regarding the three quantitative objectives set under the 2020 Council Recommendation on VET. Chapter 3 provides an overview of Member States' progress in implementing the 21 reform principles set out in the Recommendation. Chapter 4

[3] Disclaimer: the countries indicated in the footnotes in this staff working document are those that have dedicated measures in their NIPs directly addressing the issue and have reported progress on those measures. Other countries might have actions implemented, but they have not been reported because they were not included in the NIPs.

examines VET governance at national level, while Chapter 5 reviews EU-level support measures, funding instruments and governance arrangements. Chapter 6 concludes by summarising progress, outlining key challenges, and setting out considerations for the forthcoming EU VET policy cycle.

2 Quantitative targets – state of play

The 2020 Council Recommendation on VET aims to make VET more adaptive, more modern and better linked to labour market needs. To monitor the implementation progress of Member States, the 2020 Council Recommendation on VET set quantitative objectives on employment rates of VET graduates, work-based learning (WBL) and mobility of VET learners. These targets are important for several reasons. The high employment rates of recent VET graduates imply that VET systems are responsive and match labour market needs. WBL is another important element of vocational learning pathways as it allows learners to obtain hands-on experience in a professional context, thereby better equipping them for their successful transition to the labour market. Finally, mobility opportunities strengthen cross-border collaboration, foster the exchange of innovative practices, improve the attractiveness of VET and help learners acquire relevant technical skills but also transversal skills (e.g. intercultural awareness, linguistic skills and adaptability) to be better prepared for work. The targets are defined as EU average values to be achieved collectively by EU MS by 2025.

Based on the most recent data, the EU average is as follows:

1. the share of recent VET graduates aged 20-34 benefiting from exposure to WBL reached 66.0% in 2025[4] and exceeded the target of 60%;
2. the share of employed graduates from VET aged 20-34 reached 80.2% in 2025[5] and is close to the target of 82%;
3. the VET mobility target rate stood at 2.1% in 2021 which is far from the 8% target set for 2025 in the 2020 Council Recommendation on VET. The 2024 'Europe on the Move' Council Recommendation set a new target of 12% to be reached by 2030 (including a broader set of mobility experiences), with the latest estimate at 5.3% in 2023[6].

Table 1 – EU average levels of the three quantitative targets

Quantitative targets in EU-27	2020	2021	2022	2023	2024	2025	EU target 2025

[4] Eurostat (EU Labour Force Survey). Exposure of VET graduates to work-based learning (tps00215)
[5] Eurostat (EU Labour Force Survey). Employment rates of young persons not in education and training by educational attainment level and years since completion of highest level of education (edat_lfse_24)
[6] European Commission calculations based on data from the Erasmus+ Dashboard. Date of extraction: June 2025.

Exposure of recent VET graduates to work-based learning (%)	-	60.3	60.1	64.6	65.2	66.0	At least 60
Employment rate of recent VET graduates (%)	75.9	76.1 (b)	79.7	81	80	80.2	At least 82
Initial VET (IVET) learners with learning mobility abroad (%)	1.2	2.1 (d)	5.0	5.3			At least 8

NB: (b) break in time series, (d) definition differs.

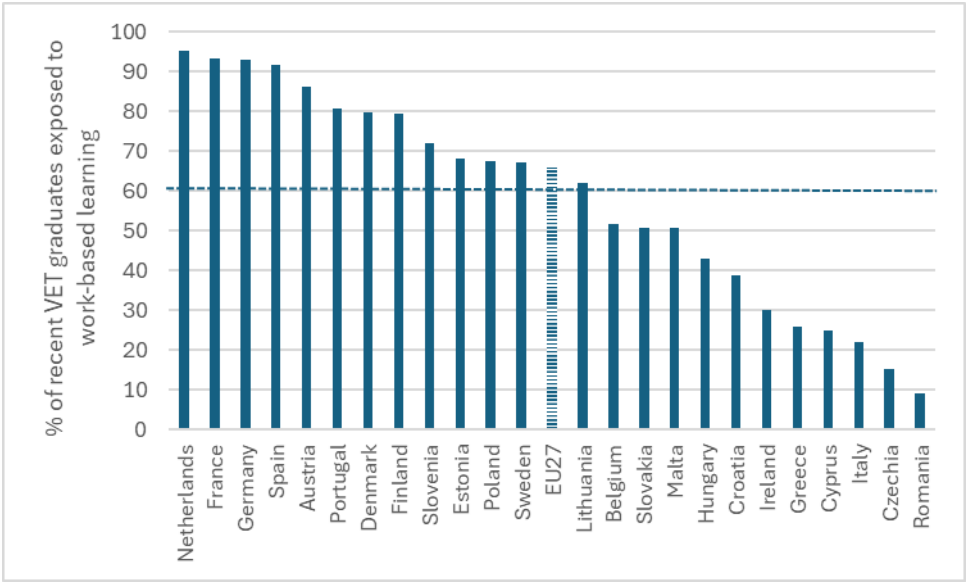
Source: Eurostat, based on the EU Labour Force Survey for work-based learning and employment rate. European Commission based on Erasmus+ and UOE data for learning mobility.

The level of achievement of the targets and progress over time varies across countries. Across Europe, countries show highly varied progress in expanding WBL participation and improving employment outcomes for VET graduates (Figure 1). While countries such as the Netherlands (95.4%), France (93.2%) and Germany (93.0%) already far exceed WBL targets, others—like Romania (9.1%), Czechia (15.2%) and Italy (22.0%) — remain well below the benchmark, and some have even experienced recent declines[7].

Several countries have been implementing related national reforms to expand and improve WBL. For instance, in Poland, employer engagement in WBL has been strengthened while Hungary has consolidated dual training by setting up Sectoral Training Centres (AKKs), which foster cooperation between VET institutions and businesses (Cedefop & ETF, 2026). Cyprus has emphasised personalised career guidance as a cornerstone of youth employability in its NIP, and since 2023 career counselling has been institutionalised as a regular service through youth information centres in all five districts (Cedefop & ETF, 2026).

[7] Some countries have been experiencing a decline in WBL participation between 2021 and 2025, e.g. from 31.8% to 22.0% in Italy.

Figure 1. VET graduates' exposure to work-based learning, 2025

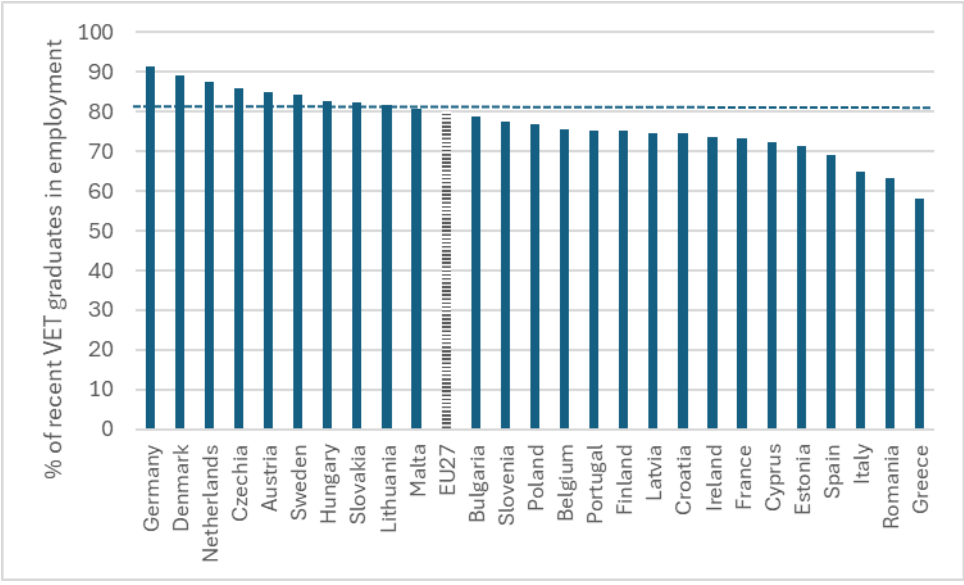


Source: Eurostat (EU Labour Force Survey). (Exposure of VET graduates to work-based learning tps00215)

Note: The countries are listed in descending order based on 2025 data. Low reliability for Germany, Spain, Poland, Malta, Hungary, Ireland, Cyprus. No data for Bulgaria, Latvia and Luxembourg.

Regarding the employment rate of VET graduates, countries made steady progress toward this target (at least 82% by 2025) over time but many did not reach it. A strong increase between 2021 and 2023 (from 76.0% to 80.9%) was followed by a slight decline and stabilisation in subsequent years, reaching 80.2% in 2025 (Figure 2). Several countries had surpassed the 82% benchmark by 2025, including Germany, Denmark and the Netherlands.

Figure 2. Employment rates of recent VET graduates, 2025



Source: Eurostat (EU Labour Force Survey). (Employment rates of young persons not in education and training by educational attainment level and years since completion of highest level of education edat_lfse_24). Note: The indicator captures the employment rates of 20-34-year-olds no longer in education and training, and who

graduated 1-3 years previously from VET at upper secondary or post-secondary non-tertiary level. Countries shown in descending order based on the 2024 values. Low data reliability for Malta, Bulgaria, Slovenia and Cyprus No data available for Luxembourg. Definition differs for France and Spain.

The level of achievement of the VET mobility target, which concerns mobility experiences in relation to the number of medium-level VET graduates of the same year, remains a challenge. The mobility rate at the EU level stood at 5.3% in 2023, a slight increase from a year prior (5.0%), but far from the 12% value set for 2030 in the 2024 'Europe on the Move' Council Recommendation. For more information, please see Figure 7 further down in this document.

3 Progress of reforms at national level

3.1 VET's agility in adapting to labour market changes

VET systems must adapt swiftly to evolving skill needs to ensure both immediate workforce readiness and long-term economic and social resilience. Global mega-trends such as demographic shifts, increasing digitalisation, climate change and environmental degradation are transforming the skills needed in the labour market. Training systems are often too slow to respond, which may widen skills shortages in crucial sectors such as construction, healthcare, ICT and energy, leading to productivity losses and a lack of competitiveness. At the same time, many workers need flexible learning pathways to keep up with labour market demands and to prevent their skills becoming obsolete. This transformation requires developing and updating learning resources, building robust skills intelligence systems, and strengthening stakeholder partnerships.

Several policy developments and measures have made VET more agile and responsive to the labour market's skill needs, but certain areas remain underdeveloped. Most countries have been working on modernising VET standards, curricula, programmes, and training courses[8] to ensure a balanced mix of vocational skills and key competences[9], including integrating digital skills, and reinforcing WBL, including apprenticeships[10]. Meanwhile, green skills, entrepreneurial and citizenship competences remain less emphasised and progress in skills intelligence has been uneven. While countries are investing in graduate tracking systems to monitor learner outcomes and inform programme improvement, broader labour-market-aligned intelligence systems remain in their early stages, with limited integration into VET governance[11].

These are all important areas that deserve further attention. Entrepreneurial and citizenship skills can play an important role in supporting employability and self-employment and may contribute to innovation and competitiveness more broadly. In line with the 2018 Council Recommendation on key competences for lifelong learning, skills for citizenship competence

[8] AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, EL, ES, FI, FR, HR, HU, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI and SK.
[9] AT, BE-FR, BE-NL, BG, CY, DE, DK, ES, FR, HU, IT, LT, LU, NL, PL, PT, RO and SK.
[10] AT, BE-FR, BE-NL, CY, DE, DK, EE, EL, ES, FR, HR, HU, IT, LT, LV, NL, PL, PT, RO, SI and SK.
[11] BE-NL, CY, EE, FR, HR, HU, LV, MT, PL, SI and SK.

relate to the ability to engage effectively with others in common or public life, including for the sustainable development of society. This involves critical thinking and integrated problem-solving skills. All these skills can help learners integrate more smoothly into diverse workplaces and adapt to organisational change as they become more adaptable and better prepared for the labour market. Green skills in VET are also central to sustainable competitiveness as many VET profiles, even traditional ones (such as plumbers and electricians) are undergoing changes linked to the green transition. Finally, skills intelligence in VET is crucial as it supports VET institutions in identifying emerging occupations and skills needs and produces relevant information to adjust curricula and prevent or respond to skills mismatches.

3.1.1 Modernising VET standards, curricula, programmes, and training courses (including integrating digital and green skills and competences)

One area of progress involves updating VET curricula and programmes, particularly to integrate digital skills, but a shortage of skilled trainers and lengthy procedures remain a challenge. Many countries[12] have been revising educational standards and occupational profiles to embed competences related to the digital transition. In some countries all newly revised or created VET qualifications systematically include digital competences. However, many countries face shortages of qualified teachers and trainers to teach those competences, particularly in rapidly evolving areas such as digital technologies. Teachers and trainers require robust pedagogical and technical support to navigate the complexities of digitalisation (e.g. training offer adjusted to their needs and freeing working time to practice the new skills and explore new technologies)[13]. Fragmented governance and coordination, heavy and lengthy bureaucratic processes and resistance to change, and fragmented and uncoordinated work also delay reforms and innovation and limit agile response to the evolving challenges.

The integration of green skills and sustainability is another area of modernising VET standards and curricula, though observed to a lesser extent compared to digital skills. This includes embedding sustainability competences in activities including workshops, competitions and conferences aimed at strengthening green skills, initiating pilot projects to develop vocational competences in sustainability, implementing new occupational profiles in (dual) VET courses[14], and establishing climate vocational schools[15].

Changes in the curricula have been supported by developing and updating learning resources and materials, for learners, teachers and trainers. These efforts can help respond to the shortages of qualified trainers in digital and green skills that are observed in many countries. It should be noted that the focus of these actions has been on the digitalisation and modularisation of learning content. This includes the development of interactive digital

[12] AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, FI, FR, HU, IT, LV, MT, PL, PT, RO, SI and SK.
[13] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881
[14] AT, DE, DK, EE, FR, HU, PL, PT, SE and SI.
[15] DK.

platforms and digital learning resources, e-curricula built in modules[16] and the use of innovative tools and applications, such as virtual reality (VR), augmented reality (AR) and extended reality (XR) in a limited number of countries.

Modernising VET through integrating sectoral, digital and green skills: Bulgaria and Portugal

In **Bulgaria**, amendments to the VET Act aim were made in 2024 to strengthen the labour market relevance of VET through a sectoral approach. As part of this effort, pilot Sector Skills Councils (SSCs) are being set up. These councils bring together representatives from VET schools, branch associations, employers, higher education (HE) institutions, and local authorities. The SSCs will contribute expert input to the development of state educational standards, support the modernisation of VET curricula - particularly with the integration of digital and green skills - and assist in introducing new state educational standards. These activities are being carried out under the European Social Fund+ (ESF+) for the period 2023-2027 and have been supported by the Technical Support Instrument (TSI). The expected adoption of a new list of professions and corresponding standards demonstrates Bulgaria's structured commitment to modernising its VET system. The 20 SSCs, representing all economic sectors, are a key step towards establishing strong partnerships and ensuring continuous dialogue between different stakeholders.

Portugal continues to expand the 'Youth + Digital' (*Jovem + Digital*) programme, which provides digital skills training for young adults aged 18 to 35. The strategic objective of the Youth + Digital training programme is to reinforce the quality and effectiveness of vocational training and professional qualifications. By 2024, thousands of individuals had received training in key digital areas, including cybersecurity, e-commerce, and data analysis. Moreover, Portugal is implementing the 'Green Skills and Jobs' (*Trabalhos & Competências Verdes*) programme. This initiative offers short- and medium-duration training courses targeting two main groups: employees of companies directly or indirectly affected by rising energy costs, and unemployed individuals aged 18 or older who are registered with the Public Employment Service (PES). The courses, focused on the environment and energy sectors, are included in the national qualifications catalogue (CNQ) and have a maximum duration of 375 hours.

Source: Cedefop & ReferNet. (2025).

3.1.2 Acquiring key competences

Countries across the EU are fostering the acquisition of certain key competences and basic skills throughout life, with the number of countries addressing this increasing compared to 2020, but focus on fostering green, entrepreneurial and citizenship skills is limited. At the same time, the limited availability of suitably qualified VET teachers and trainers constrains the effective delivery of these skills. The most addressed key competences are digital, science, technology, engineering and maths (STEM), and literacy. Developments

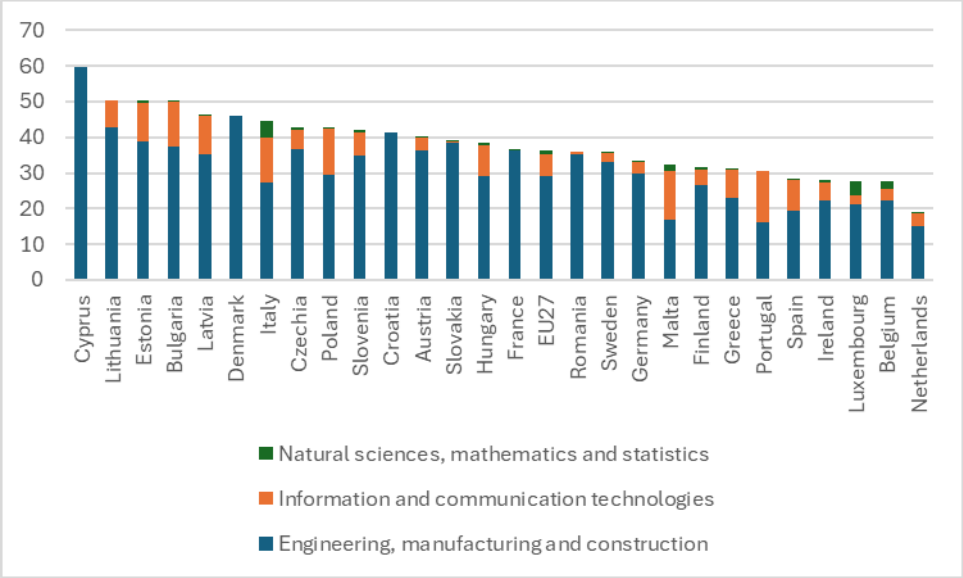
[16] AT, BE-FR, BE-NL, BG, CY, DE, DK, ES, HU, LU, NL, PL and PT.

to integrate green and sustainability skills in VET have been advancing at a slower pace, with most actions registered in the past two years. The focus on key competences is expected to increase in line with the Union of Skills, the action plan on basic skills and work on the priorities of the Herning Declaration that emphasises the need for basic and transversal skills in VET specifically.

The most common way to support the acquisition of key competences and basic skills involves systematically embedding them into qualifications and curricula[17]. Countries also worked on developing digital competences[18] by modernising VET delivery and putting in place recognised certification pathways for digital skills, as well as by investing in online learning tools. Some countries have prioritised the acquisition of STEM competences, often through targeted strategies and incentives[19] to expand access to STEM pathways, seeking to address the growing demand for technical skills and support long-term economic competitiveness.

Despite this, at medium-level VET, only 36.3% of all students across the EU are enrolled in STEM programmes (Figure 3) which is 8.7 percentage points below the proposed 2030 EU-level target of at least 45%. Most VET students in STEM are in the field of engineering, manufacturing and construction. Information and communication technologies (ICT) represents a considerable share in countries like Portugal, Malta, Poland and Italy. Meanwhile, the field of natural sciences, mathematics and statistics represents a very small share of VET students across the EU.

Figure 3 - Share of students in medium-level VET enrolled in STEM



Source: Eurostat (UOE joint data collection 2023) (Pupils enrolled in vocational upper secondary and post-secondary non-tertiary education by education level, sex and field of education duc_uoe_enrs10). Note: Share of

[17] AT, BE-NL, BG, CY, DE, DK, ES, FI, FR, HR, HU, IT, LT, LU, NL, PT and RO.
[18] AT, BG, CY, DE, ES, FR, IT, LT, LU, PL, PT and SI.
[19] BE-NL, CY, LT, NL, PL and PT.

students in medium-level VET (upper secondary or post-secondary non-tertiary education, with a vocational orientation) enrolled in STEM fields, by narrow field. Definition differs for data in Czechia and the Netherlands. Countries are shown in descending order based on the total share of STEM graduates.

Enhancing STEM learning: Latvia

Latvia is working to digitalise the training process by developing a digital platform and database to support STEM programmes. The initiative is supported by the Digi4VET project, which focuses on integrating digital tools into teaching, learning, assessment, and validation across VET and WBL. While not specifically limited to STEM, 'Digi4VET' supports a wide range of IVET, Continuous VET (CVET), and WBL programmes.

3.1.3 Establishing and developing skills intelligence systems, including graduate tracking

Efforts across the EU Member States in this area are limited and they primarily focus on building graduate tracking systems. **The development of broader skills intelligence systems has been less advanced.** In particular, actions to embed skills intelligence into VET governance structures that could help better connect VET with the labour market remain limited and fragmented. Responsibilities for VET and lifelong learning (LLL) are frequently spread across multiple ministries, institutions and governance levels, thereby limiting agile responses to evolving labour market needs.

Only six countries worked on developing and strengthening their skills intelligence tools[20] to provide key labour market data, anticipate future skills needs, inform training provision and analyse graduate employability. However, most systems are at an early stage. Work on developing **graduate tracking systems** has been observed in some countries. Such actions aim to collect and analyse data on graduate outcomes, including for VET graduates, to inform programme development and improvement, support institutional self-assessment, and guide learners in their career pathways[21].

Strengthening graduate tracking and skills forecasting: Croatia, Estonia, and Slovakia

In **Croatia**, efforts to improve VET quality include introducing graduate tracking at the provider level. Following pilot phases and the development of a tracking application, work began on the fully fledged system in 2023. Once completed, the app is expected to support self-assessment by training providers and strengthen the monitoring of graduate outcomes.

In **Estonia**, the OSKA skills forecasting system has been enhanced through reforms introduced in 2022. Key improvements include developing region-specific forecasting methodologies, sectoral labour market demand surveys, and monitoring how OSKA recommendations are implemented. The dissemination of research findings has also been broadened to better inform policymaking and planning processes. During interviews with

[20] CY, EE, FR, PL, RO and SI.
[21] BE-NL, CY, HR, HU, LV, PL, RO, SI and SK.

national VET stakeholders, it was confirmed that OSKA is actively used by PES to support the alignment of training with labour market needs.

In **Slovakia**, the lifelong learning and counselling strategy introduces a three-pillar model for graduate tracking. The first pillar, which relies on administrative data, has already been integrated into the draft Act on Lifelong Learning. The second pillar, involving national graduate surveys, was in development throughout 2024. The third pillar, centred on school-based tracking activities, was piloted and partially implemented between 2023 and 2024. This pillar aims to provide feedback for adjusting secondary and tertiary programmes, which will be taken into account by supervising bodies, such as the Slovak Accreditation Agency for Higher Education.

3.1.4 Reinforcing WBL, including apprenticeships

Countries across the EU focused on enhancing the quality and stability of apprenticeship provision, extending WBL opportunities into CVET, and expanding WBL to support inclusion. Countries continued to build on the work started before 2020 with the support of the European Alliance for Apprenticeships (EAfA). Despite the expansion of WBL and apprenticeship opportunities, some countries report a decline in the number of apprentices taking up available posts, in contrast to the previous periods where the shortage of available places was the main issue. Expanding apprenticeships to higher education and adults has advanced, but the intake is still limited.

A major area of focus involves improving the quality and ensuring stability of apprenticeship offers. Countries have been assigning greater responsibility to VET schools for securing apprenticeship placements, formalising cooperation with employer organisations, and introducing new access points for adult learners into dual training systems[22]. Several countries worked to expand apprenticeships and WBL to also cover adults. Common measures include the development of dual training programmes, piloting of new schemes, and the promotion of on-the-job learning[23]. Many of these measures are also accompanied by curriculum updates, increasing the scope and intake in dual training, and improved support for learners.

Many countries also adapt apprenticeships to make this route accessible for vulnerable groups, thereby promoting social inclusion[24]. This includes adapting WBL approaches for early school leavers, migrants, low-qualified adults, and individuals outside traditional education and training pathways, assigning vocational training assistants, supporting access to education, and expanding school-work exchange schemes.

Advancing WBL: Italy

Italy is working to enhance the personalisation of curricula in professional institutes by fostering closer collaboration with production sectors. As part of the Good School (*La Buona*

[22] AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, HU, LT, LV, NL, PL, PT, RO and SI.
[23] AT, BE-FR, BE-NL, BG, CY, DE, EE, EL, ES, FR, HR, HU, IT, LT, LV, NL, PL, PT, RO, SI and SK.
[24] AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FR, HU, IT, LT, NL, PT and RO.

Scuola) reform adopted in 2015, Pathways to transversal competence and guidance (PCTO), previously school-to-work exchange programmes, have been expanded up to 2024. In this pathway, students of both general and vocational and technical schools are obliged to spend time in companies as part of their studies.

Source: Cedefop & ReferNet. (2025).

3.2 Flexibility and progression opportunities at the core of VET

Flexibility in VET is a core principle for enabling continuous upskilling and reskilling in the face of the digital, green and demographic transitions. Flexible systems can quickly adapt to technological change, climate challenges, demographic shifts and crises such as the COVID-19 pandemic. It also contributes strongly to making VET attractive and inclusive.

Almost all the countries have started to work on making their VET systems more flexible to facilitate access, ensure learning progression and contribute to making lifelong learning (LLL) a reality for all learners, **but some challenges remain**. Progress is mixed in areas such as green skills, where many countries reference sustainability in their NIPs but implement fewer concrete actions. Micro-credentials and partial qualifications are gaining ground but are still at an early stage of development in most countries. Flexibility has been implemented by diversifying modes of learning[25]; the use of learning-outcome-based approaches and modularisation[26]; and providing individuals with opportunities for re- and upskilling[27]. Countries have also worked on developing and applying micro-credentials, qualifications smaller/shorter than full[28] and on enhancing learners' possibilities for the validation, recognition and accumulation of learning outcomes acquired non-formally and informally[29], including the use of EU transparency tools[30].

3.2.1 Diversifying modes of learning

Some countries have supported the integration of digital and blended learning into training processes, but most actions are at an early stage and progress is uneven across Member States. Approaches include developing innovative and open educational resources such as online learning platforms while reforming VET curricula and teaching materials[31]. Some countries[32] are increasingly focusing on digital-only learning models, investing in the expansion of e-learning and distance learning opportunities and in modern equipment, while others[33] focus more on blended learning. Some countries are leveraging digital solutions to develop new learning methodologies and resources, and to integrate advanced technologies into the learning process.

[25] BE-FR, BE-NL, BG, DE, EL, ES, FI, HU, MT, PT and SI.
[26] BE-FR, BE-NL, CY, ES, HU, LT, LU, LV, PT, and RO.
[27] AT, BE-FR, BG, CY, DE, DK, EE, ES, FR, HU, LU, LV, NL, PL, PT, SE and SK.
[28] BE-NL, DE, FI, FR, IT, LV, MT, NL, PL, PT and SK.
[29] AT, BE-NL, BG, CY, DE, ES, FR, HU, IT, MT, PT, SE and SK.
[30] AT, BG, ES and PL.
[31] BE-FR, BE-NL, DE, ES, HU and SI.
[32] BG, CY, EL, FR and PT.
[33] FI, LU and LV.

In terms of technological advancement, only a small number of countries are beginning to explore the use of cutting-edge educational technologies[34], experimenting with extended reality (XR), virtual reality (VR), and AI tools to enrich training methods and boost learner engagement. Moreover, these advanced technologies are still in their early stages. An analysis of Strategic Partnerships for VET (Erasmus+ Key Action 202) reveals that in the last three years to 2025, only between 8% and 12% of projects specifically worked with advanced technologies such as AI or XR[35]. Another challenge is the limited availability and sustainability of financial resources for infrastructure modernisation and the digitalisation of VET, which are often provided at EU level.

Integrating advanced technology solutions: Belgium-Flanders (Belgium-FL) and Malta

Belgium-FL is advancing the digital transformation of IVET through its digital education action plan by equipping students, particularly those from vulnerable groups, and teachers with appropriate ICT infrastructure, equipment and services. The initiative also promotes the development and use of XR technologies in VET. In 2022, part of this initiative was implemented, providing learners and teaching staff with digital learning materials and access to virtual platforms. In 2022, the Flemish government developed an XR Action Plan, which includes the creation of a Learning Network XR. This learning network combines the knowledge of researchers at several universities or university colleges who are experts in XR and other digital fields. Its expertise is offered in information sessions and one-on-one guidance of schools which focus on the professionalisation of teachers and users through the use of evidence. The use of XR tools is expected to enhance course quality and increase learner engagement. The monitoring data of the XR Plan implementation shows an increased willingness among school leaders, teachers, and students to sustainably integrate ICT into their educational practices. However, the XR Plan encounters implementation challenges, especially in finalising agreements for hardware and software, with strict deadlines and diverse provincial stakeholders. This requires frequent coordination to ensure alignment and the timely resolution of problems.

Malta is working to enhance the accessibility and flexibility of VET by putting in place a national fund, that VET institutions and providers can access by submitting project proposals aimed at supporting digital education. These projects may include the integration of advanced technologies such as AI, XR and VR. In addition, a key development highlighted during national VET stakeholder interviews is the Institute for Education's introduction of dedicated modules on information technology (IT)-enhanced learning across all courses. This initiative ensures that teachers are equipped with the skills and knowledge to effectively use digital tools and methodologies in their teaching.

Source: Cedefop & ReferNet. (2025).

[34] BE-NL, DE and MT.

[35] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881

3.2.2 Using modularisation and learning-outcome-based approaches

Only a few countries have been working on further establishing modular approaches[36] and continued embedding learning outcomes in IVET in qualification descriptors in National Qualifications Frameworks (NQF) sectoral occupational standards and VET curricula. A limited number of countries have also been introducing modular programmes in CVET to support adult learning, upskilling, and reskilling allowing not only the acquisition of partial qualifications but also adjustment to regional labour market needs[37]. In addition, in certain countries modules have been particularly instrumental in integrating the digital and green transitions into VET programmes[38].

Certified modular training courses in the environmental, energy and digitalisation areas: Portugal

The programme 'Green Skills and Jobs', launched in 2022 in Portugal, comprises short and medium-duration training courses, addressed to employees of companies directly or indirectly affected by the increase in energy costs, in addition to the unemployed, aged 18 or over, registered at PES. Four pathways in the environment and energy areas can be selected: green hydrogen; renewable energies – solar thermal; renewable energies – solar photovoltaic; and renewable energies – wind. All pathways are delivered as certified modular courses by public or private providers in online or face-to-face format.

Source: Cedefop & ReferNet. (2025).

3.2.3 Providing for individuals' re- and upskilling needs

Countries have been adapting existing CVET programmes or creating new ones to better meet the evolving needs of the labour market, but only a few countries are investing in skills intelligence. Some countries have developed digital solutions to enhance access to CVET opportunities and facilitate the issuance of CVET credentials and certificates, while green skills remain less targeted through specific actions. In addition, countries have developed targeted information that promotes the benefits of CVET and LLL and created opportunities for learners to assess their skills before starting training.

Digital literacy and career transition support are most prominent in re-skilling and upskilling actions. Digital literacy is widely recognised as essential for individuals to effectively participate in the modern workforce and contribute to digital transformation. To this end, countries offer digital skills training to various groups[39] or provide financial support to companies, in particular small and medium enterprises (SMEs)F[40]. Accelerated by the COVID-19 pandemic, countries[41] have further worked on adopting digital solutions to access

[36] CY, ES, LT and LV.
[37] DE, ES and PT.
[38] ES, HU, LV and PT.
[39] BE-FR, CY and DE.
[40] DE, NL, PL, PT and SE.
[41] BG, CY, DE, ES, FR, HU, LV, LU, PL and PT.

CVET and skill certification, by e-learning platforms, digital resources, and innovation hubs to facilitate distance and blended learning.

Green skills development, while mentioned in many countries' NIPs, remains less widespread in terms of specific actions. A small number of countriesF[42] introduced training programmes aimed at employees in green sectors, as well as upskilling and reskilling services for workers affected by the challenges of the twin transition. Some countries also offer career guidance and training for young people in emerging professions and sectors, including those related to ecology and sustainability.

Some countries are developing new CVET programmes specifically designed to address high-demand skills[43] and are updating their existing CVET offer to meet emerging skill needs[44]. Supporting individuals in career transitions through reskilling is another widely recognised need and some countries[45] have implemented initiatives to promote career mobility and workforce adaptability.

To encourage participation in reskilling and upskilling, especially among low-qualified adults, targeted information campaigns and incentives have been implemented to highlight the benefits of CVET[46] to the public, employers, and employees. These measures have been put in place through sectoral skills centres, free hotlines, workshops, and cooperation with social partners, by raising awareness of digital skills, and providing skill assessments[47].

Career mobility through re-skilling and upskilling: Luxembourg

In **Luxembourg**, the FutureSkills initiative, comprises three key components. One of these focuses on upskilling and reskilling employees. Through this effort, the PES raises awareness among companies and their employees about the impact of major trends, such as technological advancements, on skills and occupations, emphasising the importance of a strategic approach to workforce planning. PES often help identify viable pathways for internal job transitions, enabling companies to retain employees by adapting roles to evolving needs. Advisers support businesses in anticipating and developing the skills required for the future. In 2023, PES published sector-specific skills studies for social work and health and care. Following this, in 2024, it released a skills study on information technology (IT) professions. This IT study was conducted in close collaboration with the Chamber of Commerce, the Luxembourg Bankers' Association, and the Digital Skills and Jobs Coalition initiative. Unlike previous sectoral studies, it analysed trends across IT professions regardless of the industry sector.

Source: Cedefop & ReferNet. (2025).

[42] CY, FR, LV, PL and PT.
[43] CY, DE, FR and LV.
[44] BE-FR, ES and FR.
[45] BG, DE, DK, EE, ES, FR, FI, LU, PT and SK.
[46] BE-FR, DE, DK, FR, HU, IT, LU, PL and PT.
[47] BE-FR, DE, FR, PL, PT and SK.

3.2.4 Advancing Micro-credentials and Partial Qualifications to align VET with Labour Market Needs

Some countries worked on the introduction and use of micro-credentials, partial qualifications, and digital badges but many initiatives are still at an early stage of implementation. As regards micro-credentials, countries have been developing legal frameworks and new regulations to embrace those[48], exploring the field[49] through preparatory studies and pilot projects, and developing digital platforms for issuing and accumulating micro-credentials. Other countries are working on partial qualifications by creating and updating procedures for their development, establishing nationwide standardised partial qualifications, including for low-skilled and unskilled adults, in cooperation with employer organisations, and revising vocational occupation registers to incorporate partial qualifications[50] aligned with labour market needs.

Chamber initiative for partial qualifications: Germany

In **Germany**, the chambers of industry and commerce (DIHK) initiated USE OPPORTUNITIES! to establish nationwide standardised partial qualifications for low-skilled and unskilled adults aged over 25. The initiative aims to develop training modules geared to regional needs and certification of partial qualifications to give low-skilled and unskilled adults the opportunity to acquire a complete vocational qualification or at least an upgradable qualification. These qualifications were developed in consultation with the employer associations, and they are implemented with the participation of German employers, associations, and business-related education institutions. It acts a quality seal for partial qualification offer. Launched in 2017 with only half of the DIHKs, the initiative has grown to expand country-wide and most DIHKs now participate. In 2023, the initiative relaunched its three projects. In addition, a written part of digital competence assessment for partial qualifications was developed.

Source: Cedefop & ReferNet. (2025).

3.2.5 Learners' possibilities to validate and recognise learning outcomes acquired informally and non-formally

Several countries have adopted systemic approaches for validating and recognising prior non-formal and informal learning. There has been stronger emphasis on adult learners and their learning outcomes, including those acquired through WBL. The systemic approach includes adopting national strategies and legal frameworks to regulate validation processes, set standards, ensure quality and integrate recognition into formal qualification frameworks[51]. Other actions include involving chambers and employers in validation and recognition, providing financial incentives to adults seeking validation, offering guidance and piloting

[48] BE-NL, HR, HU, LV, PL and SK.
[49] LV, MT and NL.
[50] BE-Nl, DE, FI, HU and PT.
[51] AT, BE-NL, BG, CY, DE, ES, FR, HU, IT, LT, MT, PT, SE and SK.

recognition mechanisms in selected sectors[52]. A few countries[53] implemented projects to recognise competences gained through volunteering.

Validation and recognition of learning outcomes: Italy

Italy began the process of validating non-formal and informal learning in 2012, marking a major milestone in 2018 with the introduction of interoperability guidelines for awarding bodies. By 2022, most regions had integrated these guidelines into their skills certification systems, supported by both the Italian National Qualifications Framework and the National Regional Qualifications. Implementation continues to expand today. In 2024, a new decree was introduced to govern the recognition of competences acquired through non-formal learning. All qualifications databases from the regions and autonomous provinces are accessible online via their respective regional websites.

Source: Cedefop & ReferNet. (2025).

3.3 VET as a driver for innovation and growth, preparing learners for the digital and green transitions and occupations in high demand

To promote innovative and excellent VET, some countries have started to support centres of vocational excellence (CoVEs)[54] and the modernisation of VET infrastructure,[55] often with the support of EU funding. This includes to a certain extent equipping VET institutions for the digital and green transitions.

3.3.1 Modernising VET infrastructure

Modernisation efforts across the countries concern both IVET and CVET. **The focus is on the improvement of digital infrastructure for VET provision while the greening of infrastructure remains limited.** Some countries have invested in information and communication technology (ICT) infrastructure[56], distributed digital devices such as laptops and tablets to students and teachers, and integrated advanced technologies in VET. One challenge is that some of these investments rely on EU funding, with limited support in place once the EU funding is phased out.

In addition to digitalisation, some countries are also investing in modernising the physical infrastructure of VET institutions[57], particularly to align it with the current labour market and industry[58]. This includes rebuilding or renovating VET schools, upgrading laboratories with modern equipment, supplying new training machinery, investing in infrastructure, including new facilities and modern equipment, and establishing sectoral skills centres that support hands-on, industry-relevant training.

[52] BE-NL, CY, DE, FR, HU, MT, PT and SE.
[53] AT, CY and ES.
[54] AT, BG, DK, EE, ES, HR, HU, LT and SK.
[55] AT, BE-NL, BG, CY, DE, DK, EL, HU, LT, LV, PL, PT and SI.
[56] AT, BE-NL, DE, EL and LV.
[57] CY, LT, PL and SK.
[58] BG, DK, IT and PT.

Only a few countries[59] reported dedicated efforts to greening the VET infrastructure. These include energy efficiency upgrades, installation of renewable energy systems, and the transformation of institutions into environmentally sustainable campuses. Although limited in number, these initiatives are likely to expand as green policies continue to evolve.

Enhancing learning environments: Greece and Cyprus

In **Cyprus**, efforts to modernise VET physical infrastructure are well underway. The country is upgrading classrooms and laboratories in vocational schools and providing students with digital technical equipment. As part of the Cyprus recovery and resilience plan (RRP), a new technical VET school is planned. Construction of the school in Limassol began in 2023.

In **Greece**, an advanced digital platform is being developed for both IVET and CVET. Launched in 2023 and expected to be completed by 2025, the platform aims to significantly enhance e-learning opportunities for both students and professionals. By providing a flexible, accessible, and modern learning environment, this initiative aims to transform VET through the use of advanced digital infrastructure. The platform is designed to better align training with the evolving needs of the labour market, supporting a more dynamic and future-ready workforce.

Source: Cedefop & ReferNet. (2025).

3.3.2 Supporting Centres of vocational excellence

Centres of Vocational Excellence (CoVEs) are a European flagship initiative to strengthen and develop Vocational Education and Training (VET) systems in Europe. They are collaborative networks of local and international partners that make VET innovative and responsive to the evolving requirements of learners, businesses and communities. Across certain countries, support for CoVEs is being pursued in two main directions: either by creating entirely new centres[60] or to a limited extent by establishing them based on existing VET centres[61] often inspired by the work done at European level on vocational excellence. However, this is still at an early stage of development and implementation.

Actions include CoVEs funded through Erasmus+, reported less frequently, and national equivalents that serve similar objectives of addressing regional disparities and needs by aligning training more closely with the labour market needs, fostering platforms for innovation, experimentation, and collaboration between educational institutions and industry stakeholders. A key feature across countries is the use of European support and funding mechanisms, Erasmus+, the Recovery and Resilience Fund (RRF), the Technical Support Instrument (TSI), the European Social Fund Plus (ESF+), and the European Regional Development Fund (ERDF) to support CoVE infrastructure, equipment, innovation projects,

[59] DK, HU, PT and SI.
[60] AT, BE-FR, BG, ES, HR, HU and SK.
[61] DE, DK, EE, FR and LT.

and stakeholder cooperation. For examples, under the Structural Reform Support Programme, the Commission provided technical support to France in 2021-2022 to improve their Centres of Excellence (Campus des Métiers). The project aimed to increase the quality and effectiveness of these centres by reforming their implementation framework. It resulted in a more sustainable involvement of the business community, increased quality and labour market relevance of VET in France[62].

In general, there is a strong focus on creating the institutional conditions that support excellence. Actions aim to consolidate networks, improve infrastructure, expand partnerships, and embed CoVEs more firmly in the national or regional VET systems. This includes empowering centres to play a broader role in areas such as curriculum development, teacher training, applied research, and cross-sector collaboration. Common efforts also include aligning CoVEs with emerging economic sectors and increasing their role in supporting the continuous upskilling and reskilling of the workforce. In some cases, this involves transforming existing VET institutions into competence centres with extended responsibilities and improved capacity to serve learners and employers.

Building innovation hubs for skills: Austria, Bulgaria, and Spain

Austria aims to establish CoVEs specifically for green innovation. Austria plans to define cluster areas for centres of excellence, determining in which areas of Austria's Green Deal these clusters can be set up. The implementation of the projects of the Competence Centres is planned for 2024-29. The Green Tech Academy (GRETA), coordinated by the Graz University of Technology and the Joanneum University of Applied Sciences, was established in 2022. GRETA promotes cooperation and networking within the knowledge triangle of research, economy, and education, in which regional vocational schools are also integrated.

In **Bulgaria**, CoVEs are being established to foster local partnerships and enhance regional training ecosystems. Supported by the RRF, the initiative includes the modernisation and equipping of 28 VET schools in all 28 regions in the country, with completion expected by 2026. The CoVEs will provide modern and innovative education and training for professions and skills in demand in the local/regional labour market and offer opportunities for a smooth transition from school to work. They are intended to operate through collaborative partnerships involving vocational schools, universities, businesses, local authorities and other educational institutions. As of 2024, additional funding has been allocated to further support this measure.

In **Spain**, the objective was to establish a network of 52 National Reference Centres - public institutions specialising in various professional fields. These centres are tasked with driving VET innovation and experimentation, as well as providing training for teachers and tutors. As of 2024, this network had grown to include 66 centres. The network of centres of excellence

[62] The Structural Reform Support Programme (SRSP) operated from 2017 to 2020 and is the predecessor of the Technical Support Instrument (TSI), which runs from 2021 to 2027. Link to the project: https://reforms-investments.ec.europa.eu/technical-support-instrument-0/labour-market-and-social-protection/improving-quality-and-effectiveness-centres-vocational-excellence-campus-des-metiers-france_en

comprised strategic sectors such as aeronautical, agri-food, audiovisual, automobile, cybersecurity, building and energy sustainability, social and care economy, renewable energies, automated manufacturing, catering, AI and big data, maritime-fisheries, mechatronics, chemistry, sanitary, IT, transport and logistics, and tourism.

Source: Cedefop & ReferNet. (2025).

3.4 VET as an attractive choice based on modern and digitalised provision of training and skills

Increasing the attractiveness of VET continues to be high on the agenda of most countries even though some see decline in IVET enrolments and low participation in CVET despite significant efforts made in previous periods. Attractive VET plays a crucial role in motivating learners, teachers, and trainers, reducing early school dropout, and increasing participation in education and training. The attractiveness of the teaching profession and teacher shortages that many countries structurally report in the past years are another area of attention. Fewer young people aspire to start teaching careers and the teaching force is ageing, while attracting professionals from the labour market to teach in VET is often a challenge. Most countries[63] worked to advance this priority through investing in teachers and trainers, their initial and continuing professional development (CPD), and enhancing the attractiveness of the teaching and training professions. However, it is becoming increasingly difficult to retain skilled teaching and training professionals as VET often offers less attractive working conditions and low wages[64] compared to the private sector and higher education.

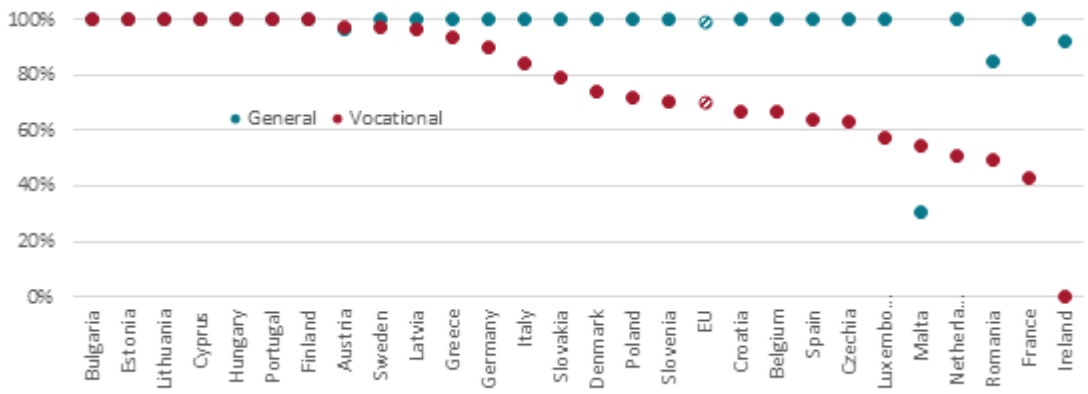
Since the adoption of the 2020 Council Recommendation on VET, some countries5[65] have worked on increasing permeability and smooth transitions between IVET and other education pathways but some of those arrangements already existed before 2020. Other areas of action included expanding VET programmes to higher qualification levels (EQF levels 5 to 8[66] in a few countries), internationalisation of VET through dedicated strategies and international initiatives[67]; promoting and supporting mobility of learners and staff[68]; lifelong guidance5F[69] and targeted promotion and campaigns for VET and LLL60F[70]. Despite these advances, progress remains uneven: expansion of VET at EQF levels 6 - 8, dual pathways at higher levels and mobility for VET staff are limited in many countries, while some struggle to fully embed green competences, ensure inclusive career guidance, or provide systematic CPD aligned with digital and technological advancements.

[63] AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, ES, FI, FR, HR, HU, IT, LT, LV, NL, PL, PT, RO, SI and SK.
[64] The European Vocational Teacher Survey pilot conducted by Cedefop (2025), which gathered responses from 735 teachers across 23 countries, shows that only 13% of teachers feel their salary reflects their work.
[65] AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FI, FR, HU, LT, NL, PT, RO, SE and SK.
[66] AT, DE, PT, RO and SK.
[67] AT, DE, EE, HR, and LV.
[68] AT, BE-NL, DE, DK, FR, HR, LV, MT and PL.
[69] AT, BE-FR, CY, DE, DK, ES, FR, HU, MT, NL and PL.
[70] AT, BG, DE, DK, EE, HR, LV, MT, NL, PL, PT and RO.

3.4.1 Permeability between Initial Vocational Education and Training (IVET) and Continuous Vocational Education and Training (CVET) and general and vocational pathways, higher education and higher VET

To ensure permeability between general and vocational pathways, only a few countries set up arrangements to enable learners to complete upper secondary education in parallel with or following vocational training. Examples include preparing and taking school leaving examinations[71] to enable access to higher education. However, it is worth mentioning that the number of these countries is small and some of them already had such arrangements before 2020. Efforts to strengthen the permeability between VET and higher education vary and remain rather limited. A small number of countries[72] have been working to establish or reform higher VET pathways, while a few others are working to raise the status and excellence of higher VET provision[73] by creating closer links; recognising prior learning and validating work experience; broadening eligibility criteria for higher education entry; and developing short-cycle higher technical programmes aligned with EQF level 5. There are major differences across the EU in access of VET graduates to tertiary education, ranging from all VET graduates having direct access in some EU countries, to fewer than half in others (Figure 4).

Figure 4 – Share of graduates from upper secondary with direct access to tertiary education



Source: Eurostat (UOE joint data collection 2023) (Graduates by education level, programme orientation, completion, sex and age educ_uoe_grad01). Note: Only graduates from programmes leading to full level completion are considered. Data for Hungary in vocational programmes presents a certain degree of upward bias.

Some professional bachelor programmes are intended as a direct complement to upper secondary education. For example, the Finnish National Qualifications Framework aligns VET qualifications with the rest of the education system, ensuring that they are formally recognised and valued. In other systems (such as in Germany), VET graduates typically gain

[71] AT, BE-FR, CY, DE, LT and PT.
[72] AT, CY, DK and FR.
[73] BE-NL, EE, FI, PT and SE.

work experience for several years in their chosen profession, before entering tertiary programmes to upskill or pass a professional examination[74].

In recent years, several countries have developed access pathways to higher education by adapting curricula for upper secondary vocational education. They have done so by providing modules or additional years of study to offer VET students the opportunity to meet the entrance requirements of higher education institutions. Other countries have introduced additional VET programmes to bridge the gap between upper secondary and tertiary education or have extended apprenticeship-like programmes to higher levels. In Czechia, for example, there has been an increase in applications for programmes leading to a school leaving examination that entitles VET students to apply for tertiary studies. In Romania, the extension of work-based learning creates new opportunities for accessing higher VET. However, direct access to tertiary education does not necessarily cover all levels of tertiary education. Spain and the Netherlands, for instance, have dedicated programmes at short-cycle tertiary level designed to help learners progress to bachelor's and master's levels as well. Moreover, access to tertiary education might be impeded by additional factors, including formal qualification requirements for medium-level VET learners or limited information on study options. VET students may also need to strengthen their academic skills and adjust to different teaching methods.

In addition, some VET students may have a preference or a financial need to enter the labour market earlier instead of continuing their education and training. This typically results in far fewer VET graduates entering tertiary education than those who could do so based on qualification requirements alone. For example, in Italy, more than 70% of graduates from general secondary school enrol in tertiary education, whereas only 15% from vocational tracks do[75].

Supporting permeability between education and training pathways: Romania and Sweden

Romania is working to strengthen LLL and the recognition of competences by introducing a transferable credit system for adult professional training. The system defines how transferable credits are granted based on a methodology that covers key, technical, and occupation-specific competences. It supports mobility and ensures compatibility with national education and training frameworks. A new framework law, adopted in 2023, laid the foundation for this system. In 2024, the methodology was updated to include revised calculations for translating study hours into transferable credits.

In 2022, **Sweden** adopted the amendment to the Education Act that requires all VET programmes to include all necessary subjects for tertiary education eligibility, thereby

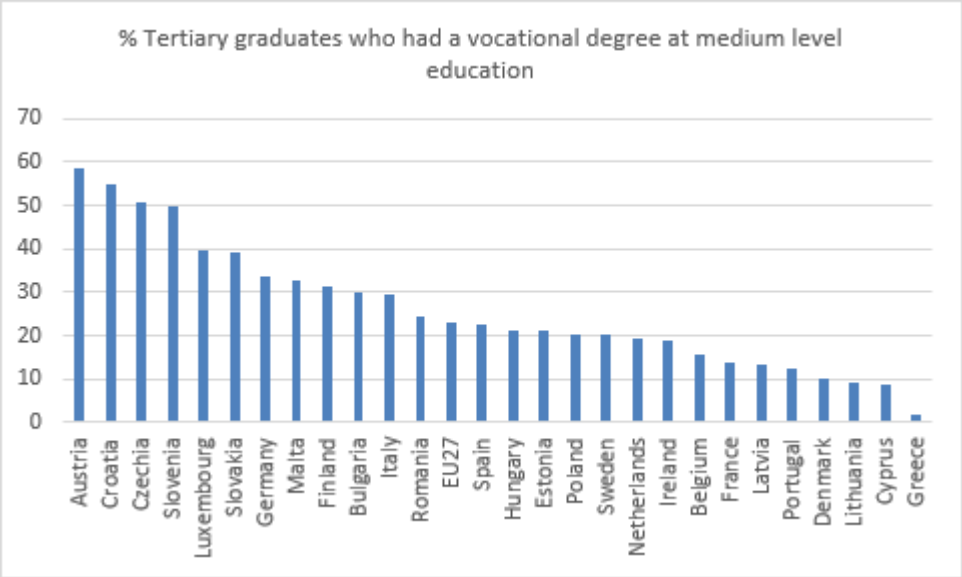
[74] European Commission (2025), *Education and Training Monitor 2025: Comparative Report*. Available at: https://op.europa.eu/en/publication-detail/-/publication/30c1ccaa-bfdd-11f0-a612-01aa75ed71a1
Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/30c1ccaa-bfdd-11f0-a612-01aa75ed71a1
[75] ibid

increasing permeability between VET and higher education. These expanded programmes offer both more content and additional teaching time. The goal is to increase VET enrolment in upper secondary school, improve skills supply, and make it easier for young people to enter the labour market.

Source: Cedefop & ReferNet. (2025).

Among young people (aged 20-34) with a tertiary degree in the EU, nearly one out of four (23.2%) had a vocational medium-level education (and 76.8% a 'general' medium level education). EU-wide, tertiary graduates who had a vocational medium-level degree have a slightly higher employment rate (83.6%) than those with a general degree (82.2%).

Figure 5 – Tertiary graduates with a vocational degree at medium level education, 2024



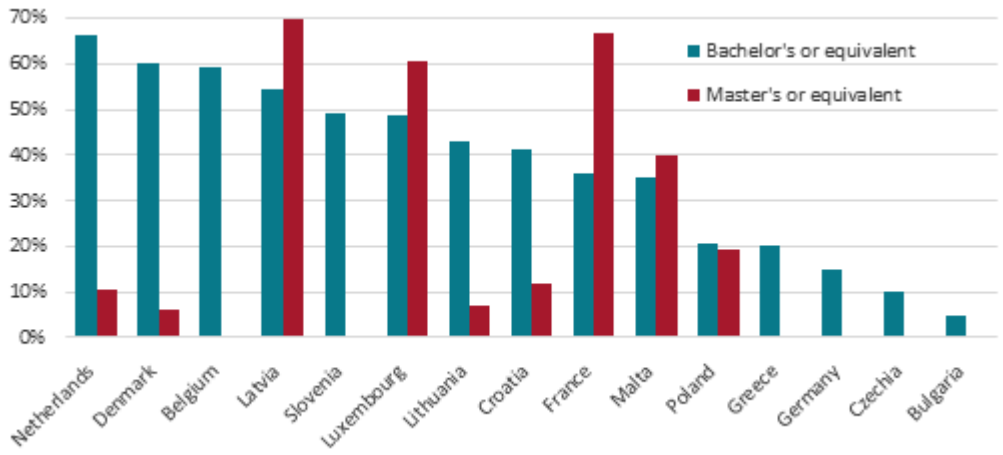
Source: Eurostat, based on EU Labour Force Survey, ad hoc module on young people in the labour market (Persons with tertiary education by medium educational attainment qualifications (2024) lfso_24tert01)

3.4.2 Expanding VET programmes to EQF levels 5-8

The expansion of VET programmes to EQF levels 5 to 8 remains relatively limited across countries. Interest and the number of targeted actions are gradually increasing (see the figure below). Most countries are currently focusing on EQF level 5, which is widely viewed as a strategic entry point into higher level VET. Fewer countries are actively pursuing VET development at EQF levels 6 and 764F[76] and only a couple are setting dual training pathways at EQF level 5[77].

Figure 6 – Share of tertiary students enrolled in professional programmes

[76] AT, DE, IT, PT, RO and SK.
[77] AT and PT.



Source: Eurostat (UOE joint data collection 2023) (Students enrolled in tertiary education by education level, programme orientation, sex, type of institution and intensity of participation educ_uoe_enrt01). Note: No data available for Master's or equivalent for Belgium, Bulgaria, Czechia, Greece, Slovenia; both missing for Estonia, Spain, Italy, Cyprus, Hungary, Austria, Portugal, Romania, Slovakia, Finland, and Sweden. Definition differs in Luxembourg (both). Countries are sown in descending order based on Bachelor's values.

At tertiary level, an international definition of vocational education currently only exists for 'short-cycle tertiary education'. Indeed, this level of education is predominantly vocational (98.4% of all students enrolled across the EU)[78]. Across the EU, enrolment in short-cycle tertiary programmes has expanded from 1 125 042 students in 2015 to 1 414 654 in 2023. Still, it remains a relatively small section of vocational education overall (11.9%) as well as of tertiary education (7.7%). In specific countries, such as Spain, Latvia, France, Austria, Denmark and Slovenia, short-cycle tertiary programmes now make up more than 10% of both the VET sector and the tertiary education sector[79]

No international definition of programme orientation currently exists at higher levels of tertiary education (bachelor, master, and doctoral)[80]. Rather than 'vocational' or 'general', the common approach is to distinguish between 'professional' and 'academic' programmes. Due to a lack of internationally agreed definitions, many countries do not provide any data that disaggregate tertiary education. Nevertheless, several EU countries do provide information based on their own definitions. At bachelor's degree level, professionally oriented programmes make up most enrolments in the Netherlands, Denmark, Belgium and Latvia.

[78] European Commission (2025), *Education and Training Monitor 2025: Comparative Report*. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/30c1ccaa-bfdd-11f0-a612-01aa75ed71a1

[79] ibid

[80] The 2020 Council Recommendation on VET includes the aim to develop vocational education and training programmes at tertiary levels to support a growing need for higher vocational skills. It should be noted that it defines such programmes based on the European Qualifications Framework (rather than educational levels). See also a 2025 UNESCO report providing advice on the classification of national education programmes and related qualifications.

Professional master's programmes are less widespread across EU countries, although a significant number of these programmes are offered in Latvia, France and Luxembourg[81].

Establishing higher VET in Austria

Austria has been establishing higher VET as a separate education segment since 2019. The main objectives of this initiative are consolidation of the heterogeneous field of higher VET; establishing a legal basis for a common understanding of higher VET; introducing higher VET as a label with a clear message to make the qualifications more visible and better known. A first draft of the Act was prepared by autumn 2022, and after many consultations with national stakeholders, the Higher VET Act was published on 28 February 2024 and came into effect on 1 May 2024. The implementation started in the second half of 2024 with the development of guidelines and aids for the implementation of the Act at the level of the qualification providers. Work also began on developing pilot qualifications.

Source: Cedefop & ReferNet. (2025).

3.4.3 Teachers and trainers: attractiveness of the profession, initial and continuing professional development (CPD)

Most countries developed VET teachers' CPD, with a particular emphasis on digital skills, but qualified trainer shortages and the attractiveness of the profession remain a challenge. VET systems experience persistent and evolving capacity constraints in their teaching and training workforce**.** Many countries still face shortages of qualified teachers and trainers, particularly those with expertise in fast-evolving areas like digital technologies and green skills. Career schemes or incentives to attract teachers and trainers to VET remain relatively limited in application. In addition, flexible entry pathways to teaching from the labour market and the 'blended teachers' models are not yet widely explored.

Teacher and trainer CPD plays a crucial role in embracing all the evolving changes and challenges that VET is facing, and there is a trend towards more needs-oriented CPD. A few countries[82] worked to modernise CPD content by introducing innovative teaching methods and personalised learning approaches, such as practical experience in companies, internships in VET schools, or school-industry exchanges. However, increasing skill and competence demands on teachers and trainers call for systemic and multi-faceted CPD, which is often uneven and does not cover all areas. Combined with the lack of support, this prevents teachers from effective implementation of new curricula, teaching new skills, e.g. digital or green, and adopting innovative pedagogies, including those based on advanced technologies, such as VR, XR or AI. Teachers' roles are evolving, especially due to the digital transition, and they are moving towards being guides and instructional designers rather than knowledge transmitters.

[81] ibid
[82] BE-NL, CY, HR, HU, IT and LV.

Teachers' professional development plays a crucial role to support VET teachers and trainers in this process[83].

Digital competence remains a cross-cutting theme, with initiatives in only a few countries incorporating immersive technologies such as XR. Countries are also responding to the demands of digital and blended learning environments and preparing teachers to work in those through upskilling teachers in ICT, hybrid teaching, and integrating advanced technologies such as AI, robotics and programming. Some have introduced or updated digital competence frameworks and self-assessment tools to ensure CPD is tailored to current technological needs[84]. Other actions involve the creation and development of digital infrastructure, digital resources and content databases, and secure platforms for teaching68F[85] that support teachers in accessing techno-pedagogical tools and promote the sharing of best practices. To stimulate participation in CPD, some countries[86] worked on diversifying CPD provision through flexible formats such as e-learning, massive open online courses (MOOCs), and modular courses. These approaches integrate pedagogical, technical, and transversal competences.

CPD has also been developed to prepare teachers for the green transition, albeit to a lesser extent. Countries provided dedicated teacher training aligned with new or adapted curricula that integrate green skills, climate response, and STEM-related sustainability topics[87]. Alongside CPD focused on green competences, countries are adapting curricula, developing teaching principles related to sustainability, creating new green-related teaching professions, and integrating sustainability themes into apprenticeships and VET programmes. Some countries extend CPD to include school leaders to train in implementing new curricula or effective management while company managers and mentors are trained on ensuring quality WBL in companies, e.g. legal frameworks, student rights, pedagogical approaches, support to learners from vulnerable groups[88].

To increase the attractiveness of the teacher profession and address teacher shortages, some countries are modernising their initial teacher training[89] through implementing screening or entrance tests to tailor training to individual needs from the outset; defining or reinforcing competence requirements, particularly in digital skills and providing structured support, such as mentoring and coaching. Several countries[90] are targeting professionals from the labour market to enter teaching by introducing flexible career entry pathways, financial incentives, recognition schemes for skills acquired on the job, and other supportive initiatives. However,

[83] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881
[84] BE-FR, BE-NL, BG, CY, DE and EE.
[85] ES, FI, IT, LT, LV, PT and SI.
[86] BG, DK, EE, ES, LT, PT, RO and SK.
[87] AT, DE, DK, ES, FR and SI.
[88] AT, BG, DE, EE, HR, PT and RO.
[89] AT, BE-NL, LV, NL and RO.
[90] BE-NL, BG, CZ, DE, HU, LU, LV, NL, PL and SK.

it is becoming more difficult to retain skilled teaching professionals, as VET often offers less attractive working conditions and low wages compared to the private sector.

Supporting teachers' professional development: Belgium-FR, Estonia and Hungary

Estonia is placing strong emphasis on strengthening in-service training for VET teachers and trainers. Key activities focus on enhancing schools' capacity for VET content development, delivering pedagogical, methodological, and subject-specific training, and supporting school teams, support staff, and traineeship instructors. Additional efforts target content training, language-integrated learning, and language teaching methods. In 2023, two ESF measures were introduced: the VET and Higher Education Development Programme (PRÕM+) and the initiative on teacher succession, pedagogical approaches, and learning environments. PRÕM+ supports traineeships and WBL by offering training, seminars, and counselling to VET providers. In 2024, a new phase of CPD for VET teachers and trainers was launched.

Hungary is working to enhance the relevance, scope and quality of in-service training for teachers and mentors, while also introducing a new model of hybrid teachers and trainers. Since 2021, training has been delivered through the unified Teacher Further Training System (OTR) and sectoral training centres. By 2024, a wide range of online courses had been made available, covering digital competences, language skills, vocational and in-company training, and teaching methodologies. A digital content and learning materials database have also been developed.

In **Belgium-FR**, the Pedagogical Resource Centre (CRP) supports teachers for digital preparedness by offering techno-pedagogical resources. In non-compulsory education, e-learning implementation is facilitated through a good practice sharing platform for adult education institutions. The 'e-classe' platform complements this by publishing content on topics such as women in the digital world and cybersecurity in schools. A partnership with Pix, a public online platform, is also exploring the use of Pix as a tool for teacher self-evaluation. Introduced in 2023, the Pix tool helps teachers identify suitable training and online resources by assessing their digital skills. In 2024, further actions were introduced, including new publications on AI and XR, an extension of the Pix pilot project, and additional initiatives targeting non-compulsory education.

Source: Cedefop & ReferNet. (2025).

3.4.4 VET internationalisation strategies, transnational VET initiatives, and enhancing mobility of learners and staff

Only a few countries have been working to open their VET systems to international cooperation through VET internationalisation strategies[91]. Increased mobility of VET learners and personnel could help boost the attractiveness of VET. In some countries, internationalisation is part of broader education and training strategies and plans, while others build transnational projects. Internationalisation policies and activities follow different goals –

[91] DE, EE and HR.

not only do they relate to promoting VET and education broadly, but they also support business interests of national companies in other countries, e.g. supplying skilled workforce or ensuring the same quality of training as in the home country. Some countries[92] have been increasingly using international skills competitions where learners can showcase their VET-related skills, such as EuroSkills and WorldSkills, to showcase VET skills and enhance the profile and attractiveness of VET. Another important competition is the Abilympics for professionals with special needs which is held every four years, where only a limited number of Member States participate[93].

Strategic approach to internationalisation: Germany

Germany's internationalisation strategy for VET, operational since 2013 and updated in 2019, aims to strengthen the global vocational competences of VET students and graduates. As part of this strategy, the Federal Government's Central Agency for International Vocational Training Cooperation (GOVET), which is the Federal Government's central coordination office, and the Round Table for International Vocational Training Cooperation, managed by GOVET, have been established.

Under this strategy, numerous bilateral cooperation projects are funded and coordinated with countries including China, Costa Rica, Ghana, Greece, India, Italy, Mexico, Portugal, South Africa, and the USA. The aim of the Federal Government's bilateral VET cooperation is to help partner countries effectively integrate elements of practice-oriented or dual VET into their respective systems by sustainable support in line with the partner country's context and needs. Examples of good practice are developed and tested on various VET topics and can stimulate reforms in the partner countries. In 2023 and 2024, Germany further expanded its international engagement by launching new projects, reinforcing governance structures, promoting sustainability, and deepening global partnerships through events, bilateral initiatives and publications. Key programmes such as 'Skills Experts', 'CooperationVET', and the 'Competence Centre for International VET' (KIBB) supported training across more than 50 countries. Designed to promote excellence within the country while supporting German businesses and VET providers abroad, it stands out for its structured, long-term commitment.

In addition, iMOVE (International Marketing of VET), a networking platform initiated by the German Federal Ministry of Research, Technology and Space, informs interested parties around the world about German competence in the field of vocational training and continuing education, along with 'made in Germany' qualifying opportunities.

Source: Cedefop & ReferNet. (2025) and Cedefop (2025c).

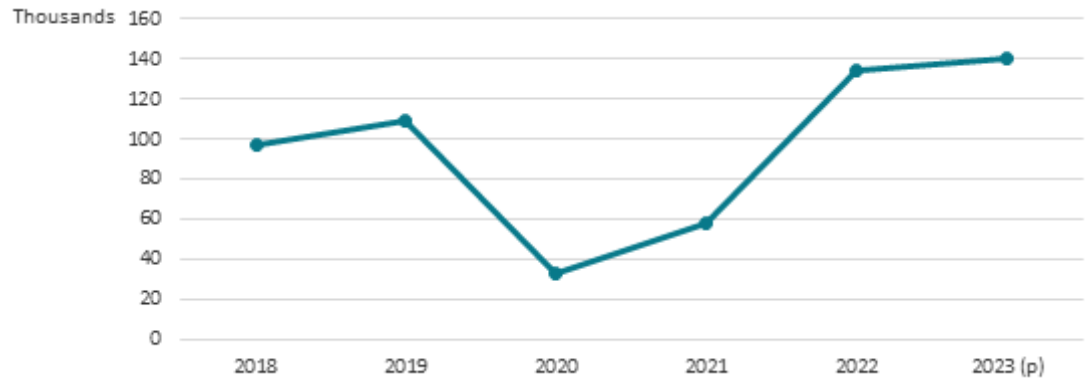
The EU aims to increase the number of learners in VET programmes who go abroad as part of their studies. Such mobility provides VET learners with opportunities to learn about

[92] AT, CY, DE, DK, EL, HR, LV, PT and PL.
[93] The 10th edition of the Abilympics took place in 2023 in Metz (France), with the participation of 24 countries worldwide including France, Finland, China, Japan, Malaysia, Canada, India and Australia.

innovative practices and technologies and foreign languages and to understand different cultures. For VET providers and other organisations active in VET, learner mobility supports internationalisation and institutional development in terms of gaining new experiences and knowledge from different contexts. Research has also shown that VET graduates with foreign mobility experience report that skills acquired abroad were useful in their professional careers, supporting employability[94]. In addition, according to Cedefop, international opportunities (including mobility) are associated with higher attractiveness of VET[95]. This points to mobility prospects being one of several mechanisms that can improve VET's reputation — including relative esteem compared to academic tracks.

The 2030 EU-level VET mobility target covers a wide range of mobility opportunities funded under Erasmus+, such as short-term learning mobility, group mobility, blended mobility and mobility linked to participation in VET skills competitions. In 2023, around 140 000 VET learner mobility experiences that were in line with this wider definition took place. This is a slight increase from 2022, when there were 134 000 such mobility experiences. The most recent data continue an upward trajectory that was interrupted by the COVID-19 pandemic (Figure 7).

Figure 7 – Number of completed mobilities of VET learners, 2023



Source: European Commission calculations based on data from the Erasmus+ Dashboard. Date of extraction: June 2025. Note: data refer to the number of medium-level VET learners with mobility experiences abroad started in the reference period, reported in the Erasmus+ Dashboard. Due to the transition between the old and new Erasmus+ programmes, 2022 and 2023 estimates are only available at EU level and include projections based on historical data; data for 2023 are provisional.

The VET mobility target considers mobility experiences in relation to the number of medium-level VET graduates of the same year. **The mobility rate stood at 5.3% in 2023**, a slight increase from a year prior (5.0%), but **far from the 12% target value for 2030**. This increase

[94] Fassl, A., Kirsch, M., Pachocki, M. and Zabko, O. (2020) *Tracing VET graduates with foreign mobility experience*. Warsaw: Foundation for the Development of the Education System (FRSE). Available at: https://erasmusplusresearch.eu/research/tracing-vet-graduates-foreign-mobility-experience

[95] Cedefop (n.d.) *VET mobility prospects increases VET attractiveness*. Available at: https://www.cedefop.europa.eu/en/tools/vet-toolkit-tackling-early-leaving/resources/vet-toolkit-upskilling-pathways/best-practices/vet-mobility-prospects

in 2023 is not only due to increased mobility but it also reflects a declining number of VET graduates.

Most Member States' actions in supporting mobility focus on VET learners[96], mostly in IVET, including also apprentices. Fewer targeted efforts have been made to promote the mobility of VET staff, such as teachers, trainers, and guidance professionals[97]. Staff mobility promotes the modernisation of teaching practices, cross-sectoral exchange and enhancing experience to increase the attractiveness of the profession. To facilitate mobility for staff and learners, countries implement national or regional projects to operationalise exchanges and strengthen transnational cooperation through the EU, mainly Erasmus+, and international programmes. Mobility is increasingly embedded and institutionalised in VET systems, and monitoring is in place to track it. Some countries have also expanded mobility beyond the EU, targeting third countries[98].

Expanding VET mobility: Lithuania

In **Lithuania,** group mobility consisting of more than one learner, a new, more flexible VET option under Erasmus+, has been implemented since 2024. It focuses on life competences, cultural understanding, and networking with peers from other schools, not only on WBL activities. This more flexible approach to mobility aims to benefit students with fewer opportunities. Other mobility support actions are also present. For example, in 2022, Pro Met network experts drafted a publication on how to prepare training contracts for mobility. To add, a national mobility scheme was set up to support the practical skills of VET students at sectoral practical training centres which are spread throughout the country**.**

Source: Cedefop & ETF (2026). [forthcoming].

3.4.5 Lifelong guidance

Most countries primarily focus on enhancing career support for students, especially adolescents. Actions include the development and provision of targeted and user-friendly information about careers in VET and available financial support. It should be noted that lifelong guidance is not limited to VET only. However, for lifelong guidance and outreach to be fully effective, it should start during the early stages of school education. Some countries worked on developing their career guidance in a systemic way[99] to increase accessibility and quality, ensuring good outreach to all learners. In addition, some countries have embraced digitalisation to improve their career guidance services[100] through developing digital platforms, applications, and online tools that provide career information, personalised advice, and interactive resources. Lifelong guidance has been crucial for adult learners and countries[101] focused on expanding access to tailored guidance and flexible training,

[96] AT, BE-NL, DK, FR, HR, LV, MT and PL.
[97] BE-NL, DE, HR, LT, LV, MT, NL and PL.
[98] AT, DE and MT.
[99] BE-FR, CY, DE, ES, HU, MT, NL, PT and SE.
[100] AT, DE, ES, HU, MT, NL, PL, SE and SK.
[101] DE, MT, NL. RO, SE and SK.

particularly for vulnerable groups such as older adults and low-skilled workers. Some countries[102] invested in developing the competences of career guidance professionals through specialised training and CoVEs, often promoting collaboration among stakeholders and ensuring guidance is inclusive, particularly for vulnerable populations.

Developing lifelong guidance: Hungary and Slovenia

Hungary aims to enhance learners' understanding of transversal competences and available progression pathways. Likewise, career guidance and counselling continue to be strategic priorities. Between 2023 and 2024, key initiatives to this end progressed under the GINOP framework, including the development of the Career Orientation Portal, the expansion of the career path development programme, and the introduction of dedicated modules designed to highlight the benefits of VET.

In **Slovenia**, digital tools are being developed to identify labour market needs and support career decision-making. A national tool under development in 2024 as part of the 'NOO project' aims to forecast VET-related labour market demands and includes features such as graduate tracking, enrolment statistics, academic performance data, application deadlines, and exchange opportunities. This tool is designed to guide students in making informed career choices, help VET schools adapt open curricula and support the broader modernisation of vocational standards and programmes across the VET system.

Source: Cedefop & ReferNet. (2025).

3.5 VET for equality of opportunities

3.5.1 Focus on vulnerable groups

Inclusive VET is a priority across the EU, aimed at ensuring equal access to quality education and lifelong learning, particularly for vulnerable and underrepresented groups, but progress remains modest, and more coordination is needed. Most countries[103] worked on this priority. The approaches focus on making VET systems accessible to people with disabilities, migrants, ethnic minorities, those with low skills or qualifications, and individuals from disadvantaged socio-economic backgrounds to increase their participation in lifelong learning. Inclusiveness is closely linked with flexible, agile and attractive VET and aims to support smoother transitions from education or unemployment to employment and to prevent early leaving from education and training.

Specific policies and targeted vulnerable groups vary across countries based on their national contexts. For example, countries with large migrant populations or experiencing significant migration inflows often implement more targeted measures for these groups while those with marked urban-rural disparities tend to prioritise actions that address these regional inequalities.

[102] BE-FR, DK, ES, HU, MT, RO and SE.
[103] AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FI, FR, HU, LT, LU, LV, NL, PL, PT, RO, SE and SK.

Some countries worked on **awareness raising and lifelong guidance**[104] for young people, migrants, refugees, and other at-risk groups, often cooperating with local stakeholders, including schools, training providers, companies, and public services. A few countries[105] invested in the professional development of trainers to enable those to better support learners with special education needs and disabilities. These efforts include in-service training, education programmes and national initiatives to adapt teaching methods and educational content, as well as infrastructure upgrades to ensure accessibility.

Preventing early leaving from education and training, particularly among vulnerable groups, has been yet another area of action across the countries. Three main approaches have been widely adopted to address this challenge: early identification and monitoring systems, provision of social support and guidance, and development of tailored competence development programmes. Early identification and monitoring systems[106] help detect students at risk of dropping out through data-driven tools, early warning mechanisms and tracking systems, enabling timely and targeted interventions. Such systems not only help identify those at risk but have also contributed to refining the definition of target groups. Social support and guidance measures include mentoring, counselling, and individualised education, often extending this support until young people have completed their studies or successfully entered the labour market[107]. Tailored competence development programmes[108] exist in a few countries allowing for more flexible durations based on student ability, differentiated teaching methods, and the use of distance learning to help maintain learner engagement and reduce dropout rates.

3.5.2 Addressing gender stereotypes

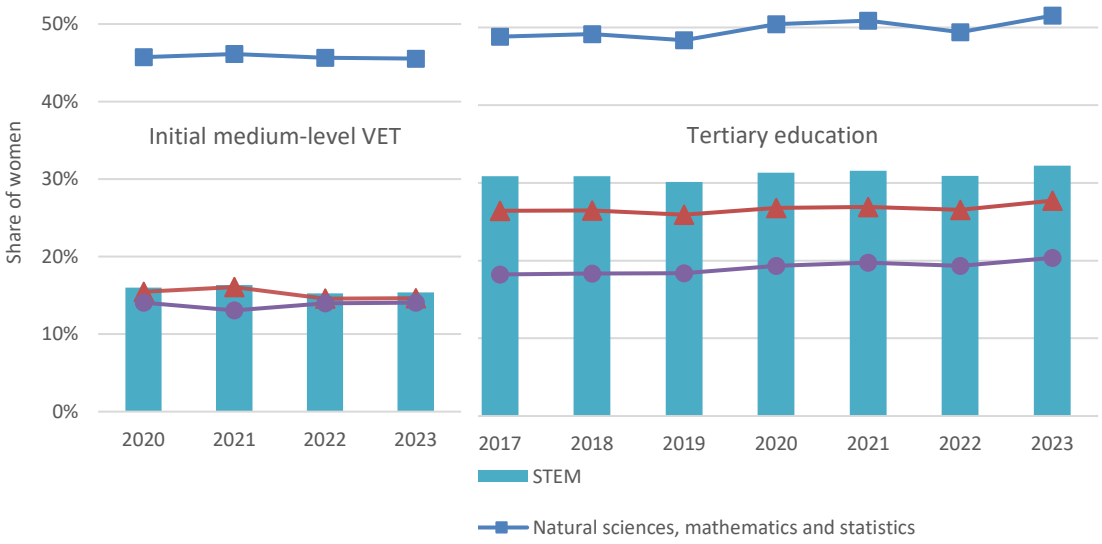
Addressing gender stereotypes in learning and career choices is key to addressing skills mismatches and enlarging the pool of potential workers for various shortage occupations. Some countries worked to promote gender equality, but there is less evidence for gender inclusiveness and counteracting gender stereotypes in choosing occupations, depending on their national contexts and needs. According to evidence[109], gender segregation hampers labour shortages. Most shortage occupations are either dominated by men or by women as around 86% of these occupations are not gender balanced. This also mirrors gender segregation in the respective field of studies, which is why the pool of people to fill vacancies is limited. In initial VET, while boys' most chosen field in initial VET is engineering,

[104] AT, BE-FR, CY, DE, ES, FR, LU, NL, PT and RO.
[105] DE, EE, LT and PL.
[106] AT, BE-NL, HU and SK.
[107] AT, DE, DK, NL, RO and SK.
[108] FR, HU and SK.
[109] European Commission (2023) *Employment and social developments in Europe: Review 2024*. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/17b34170-8138-11ef-a67d-01aa75ed71a1/language-en

manufacturing and construction (45%), for girls the most common fields are (21%) health and welfare (26%), services (22%), business, administration and law (21%)[110].

In medium-level VET, female students are severely underrepresented in STEM fields. Fewer than one in six students (15.4%) is female, compared to a proposed 2030 EU-level target of at least one in four (Figure 6). This rate decreased 0.6 percentage points between 2020 and 2023. Only Romania (36.4%) and Bulgaria (27.4%) reached the proposed EU-level target value. By contrast, fewer than one in ten are studying VET STEM fields in Cyprus (8.3%), Ireland (9.0%), Lithuania (9.0%) and Germany (9.5%). The underrepresentation of female students in STEM is much larger than in medium-level VET overall, where on average 44.2% of students in the EU are female. The small STEM subfield in VET of 'natural sciences, mathematics and statistics' enjoys a more favourable gender balance, with women accounting for 45.5% of students. However, the underrepresentation of women is more pronounced in the other two STEM subfields, with the rate of female students dropping to 14.6% in 'engineering, manufacturing and construction' and to 14.0% in ICT[111].

Figure 8 – Share of women in STEM fields in initial medium-level VET and tertiary education



Source: Eurostat (UOE joint data collection 2023) (Pupils enrolled in vocational upper secondary and post-secondary non-tertiary education by education level, sex and field of education educ_uoe_enrs10, Distribution of students enrolled at tertiary education levels by sex and field of education educ_uoe_enrt04). Note: Data in 2022 does not include students enrolled in doctoral programmes in the Netherlands.

[110] European Commission (2025) *Education and training monitor 2025: Comparative report*. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/30c1ccaa-bfdd-11f0-a612-01aa75ed71a1

[111] ibid

While few countries explicitly address gender stereotypes, some have launched initiatives to build more gender-inclusive VET systems[112]. These include support for women in sectors where they are underrepresented and efforts to challenge gender stereotypes in education and the workplace through awareness raising, mentoring, career guidance, and financial incentives such as scholarships or fully funded programmes. Some countries also provide flexible training options and support the development of entrepreneurial skills, particularly for disadvantaged women.

Fostering gender equality in apprenticeships: Austria

In **Austria**, since 2016, the Austrian Economic Chamber, on behalf of the Federal Ministry of Digital and Economic Affairs (BMDW), has offered up to 100% financial support for initiatives aimed at improving the quality, gender balance, and social integration of apprenticeship programmes. A core focus has been on supporting the placement and successful completion of apprenticeships for young women and men in fields where their gender is underrepresented (30% or less).

Additionally, the project 'Women Entrepreneurs Go to School' encourages girls to explore entrepreneurial paths by connecting them with female business leaders and promoting leadership opportunities in non-traditional sectors. The ministries and institutions involved planned to initiate at several relevant measures, some of which are already in progress or are being implemented, and which are especially relevant VET including the establishment of the SMART training firm pilot in VET schools.

Source: Cedefop & ReferNet. (2025).

3.6 VET is underpinned by a culture of quality assurance

Quality assurance (QA) in VET is essential for building trust, consistency, and transparency across the different systems in the EU. It guarantees that qualifications remain relevant to global labour market demands and rapid technological changes, making them transferable across countries.

Half of countries[113] worked on this priority and have shown progress. Countries worked on establishing or developing QA frameworks and processes in line with the European Quality Assurance Reference Framework for Vocational Education and Training (EQAVET) principles, albeit mostly in IVET and mostly building on the work started in the previous periods. QA in WBL and apprenticeships in IVET are still being developed at national level. The policies to promote QA include developing external evaluation processes, including in WBL[114], strengthening self-assessment by VET providers[115] and introducing graduate tracking as part of their overall QA system[116]. QA for WBL has been advanced through self-

[112] AT, BE-NL, CY, DE, DK, FR, MT, NL, and SI.
[113] AT, BE-FR, BE-NL, CY, EE, FR, HR, HU, LT, LV, PL, PT, RO, SI, and SK.
[114] BE-NL, CY, EE, HU, IT, LT, LV, MT, PL, PT, and RO.
[115] HU, LV, SI, and SK.
[116] HR, HU, LV, and SK.

assessment tools for apprentice training centres, WBL-specific QA principles and indicators, verification procedures and accreditation methodologies for companies. Moreover, some countries strengthened QA in CVET, higher VET and adult education[117] by introducing self-assessment and external assessment of adult education providers and introducing a quality label for CVET providers. Some have also expanded accreditation of providers and programmes to non-formal and informal VET provision[118].

Key trends in further developing national QA systems include the adoption of new strategies and legislation that address both IVET and CVET, aligning national QA systems with EQAVET, setting quality awards and incentives to providers for continuous quality improvement[119]. Since 2022, many countries participated in EQAVET peer reviews, as stipulated in the 2020 Council Recommendation on VET, aiming at sharing best practices, providing mutual learning opportunities, furthering the development of quality assurance and promoting trust in VET systems among EU Member States. Specifically, 21 countries hosted a peer review in the first cycle (2022–2023), and 20 peer reviews are taking place in the second cycle (2024–2026), enabling the collection of targeted feedback from peer countries on specific quality assurance arrangements in host countries.

Further development of QA: Lithuania and Slovenia

Lithuania has launched the IT platform 'Coursework' by the Ministry of Education and Sports to facilitate individual learning accounts. This platform focuses on QA, ensuring that training providers maintain high standards. Training providers listed on this platform are subject to regular quality checks and validation by responsible institutions, leading to an overall improvement in the quality of VET programmes across the country.

In **Slovenia**, the Institute of the Republic of Slovenia for Vocational Education and Training (CPI) is actively working with the Ministry of Education to promote QA in VET. It is working with school principals and the directors of VET schools to establish QA systems. It also implemented an activity which is called 'networking for quality' for VET schools' through which schools present to other schools their achievements in the field of QA and learn from each other. The same approach applies to WBL and apprenticeships. Slovenia also actively participates in the EQAVET peer reviews.

Source: Cedefop & ReferNet. (2025).

4 Governance at national level

Stakeholder involvement plays a crucial role in VET and skills governance and implementing policies. Countries continue to increase this involvement and institutionalised cooperation at all levels between governments, businesses, VET providers, experts and the

[117] AT, FR, HR, LV, PT, and RO.
[118] BE-NL and CY.
[119] BE-FR, BE-NL, EE, HR, HU, LT, LV, PL, SI and SK.

social partners, whose participation is of great importance in most reported policy developments.

However, **governance and coordination remain fragmented.** Responsibilities for VET and upskilling and reskilling are frequently spread across multiple ministries, institutions and governance levels and require strong coordination frameworks and actions, which are often inefficient, or non-existent. In combination with heavy and lengthy bureaucratic processes and resistance to change, fragmented and uncoordinated work can delay reforms and innovation and limit agile response to the evolving challenges. Several countries98F[120] have worked on **establishing and developing formal stakeholder engagement** mechanisms by setting up national platforms, activating advisory councils, and strengthening the role of sectoral committees and expert councils in shaping VET policy and programme content. In addition to formal cooperation, many countries **fostered informal cooperation**[121] through partnerships, networks and awareness raising campaigns.

Social partners participate across Member States in policy development and reform, curriculum development, quality assurance, funding and resource allocation, and in providing career guidance as mentioned in the relevant sections of this report. Employers tend to voice the skill demands in revising occupational standards and VET curricula and make WBL possible while trade unions, in some countries, advocate learner rights, quality of learning and access and equality issues. It is observed that trade union representatives are less frequently involved than employer organisations at the level of implementation (Cedefop & ETF, 2025). There is scope to further expand the role of both of employer organisations and trade unions, in the implementation of measures, in particular on skill intelligence and identification of skill needs, provision of apprenticeships and employment opportunities for vulnerable groups, reskilling and upskilling, and the recognition and validation of non-formal and informal learning.

5 EU level support actions, funding and governance

The EU has advanced a comprehensive framework of VET policies and initiatives to strengthen VET across Member States. Key initiatives include the EAfA to enhance the supply, quality, and image of apprenticeships, as well as to promote the mobility of apprentices; the Erasmus+ CoVEs to foster innovation, skills development, and regional cooperation; and measures to raise VET attractiveness through campaigns, events, and forward-looking projects.

The development of micro-credentials and the use of transparency tools such as Europass have supported lifelong learning, employability and the recognition of skills across borders. International cooperation, including engagement with candidate countries, the Eastern and Southern neighbourhoods, and various global organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the

[120] BE-FR, BE-NL, CY, EL, FR, HU, IT, LT, LU, LV, MT, PL, PT and RO.
[121] BE-FR, BE-NL, BG, CY, DE, DK, EE, ES, FR, HU, IT, LT, LV, NL, PL, PT and RO.

International Labour Organization (ILO), and the Organisation for Economic Co-operation and Development (OECD), has ensured alignment of EU VET policy with global best practices. VET policies have been closely linked to broader priorities such as the green and digital transitions, with initiatives targeting the development of relevant skills, integration of advanced technologies, and digitalisation of VET systems. Substantial funding from Erasmus+ and ESF+ have supported mobility, institutional modernisation, inclusive VET provision, and alignment with labour market needs.

5.1 European Alliance for Apprenticeships

The Commission continued to promote the supply, quality and image of apprenticeships, as well as the mobility of apprentices through EAfA. Since its launch in 2013, EAfA members have pledged to provide over 5.1 million apprenticeship opportunities. More than 530 pledges from umbrella organisations, large businesses, SMEs, education and training providers and sectoral social partners, have been made in total, of which 180 were between 2021 and 2025. 43 national commitments were made by governments from all over Europe and beyond of which 7 since 2021. The EAfA has facilitated networking, cooperation and sharing of good practices, with Cedefop and ETF providing strategic expert support. As a follow-up action of the 2018 Council Recommendation on a European Framework for Quality and Effective Apprenticeships, the Commission provided technical support to Member States within the Benchlearning process to launch new or reform existing apprenticeship schemes. A total of 14 Member States took part in a series of online meetings and a country visit between 2020 and 2022. Since 2020, there have been synergies between EAfA and the Pact for Skills in terms of membership and different actions and events. As announced in the communication for the Union of Skills, the reinforced Pact for Skills will improve linkages between **skills initiatives**, including, among others, EAfA and the CoVEs.

5.2 Centres of vocational excellence (CoVEs)

The Erasmus+ CoVEs are international collaborative networks that bring together local and regional VET stakeholders (VET institutions, employers, social partners, authorities, higher education institutions, etc.) in public-private partnerships, thereby creating comprehensive skills ecosystems for innovation, regional development, and social inclusion and supporting European competitiveness. The CoVEs initiative is firmly anchored in the European Pillar of Social Rights, the European Green Deal, and the Digital Decade policy programme. It supports the industrial and SME strategies, the Council Recommendation 'Europe on the Move' – learning mobility opportunities for everyone, the STEM education strategic plan and the Clean Industrial Deal.

The CoVEs have developed innovative VET practices, e.g. for use of digital technologies including AI, to develop skills for the green and digital transitions, to contribute to VET attractiveness and inclusion and applied research, and to facilitate mobility and apprenticeships and the professional development of teachers and trainers. They also work on validation and recognition of skills, micro-credentials and qualifications as well as graduate tracking systems.

In the period 2021-2027, the Erasmus+ programme is allocating an indicative budget of EUR 400 million for the creation of and the collaboration among CoVEs, signifying a strong commitment to vocational training excellence across Europe. From 2021 to 2024, **57 CoVEs projects** benefited from Erasmus+ programme funding, each contributing to the regional and sectoral development of vocational excellence. In the 2025 call, at least 15 new Erasmus+ projects will be selected and launched.

An analytical report on the CoVEs[122] showed that the CoVE initiative has emerged as a powerful driver of systemic change in VET, acting as a structural enabler of transformation by modernising curricula, fostering ecosystems of collaboration, and contributing to EU policy priorities relating to VET attractiveness, upskilling and reskilling, digitalisation, environmental sustainability and inclusion.

CoVEs are also enhancing the quality and relevance of VET through modular programmes, micro-credentials, stakeholder collaboration on identifying labour market needs, and applied research by enhancing the capacity of SMEs to become more competitive. They innovate pedagogies such as challenge-based learning, AR/VR simulations, and blended formats – all directly aligned with industry demands. In this context, CoVEs are strategic drivers of resilient and future-proof skills ecosystems, as highlighted in the Draghi and Letta reports. Erasmus+ CoVEs have fostered upward convergence, through collaboration among organisations at different levels on their path towards vocational excellence. Some CoVEs have learned from their more developed partners, pioneering more systematic transnational cooperation between CoVEs to address European skills needs in targeted sectors and occupations.

5.3 VET attractiveness

Several activities have been undertaken to improve the image of VET. Since 2016, the European Vocational Skills Week has taken place to raise the attractiveness of VET and to showcase good practices, focusing on themes such as VET and the green transition in 2022. In 2023, there was a call under Erasmus+ forward-looking projects with a priority on VET attractiveness. Several projects were selected under this priority and ran until 2025. Other actions to promote VET attractiveness included the organisation of events such as the 'Forum on Vocational Excellence' which took place in September 2024 and the 'Meet the Champions' event that took place in February 2024 to encourage young people to choose VET as an effective learning and career path.

5.4 Other VET relevant initiatives/developments

5.4.1 Micro-credentials

In June 2022, the Council Recommendation on a European Approach to micro-credentials for lifelong learning and employability was adopted. It proposes a common

[122] European Commission (2025) *Advancing European Centres of Vocational Excellence (CoVE): An analysis of Erasmus+ projects: report*. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/ea56f110-f678-11f0-b9bc-01aa75ed71a1/language-en

definition, standard elements to describe a micro-credential and a list of guiding principles to design and issue micro-credentials. This common EU approach was intended to boost the comparability, trust and uptake of micro-credentials in the EU and includes specific references to VET. Following this Council Recommendation, the European Commission organised several peer learning activities to facilitate sharing of good practices among Member States around different topics related to VET and the labour market, after which a synthesis report was officially published. Cedefop has continued its extensive research on micro-credentials, also focusing on VET and the labour market.

The development of micro-credentials in line with the EU approach has been supported by EU funds, including the ESF+, ERDF, RRF and Erasmus+. Under the Technical Support Instrument (TSI), in 2023 Hungary and in 2024 Czechia have received support to develop national frameworks for micro-credentials in line with the EU approach[123]. The European Commission has launched a questionnaire for Member States to inform on their progress on the implementation of the Council Recommendation, covering also VET and the labour market. A report based on this data will be published soon.

5.4.2 Transparency tools

Europass is a European tool that helps people communicate their skills, qualifications and experiences. The Europass platform was relaunched on 1 July 2020 as one of the flagship actions of the 2020 European Skills Agenda. Users, including VET learners, can use Europass to record their skills, store files, receive tailored job and learning suggestions via EURES and prepare CVs and cover letters. The tool also allows users including VET learners to share their profile with prospective employers and VET institutions, and to discover in-demand skills and occupations across Europe. As part of the Europass framework, the Commission has developed a set of software and services for education and training institutions to issue authentic, tamper-proof digital credentials (e.g. qualifications, diplomas, certificates). **European Digital Credentials for Learning** can support 'paperless' processes and the easier recognition and understanding of qualifications and credentials across the EU. Some VET providers have started to make use of the tool to digitalise VET certificates.

Europass Mobility, first introduced in 2004, is a well-established template which describes the skills acquired abroad during mobility experiences for learning or work in a way that allows for easy comparison. Following a consultation of the National Europass Centres and Erasmus+ National Agencies in 2021, a project group was set up to modernise and simplify the template and to pave the way for its digitisation. The revised template makes it possible to use Europass standards throughout the whole cycle of mobility activities, from preparation to follow-up. This was achieved by combining and aligning the existing Europass Mobility template with the learning agreement model from Erasmus+, creating a single document for both pre- and post-mobility.

[123] Project description summaries are available online: https://reforms-investments.ec.europa.eu/technical-support-instrument-0/skills-education-and-training/developing-single-micro-credential-system-facilitate-lifelong-learning-hungary_en and https://reforms-investments.ec.europa.eu/technical-support-instrument-0/labour-market-and-social-protection/towards-harmonised-micro-credential-ecosystem-czechia_en.

At EU level, the European vocational core profiles have existed since the Erasmus+ programme started to provide support to Sector Skills Alliances and their joint developments. The interest in the concept of European vocational core profiles has become more pronounced when it featured both in the 2020 Council Recommendation on VET and in the European skills agenda, setting out that that 'European vocational core profiles would define a certain share of a common training content at European level' with the goal of supporting excellence and internationalisation of VET.

Between 2021 and 2022, the Commission carried out a study to develop the concept and explore technical feasibility of developing European vocational core profiles. The main idea for the European vocational core profiles was to compare the content of qualifications, find the common part and show to which extent VET qualifications are similar/identical. The idea was to increase transparency and facilitate acceptance and recognition of qualifications. The ACVT discussed the suggestions of the exploratory study and decided to put this work on hold due to the lack of support of the ACVT members, and in particular of the government and workers representatives. Since then, development of common training content continues to be supported in specific areas through the Erasmus+ Blueprint Alliances.

In the Political Guidelines 2024-2029, the intention to put forward a Skills Portability Initiative was announced. In March 2025, the European Commission announced the Skills Portability Initiative as part of the Union of Skills. Action 1 of the Skills Portability Initiative aims to remove barriers to workers' mobility in non-regulated professions and facilitate digitalised portability of qualifications and skills. Action 2 aims to modernise and streamline the existing recognition processes under Directive 2005/36/EC for access to regulated professions, including through leveraging digital tools and by expanding automatic recognition to additional professions. Action 3 explores setting common rules for recognising qualifications and validating skills for people from outside the EU. This will ensure that they do not have to deal with 27 fragmented systems.

5.4.3 International cooperation

By end of 2025, a total of **43 governments had joined EAfA**, through national commitments, many of them being EU candidate countries as well as Eastern and Southern neighbourhood countries. EAfA is gradually becoming a reference in the development of national apprenticeship policies in these countries, including through the annual organisation of the EAfA-ETF joint seminars that focus on apprenticeships in countries outside the EU.

Ongoing cooperation and policy coordination and exchanges with international organisations have taken place through the **Inter-Agency Group on Technical and Vocational Education and Training (IAG-TVET)** and its four working groups (focused on career guidance, the future of technical and vocational education and training (TVET), skills mismatch in digitized labor markets, and work-based learning). The IAG-TVET brings together key international organisations involved in the delivery of policy advice, programmes and research on VET (e.g. UNESCO, OECD, and the World Bank). Beyond the joint products by the working groups, there has been close bilateral cooperation with international organisations. For example, the 2018 Council Recommendation on a European Framework for Quality and

Effective Apprenticeships served as a model for the ILO when developing the apprenticeships standards (ILO Recommendation nr 208) in 2023. The European Commission is also part of the Conference Coalition of the WorldSkills International Conferences which aims to elevate TVET to the top of the global policy agenda.

In 2024 and 2025, the **Commission also collaborated with the OECD** to explore the potential benefits and risks of using AI to support VET learners. The projects in question focused on the role that AI and other advanced technologies can play in supporting neurodivergent VET learners and in helping update VET curricula and professional qualifications. The reports of these projects are expected to be published in the course of 2026.

ETF regularly collects information relevant for the point on 'Supporting internationalisation of vocational education and training systems also with regard to EU candidate countries and to European Neighbourhood countries' in the 2020 Council Recommendation on VET. In most countries, the internationalisation of VET is recognised as a priority, it is backed up by legal and strategy documents, and deployed through participation in international processes (such as the Copenhagen process, recognition of qualifications) and projects (notably Erasmus+ and the establishment of CoVEs), although structural barriers such as limited capacity, funding limitations and language barriers make its implementation limited and uneven.

For CoVEs, ETF has set up the ENE network to facilitate international peer exchange and peer learning. In the ENE Atlas | Open Space it is possible to see from which countries members are coming. ETF provides policy advice activities on centres of vocational excellence to foster international peer exchange and peer learning. In 2026, ETF has dedicated strands of works with Moldova, Jordan, Ukraine, Montenegro, Algeria and North-Macedonia.

5.5 Alignment of VET policy to other relevant policy areas

VET has an important role to play in many relevant policy areas, notably those related to the green and digital transition but also in provision of training, reskilling and upskilling which are fundamental for citizens and workers to succeed in the twin transition[124]. As stressed in the Green Deal industrial Plan and in the European skills agenda, and more recently in the Competitiveness Compass, Clean Industrial Deal and Union of Skills, being prepared for the green and digital transition means that workers will need new skills and competences, many of which can be delivered through VET.

The relevance of VET has also been highlighted in several Council Recommendations related to the green and digital transition. The 2022 Council Recommendation on learning for the green transition and sustainable development[125] invites Member States to support VET

[124] González Vázquez, I., Milasi, S., Carretero, S., Napierała, J., Robledo Bottcher, N., Jonkers, K., Goenaga Beldarrain, X. *et al.* (2019) *The changing nature of work and skills in the digital age*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC117505

[125] Council of the European Union (2022) Council Recommendation of 16 June 2022 on learning for the green transition and sustainable development (2022/C 243/01). Official Journal of the European Union.

and other education providers in integrating, where appropriate, the green transition and sustainable development across all their activities and operations. The 2022 Council Recommendation ensuring a fair transition towards climate neutrality[126] recommends ensuring the provision of high-quality accessible, affordable and inclusive initial education and training, including in VET. The 2023 Council Recommendation on the provision of digital skills and competences in education and training[127] recommends seeking a coherent and age-appropriate approach to the provision of digital skills and competences throughout all levels and types of education and training including VET.

Since 2021, the **European Education Area (EEA) Working Group on VET and the Green Transition** has been devoted to this topic by bringing together Member States, candidate countries and other stakeholders such as social partners for technical exchanges. In July 2025, the Commission published the final report of the Working Group[128] which presents key insights and lessons from its peer learning activities, webinars and regular meetings. It also draws on the two editions of its Compendium of Inspiring Practices in 2023[129] and 2024[130], which provide over 120 examples of concrete policies and practices from across Europe.

VET's digital transformation is essential for maintaining competitiveness and to leverage digital opportunities. In 2021, the Commission launched a module for work-based learning under the SELFIE[131] (self-reflection on effective learning by fostering the use of innovative educational technologies) tool. The aim is to help VET schools and companies that offer work-based learning improve the way they use digital technologies in their training and apprenticeship programmes.

Between 2021 and 2023, under the **Digital Education Action Plan**, a structured dialogue on digital education and skills was held between the Commission and EU countries, to help Europe deliver on the targets for 2030 under the Digital Decade policy programme. This dialogue included in-depth meetings with all 27 Member States on the status of digital education and skills, also focusing on the VET sector. During a workshop in March 2024[132],

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[126] Council of the European Union (2022) Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04). Official Journal of the European Union.

[127] Council of the European Union (2023) Council Recommendation of 23 November 2023 on improving the provision of digital skills and competences in education and training (2023/C 414/01). Official Journal of the European Union.

[128] European Commission (2025) VET's role in the green transition: Transformative practices for tomorrow's workforce: final publication of the Working Group on VET and the green transition. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/398179fd-5880-11f0-a9d0-01aa75ed71a1/language-en

[129] European Commission (2023) *Vocational education and training and the green transition: A compendium of inspiring practices*. Luxembourg: Publications Office of the European Union. Available at: https://op.europa.eu/en/publication-detail/-/publication/9ffbca44-0e5d-11ee-b12e-01aa75ed71a1/language-en

[130] European Commission (2024) *VET and the green transition: A compendium of inspiring practices (2024 edition)*. Luxembourg: Publications Office of the European Union.

[131] European Commission (n.d.) *SELFIE for work-based learning*. Available at: https://education.ec.europa.eu/selfie/selfie-for-work-based-learning

[132] Herrero, C., Villar Onrubia, D., Cosgrove, J., Kluzer, S., Centeno, C., Castaño Muñoz, J., Romero Rodríguez, S., Moreno Morilla, C., Weikert García, L., Arroyo Sagasta, A., Zubizarreta Pagalday, A., Wisniewski, D. and Fabe, N. (2024) *Digital transformation of vocational education and training (VET) workshop*. Luxembourg:

the Commission also promoted the use of the **European Digital Competence Framework (DigComp[133])**, which was updated in 2025, by VET institutions to frame digital skills development and assessment. In July 2025, the European Commission published a report about the enablers for VET's digital transformation, emerging trends[134], and the use of the SELFIE tool to foster collaboration between VET institutions and companies. In 2025, to better understand the implications of AI integration in VET and to inform the upcoming European Strategy for VET, the Commission also launched some explorative work to analyse use cases on the use of AI in VET. This was joint work between the Directotate-General of Employment, Social Affairs and Inclusion and the Joint Research Centre at the European Commission and included insights from Cedefop and the OECD. The goal is to draw evidence-based conclusions from the field to understand how AI can be safely and effectively integrated in VET.

5.6 EU funding for VET

5.6.1 Erasmus+

The 2021-2027 Erasmus+ programme substantially reinforced its support for VET, with 21,5% of the education and training budget going to learning mobility of VET learners and staff as well as partnerships for cooperation in this sector. Since 2021, the programme has supported learning periods abroad for 768 000 VET learners and staff, and almost 6 000 VET organisations have been accredited to provide mobility opportunities. In addition to these opportunities, the programme has supported the creation of more than 57 CoVEs, fostering more cooperation between companies and VET providers and the VET ecosystems at local, national and European levels. Erasmus+ has also supported numerous innovative projects aimed at matching the provision of skills to labour market needs, updating curricula and educational programmes in line with the green and digital transitions and improving the employability and entrepreneurship in VET (through policy experimentation, alliances for innovation and forward-looking projects).

The 2024 annual work programme of Erasmus+ included an action under 'European policy experimentations' to promote support structures and networks for apprentices' mobility, as well as to develop ways to overcome the obstacles preventing girls and women from pursuing a VET career in the green/Net-Zero Technology sector. Six projects were selected to promote apprentice mobility structures and networks, and four projects were selected to support girls in green VET careers.

Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC138603

[133] Cosgrove, J. and Cachia, R. (2025) *DigComp 3.0: European Digital Competence Framework (Fifth edition)*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC144121

[134] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881

VET mobility activities supported by Erasmus+ have contributed to strengthening the resilience and capacity of national VET systems. Demand for VET mobility continues to be much higher than what can be funded. . Between 2021 and 2025, the budget for VET mobility under Erasmus+ Key Action 1 increased in line with the legal percentage established in the Erasmus+ Regulation. Despite these increasesmost Member States maintained high efficiency in absorbing the funding. This shows that, non-withstanding the barriers identified by the Europe on the Move Communication, the institutional capacity to scale up mobility opportunities and meet the growing demand for VET has increased.

5.6.2 Cohesion policy funds: European Social Fund Plus (ESF+), European Regional Development Fund (ERDF) and Just Transition Fund (JTF)

It is estimated that during the period 2021-2027, EUR 62.2 billion together with national co-financing across EU Member States, including an EU contribution of EUR 40.4 billion from the European Social Fund Plus (ESF+) and a total of EUR 12.1 billion from ERDF (including Interreg), with EUR 8.6 billion of EU contributions, are programmed to fund measures, infrastructure and reforms for education, training and skills policies, including VET, which are planned in almost all Member States. This underscores the importance of cohesion policy funds, such as the ESF+ as the main EU budget source supporting education, training and labour market skills measures. Funded measures include the financing of VET institutions, reforms of VET systems, the digitalisation of VET and measures aiming at making VET more inclusive.

Specifically, Member States are using the ESF+ to adapt VET to the needs and expectations of young people and the labour market[135], to support reforms or further improvement of the vocational qualification system[136] and to apply digital solutions to promote the quality and accessibility of vocational education[137]. Another area of support is offering scholarships or social and financial incentives to pupils of VET institutions[138]. The ESF+ is also used to provide professional training for adults, including jobseekers[139]. Poland provides vocational training to help people with (chronic or rare) illnesses, disabilities or mental health disorders to return to work. Germany offers low-threshold vocational preparation for young adults who are not yet ready for training. Support is also focused on the provision of apprenticeships or internships[140], including in rare/dying out[141] and green[142] professions. Several Member States integrate digital tools and science, technology, engineering, art and mathematics (STEAM) skills in apprenticeships[143].

[135] BE, CY, EE, LU, PL, SK and SI.
[136] EE, FR and SE.
[137] LV and EL.
[138] EL, ES, LT and PL.
[139] DE, ES, FR, NL, PL, RO and SI.
[140] AT, CZ, DK, EL, FR, IT, MT, NL, PL, PT, RO and SK.
[141] FR and PL.
[142] FR.
[143] BE, CZ and PL.

Since 2020, the ESF and the ESF+ have also provided support for VET across Member States. For example, the ESF+ is investing over EUR 1.5 billion in VET in Portugal by 2027, a significant commitment aimed at expanding training opportunities. As of 2024, the ESF+ had supported over 101 000 VET students since 2021 and aims to support at least 366 000 by 2029[144]. Funded by the ESF, the Marijampole VET school works with local industry partners to tackle skills shortages in Lithuania. It supported nearly 2000 VET students in the period 2020-2022. In La Rinconada, just outside Seville in Spain, the ESF+ is supporting a new VET centre in aircraft engineering. More than 23 500 students across the region are expected to benefit[145].

Moreover, the European Regional Development Fund is supporting VET through direct investments in infrastructure, equipment, skills development, including in the area of cross-border cooperation, in particular for the benefit of SMEs. In the case of Greece and Croatia, CoVEs are being financed by ERDF resources. The Just Transition Fund (JTF) is being used to enhance VET and support infrastructure across the EU.[17]

5.6.3 Recovery and Resilience Fund and Technical Support Instrument

Reforms and investments related to adult learning and skills, included in Member States' recovery and resilience plans (RRPs) amount to around EUR 37.1 billion[146] while reforms and investments in general, vocational and higher education amount to around EUR 43.4 billion[147].

Reforms receiving support from the RRF have seen significant progress over the years[148]. For example, in Bulgaria, as part of its RRP, the regulatory framework for VET is being amended to support the adaptation of VET to the labour market needs. Throughout 2023, Spain worked under its RRP on the digital transformation, innovation, and internationalisation of VET, by investing in digital and green training of VET teachers and creating a network of 50 centres of excellence stimulating research and innovation. In Lithuania, an apprenticeship and work-

[144] European Commission (2024) *Transforming vocational education in Portugal: A strategic investment for a skilled workforce and a competitive economy*. Available at: https://european-social-fund-plus.ec.europa.eu/en/news/transforming-vocational-education-portugal-strategic-investment-skilled-workforce-and

[145] European Commission (2025) *Training for take-off: Preparing young people for careers in aircraft engineering*. Available at: https://european-social-fund-plus.ec.europa.eu/en/projects/training-take-preparing-young-people-careers-aircraft-engineering

[146] Figure as of 15 April 2026. Data is based on the pillar tagging methodology for the Recovery and Resilience Scoreboard and corresponds to the measures allocated to the 'adult learning, including continuous VET and recognition and validation of skills', 'human capital in digitalisation' and 'green skills and jobs' policy areas as primary or secondary policy areas. These figures are based on the ex ante estimated cost of the relevant RRF measures.

[147] Figure as of 15 April 2026. Data is based on the pillar tagging methodology for the Recovery and Resilience Scoreboard and corresponds to the measures allocated to the 'general, vocational and higher education' policy area as primary or secondary policy area. These figures are based on the ex ante estimated cost of the relevant RRF measures

[148] European Commission (2025) REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the implementation of the Recovery and Resilience Facility (COM(2025) 637 final); European Commission (2025) Recovery and Resilience Scoreboard, Thematic Analysis on adult learning and green skills; Thematic Analysis on Education; Joint Employment Reports 2024 & 2025.

based learning support scheme with a particular focus on small and medium-sized enterprises was set up under its RRP following the adoption of the apprenticeship scheme in September 2022. Poland has been investing EUR 360 million from the RRF to set up 120 sectoral skills centres. The centres, introduced formally into the Polish education system, are acting as links between schools, universities, and specific industries, to support implementing its reform to improve the relevance and quality of VET. In addition, 16 regional coordination teams have been set up to make sure what is being taught matches what local businesses need.

Member States have also applied for technical support to reform their VET systems, focusing on modernising frameworks, improving quality assurance, enhancing governance and attractiveness, and developing innovative funding models and skill roadmaps. Since 2020, the TSI[149], supported 20 projects in 12 Member States for a total of EUR 9 073 350.

5.7 Governance of the EU level VET policy framework

The EU's VET policy framework is underpinned by a network of collaborative structures designed to ensure coherence, quality and adaptability. Central to this framework are key bodies such as the ACVT, the Directors-General for Vocational Training (DGVT), the Expert Group of EU Level Associations of VET Providers, and the EQAVET network. These entities have served as forums for structured dialogue, coordination and implementation of the priorities set out in the 2020 Council Recommendation on VET since its adoption, while ensuring inclusive stakeholder engagement at the EU level. They have been instrumental in facilitating regular exchanges between Member States and other stakeholders such as VET providers and social partners about their responses to common challenges in line with the EU policy framework. The tripartite nature of the ACVT has also helped to ensure that VET policies remain closely aligned with the 2020 Council Recommendation on VET in an inclusive way that is responsive to the needs of both VET systems and labour markets. This collaborative approach has strengthened the legitimacy and coherence of EU VET initiatives.

5.7.1 Advisory Committee for Vocational training (ACVT)

Since its creation in 1963, and in accordance with Article 2 of Council Decision 2004/223/CE of 26 February 2004, the ACVT assists the Commission in implementing EU VET policy. The ACVT is a forum where Member States, social partners and the Commission exchange information, discuss and steer policy on VET, as well as on skills and qualifications. Particularly for the purpose of the 2020 Council Recommendation on VET, since 2020 the ACVT has annually discussed the progress in implementing the Recommendation based on the input from Cedefop and the ETF.

As requested by the 2020 Council Recommendation on VET, the ACVT rolling work programme is shared and updated for each ACVT meeting to monitor the objectives laid down in the skills agenda, the 2020 Council Recommendation on VET and the Osnabrück and

[149] While the Structural Reform Support Programme (SRSP) operated from 2017 to 2020, it was succeeded by the Technical Support Instrument (TSI) which runs from 2021 to 2027.

Herning Declarations, as well as the Union of Skills launched in 2025. This allows the ACVT to assess progress, ensure coordination between the different work strands (including the links with the EEA), and provide additional steering where needed.

5.7.2 Directors-General for Vocational Training (DGVT)

The DGVTs meet every six months, once during each EU presidency. The meetings are prepared and co-chaired by the Presidency and the Commission and serve to discuss topics related to EU VET policy including the priorities set out in the 2020 Council Recommendation on VET. The DGVT meetings are attended by high-level civil servants responsible for VET and adult learning in the participating countries (EU Member States, 9 Candidate and 4 EEA countries) and the 4 EU-level social partners (BusinessEurope, ETUC, SGI Europe, and SMEunited). The DGVT provides a forum to discuss ongoing policy initiatives at the European level. The main role of the DGVT is to support the development and implementation of VET and adult learning policies and to follow up on the priorities established in the framework of the Copenhagen Process through the 2020 Council Recommendation on VET and the Osnabrück Declaration, which from 2026 will be replaced by the Herning Declaration.

5.7.3 Expert group of EU level associations of VET providers

The Commission expert group **Platform of European Associations of VET Providers** was created in 2015 to obtain a structured dialogue at the European level with VET providers as well as higher VET/professional education and training institutions at higher levels. The main purpose of the VET providers expert group is to advise and support the Commission in the field of VET, to allow its members to inform the Commission of the associations' involvement in initiatives and projects at EU level and to discuss the latest developments related to the European VET policy. Since 2020, the focus of the expert group concerned different aspects related to the implementation and monitoring of the 2020 Council Recommendation on VET.

5.7.4 EQAVET network

EQAVET was established in 2009 and updated by the 2020 Council Recommendation on VET. It supports continuous quality improvement in VET systems across Europe. It offers a set of indicative descriptors and common quality indicators enabling Member States and VET providers to develop, monitor and improve the quality, effectiveness and labour-market relevance of VET provision.

Since 2020, the implementation of EQAVET has been strengthened through a more structured approach to cooperation and capacity building. EQAVET peer reviews of quality assurance arrangements at VET system level have been implemented, helping countries identify strengths and areas for improvement. These peer reviews have encouraged the use of learning-outcome-based evaluation, stakeholder involvement and continuous improvement cycles.

Recent work under EQAVET has supported the priorities of the 2020 Council Recommendation on VET, including improving quality assurance for apprenticeships and strengthening the use of data for monitoring and evaluation. In addition, several EQAVET

peer learning activities have focused on topics high on the EU policy agenda, such as micro-credentials, citizenship education and basic skills, further promoting shared approaches to emerging challenges in VET.

5.8 Monitoring of the implementation of the 2020 Council Recommendation on VET

The 2020 Council Recommendation on VET invites the Commission to 'report to the Council on the implementation of the Recommendation every five years, building on data available at national and European level and annual monitoring by Cedefop'.

The 2020 Osnabrück Declaration reaffirmed the role of Cedefop – and the ETF and tasked the agencies to monitor implementation of the agreed actions and report annually to the ACVT and DGVT. The ACVT agreed on an integrated process by combining the monitoring of the implementation of the 2020 Council Recommendation on VET and of the Osnabrück Declaration, and entrusted Cedefop and the ETF with this exercise.

The Herning Declaration, agreed by the ministers responsible for VET of countries participating in the Copenhagen process in September 2025, confirms the current monitoring arrangements, as it 'call[s] upon Cedefop and the ETF to continue supporting the Commission and countries by monitoring and analysing the implementation of agreed actions and reporting regularly to the Advisory Committee on Vocational Training and the Directors-General for Vocational Education and Training'. Since 2021, Cedefop and the ETF report once per year (the ACVT meets twice a year) on the implementation of countries' national implementation plans. This annual monitoring has contributed to the five-yearly reporting by the Commission.

6 Conclusions

6.1 General challenges in the implementation of reforms in VET

The analysis of the implementation of VET priorities across EU countries reveals some common and interconnected institutional, financial and cultural barriers that cut across all the priorities and hinder modernisation of VET systems. This section highlights these more general, cross-cutting challenges.

All Member States report measures to allow their VET systems to be agile in adapting to labour market change driven by factors such as the transition to climate neutrality and technological transformation (Priority 1). Approaches vary greatly, from Bulgaria and Slovakia's Centres of Vocational Excellence on the twin digital and green transition to Belgium, Austria, Germany, Poland, Sweden, Slovenia, and Spain experimenting with AI and immersive technologies in VET[150]. However, certain cross-cutting challenges prevent or slow down the agile response to changes in the labour market. Responsibilities for

[150] Cedefop (2025) *National VET reforms: accelerating progress to meet renewed EU priorities*. Available at: https://www.cedefop.europa.eu/en/news/national-vet-reforms-accelerating-progress-meet-renewed-eu-priorities

VET and upskilling and reskilling are frequently spread across multiple ministries, institutions and governance levels and require strong coordination frameworks and actions. These are often not in place, and even when they are they can be inefficient. While the exact institutional setup differs by country, responsibilities for VET are shared between the Ministries of Education, the Ministries of Labour/Employment/Social Affairs and Ministries of Economy/Industry. Combined with onerous and lengthy bureaucratic processes and resistance to change, fragmented and uncoordinated work can delay reforms and innovation and limit agile responses to evolving challenges.

In terms of priority 2 (Flexibility and progression opportunities being at the core of VET), countries have worked on making their VET systems more flexible, **ensuring learning progression and contributing to lifelong learning (LLL)**, **but some challenges remain**. Progress is mixed in areas such as green skills, where many countries reference sustainability in their NIPs but implement fewer concrete actions. Micro-credentials and partial qualifications are gaining ground, but they are still at an early stage of development in most countries. Flexibility has primarily been implemented through diversification of modes of learning[151]; the use of learning-outcome-based approaches and modularisation[152]; and providing opportunities for individuals' re- and upskilling needs[153]. Countries have been adapting existing CVET programmes or creating new ones to better meet the evolving needs of the labour market, but only a few countries are investing in skills intelligence which hinders flexibility in responding to rapid change in the labour market. The development of skills intelligence systems, including the systematic use of graduate tracking for VET policies and quality assurance, require more concentrated effort[154]. Along this line, research shows that the disparity between industry advancement and the rigidity of existing curricula acts as a significant barrier to the integration of digital and green skills in VET[155].

When it comes to Priority 3 (VET is a driver for innovation and growth that prepares learners for the green and digital transition and occupations in demand), countries are investing in innovative practices and excellence initiatives such as Centres of Vocational Excellence (CoVEs). However, availability and sustainability of financial resources pose a challenge, in particular to infrastructure modernisation and digitalisation of VET. Many initiatives for modernising VET and developing innovative approaches rely heavily or fully on EU funding[156] and do not have long-term funding provision once the EU funding ends. This is especially the case for maintenance costs of physical and digital infrastructure as well as for mainstreaming initiatives based on financial incentives to learners, providers or

[151] BE-FR, BE-NL, BG, DE, EL, ES, FI, HU, MT, PT, and SI.
[152] BE-FR, BE-NL, CY, ES, HU, LT, LU, LV, PT, and RO.
[153] AT, BE-FR, BG, CY, DE, DK, EE, ES, FR, HU, LU, LV, NL, PL, PT, SE, and SK.
[154] Only BE-NL, CY, EE, FR, HR, HU, LV, MT, PL, RO, SI, and SK include and report progress on measures dedicated to developing skills intelligence systems, including graduate tracking in their NIPs.
[155] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881
[156] Cedefop (2025) *National VET reforms: accelerating progress to meet renewed EU priorities*. Available at: https://www.cedefop.europa.eu/en/news/national-vet-reforms-accelerating-progress-meet-renewed-eu-priorities

companies. This has potential negative effects on the engagement of learners from vulnerable groups who may not be able to afford training without those incentives. Excellence initiatives and other initiatives for systemic development of VET are still at an early stage of implementation in several countries.

When it comes to being an attractive choice based on modern and digitalised provision of training and skills (Priority 4), there has been some progress in digitalisation but VET systems experience persistent and evolving capacity constraints in their teaching and training workforce. Many countries are facing shortages of qualified teachers and trainers, particularly those with expertise in fast-evolving areas like digital technologies and green skills. Teachers and trainers require robust pedagogical and technical support to navigate the complexities of digitalisation (e.g. training offer adjusted to their needs and freeing working time to practice the new skills and explore new technologies)[157]. In addition, it is becoming increasingly difficult to retain skilled teaching professionals as VET often offers less attractive working conditions and lower wages than the private sector. The increasing skill and competence demands that are placed on teachers and trainers call for systemic and multi-faceted CPD, which is often uneven and does not cover all areas. The lack of appropriate support prevents teachers from the effective implementation of new curricula, teaching new skills, e.g. digital or green, and adopting innovative pedagogies, including those based on advanced technologies, such as VR, XR, or AI.

The persistent perception that VET is less valued in society continues to limit VET attractiveness and enrolments. VET is still perceived by learners, their families, and society at large as less prestigious than academic pathways. To illustrate this point, the 2023 OECD Review of VET systems showed that despite the generally strong labour market outcomes of VET students, 70% of interviewees believe that VET is simply about manual work, despite the diversity of jobs which VET now leads to. The Special Eurobarometer 569 on VET attractiveness (forthcoming) also shows that while 50% of EU residents would recommend VET to a young person before entering upper secondary education**,** 75% agreed with the statement that in their country, general education at upper secondary level has a more positive image than IVET. Adult participation in lifelong learning is hindered by similar stereotypes and limited awareness of available opportunities.

When it comes to tangible outcomes of participation in VET, data shows that employment rates of recent graduates range from less than 70% in Italy, Spain, Romania and Greece to more than 90% in the Netherlands, Germany and Malta[158]. With an employment rate of 80.2% in 2025, vocational graduates fall between general secondary graduates (66.9%) and tertiary graduates (87%) placing them in an intermediary position in the labour market. VET is thus perceived by learners, their families, and society at large as less prestigious than academic pathways, despite evidence showing that VET can offer favourable employment outcomes.

[157] Herrero, C., Arroyo Sagasta, A., Castaño Muñoz, J., Centeno, C., Coenen, J. *et al.* (2025) *Supporting the digital transformation of Vocational Education and Training*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141881

[158] Eurostat (EU Labour Force Survey). Exposure of VET graduates to work-based learning [tps00215]

When it comes to VET promoting equality of opportunities (Priority 5), actions have been implemented to increase access to VET, but progress remains modest. Approaches focus on making VET systems accessible to different vulnerable groups and specific actions include awareness raising, early identification systems to prevent early leaning and lifelong guidance but more coordination is needed. Some countries worked to promote gender equality, but there is less evidence for gender inclusiveness and counteracting gender stereotypes in choosing occupations, depending on their national contexts and needs. For instance, in medium-level VET, female students are severely under-represented in STEM fields. Fewer than one in six students (15.4%) is female, compared to a proposed 2030 EU-level target of at least one in four.

Regarding VET being underpinned by a culture of quality assurance (Priority 6), only half of countries[159] worked on this priority and have shown progress. Countries worked on establishing or developing QA frameworks and processes in line with the EQAVET principles, albeit mostly in IVET and mostly building on the work started in the previous periods. Implemented measures include internal evaluation processes, continuous improvement and feedback loops) and improving stakeholder involvement in governance. QA in WBL and apprenticeships in IVET are still being developed at national level.

6.2 Overall assessment of progress and priority areas for the future

There has been notable progress of EU Member States toward the common priorities set by the 2020 Council Recommendation on VET and confirmed in national implementation plans. However, despite the critical role of VET in addressing both inclusiveness and labour market challenges – which include labour and skills shortages, an ageing workforce, as well as ensuring fair green and digital transitions – some challenges persist. This continues to undermine the potential of VET in driving inclusive and sustainable growth and competitiveness. Another pressing issue that limits VET's contribution to economic growth are the persistent gaps in VET access and outcomes – whether in ensuring gender inclusiveness, effectively supporting vulnerable groups or expanding lifelong learning.

There has been notable progress of EU Member States toward the common priorities set by the 2020 Council Recommendation on VET and confirmed in national implementation plans but there are variations among priorities and countries, regions, territories and challenges persist. Monitoring shows progress towards the quantitative targets on employment rates and WBL set by the 2020 Council Recommendation on VET. However, there has not been enough progress on the mobility target and the implementation of national measures to make VET systems excellent and inclusive including gender balanced, attractive and quality-assured. As recognised in the 2020 Council Recommendation, VET systems are defined by national legal and administrative frameworks dependent on national socio-economic contexts, and they largely differ between and within countries. This diversity of VET systems is both a weakness and a strength. While it contributes to differential capacity

[159] AT, BE-FR, BE-NL, CY, EE, FR, HR, HU, LT, LV, PL, PT, RO, SI, and SK.

and paths in tackling shared challenges it is also instrumental to ensure tailored national responses that are closely aligned with local labour market needs.

Member States have made strong efforts to make VET systems agile and resilient and adapting to rapid labour market changes (Priority 1), but some challenges remain. Progress has been achieved primarily by modernising VET standards, curricula, and programmes to incorporate a balanced mix of vocational skills and key competences, with particular focus on the systematic integration of digital skills. While progress in digitalisation has been observed in most countries, developments with the integration of green and sustainability skills have been advancing at a slower pace, with most of them registered in the past two years. Meanwhile, the establishment and development of robust skills intelligence systems, including the systematic use of graduate tracking for VET policies and quality assurance, require more targeted effort as only few countries have implemented measures directly focused on skills intelligence.

Despite the expansion of WBL and apprenticeship opportunities, some countries report a decline in the number of apprentices, in contrast to the previous periods where the shortage of available places was the main issue. Expanding apprenticeships to adults, and to higher education has advanced, but the intake is still limited. Policy could better address further improvements of the quality and effectiveness of apprenticeships, in line with the Council Recommendation of 2018 on a European Framework for Quality and Effective Apprenticeships to tackle the imbalances and mismatches of work-placements' demand and supply, especially for occupations relevant to the twin transition. Policy could also better explore incentives for employers and apprentices and invest in in-company trainers' professional development in pedagogy and support to learners from vulnerable groups, thus promoting social inclusion. Building on the Union of Skills, EafA could also further tackle gender stereotypes in apprenticeships in STEM fields and develop basic skills of apprentices.

Countries have shown their commitment to enhancing flexibility and progression opportunities within VET (Priority 2) and making upskilling and reskilling a reality for all, but many initiatives remain at an explorative stage. This flexibility is being advanced through the adoption of learning-outcome-based approaches and curricula and programme modularisation; establishing micro-credentials and partial qualifications and increasing opportunities for validation and recognition of learning outcomes acquired outside formal systems. Countries are diversifying modes of learning by strengthening infrastructure for digital and blended learning and exploring cutting-edge educational technologies such as VR, AR and AI. However, measures on micro-credentials and the use of advanced technologies are still at an early stage and have not yet reached their full potential in VET. Many countries would benefit from accelerating regulatory developments to speed up the legal and policy frameworks that enable micro-credentials and advanced technologies to be used effectively in VET, piloting digital platforms, and promoting mutual recognition of micro-credentials across EU.

European transparency tools aim at making VET better understood by employers and other stakeholders. Among the main conclusions of the EQF evaluation in 2024 was that EQF is a

well-established reference point that is widely accepted among institutions working with qualifications[160]. The EQF and related NQFs are key tools to make VET qualifications more transparent within and across borders in connection with their level and content. Europass, as EU tool for career management and lifelong learning, helps VET learners to communicate about their qualifications and skills, including in a context of labour mobility. However, uneven implementation of these instruments is hindering the transparency and understanding of qualifications and skills across the EU. Among the lessons learned from the Europass evaluation of 2024 is that the data analysis and AI in Europass could be further developed, contributing to tackling skills and labour shortages, by which VET occupations are particularly affected[161].

Adult participation rates in training remain low in many countries. While Member States are increasing their focus on lifelong learning, the participation rate stood at only 39.5% in 2022 according to the Adult Education Survey (AES) with high variability between countries. This is below the EU-level target[162] of at least 60% by 2030. It is important that CVET addresses the learning and development needs of *all* adults. Additionally, further implementation of lifelong guidance, validation of prior learning, micro-credentials and partial qualifications, together with well-designed incentives for both individuals and employers could strengthen learner participation and support. It is also crucial to monitor participation and ensure synergies and coordination among various providers.

Some progress has been observed in advancing excellence, innovation, and quality assurance across the VET sector (Priority 3), but not enough countries have invested in modernised infrastructure and in CoVEs. Countries are modernising VET infrastructure by investing in both digital platforms and physical facilities, aligning them with current industry needs. Support for CoVEs remains limited but is expanding through the creation of new centres or the development of existing ones, often through EU funding. Continuity and upscaling where possible are key to achieve the objectives in these fields and to unlock their full potential for learners and VET systems as well as to increase the attractiveness of VET. Availability and sustainability of national financial resources remain a key concern, especially for upgrading infrastructure and advancing digitalisation in VET.

A recent analytical report on a selection of Erasmus+ CoVE projects, shows that these can act as structural enablers for transformation in VET, e.g. through innovation in teaching and learning, aligning VET with labour market and skills needs, strengthened cooperation between key stakeholders. To further develop the initiative and its impact, the report presents some recommendations with regards to engagement of public authorities and more

[160] European Commission (2024) *European Commission publishes evaluations of Europass and European Qualifications Framework*. Available at: https://employment-social-affairs.ec.europa.eu/news/european-commission-publishes-evaluations-europass-and-european-qualifications-framework-2024-03-27_en

[161] Report from the Commission to the European Parliament and the Council on the implementation and impact of Decision (EU) 2018/646 of the European Parliament and of the Council of 18 April 2018 on a common framework for the provision of better services for skills and qualifications (Europass); EUR-Lex - 52024DC0135 - EN - EUR-Lex.

[162] Target originating in the 2021 Council Conclusions on a new European agenda for adult learning 2021-2030. See also the European Pillar of Social Rights Action Plan.

involvement of learners and workers, as well as diversifying funding, tightening links to other initiatives and bodies such as the Pact for Skills and the ACVT, scaling pedagogical innovation, and balanced integration of digital and green skills across all sectors of the economy.

Countries have worked to support VET teachers and trainers (Priority 4), but the low attractiveness of the profession continues to put VET systems under pressure. Measures include investing in VET teacher and trainer CPD. However, available evidence suggests a lack of systemic approaches to cover complex learning needs of teachers and trainers including the systematic monitoring of their professional development in terms of content and impact on teaching practices. To address teacher shortages and improve the image of the profession, countries could work on improving working conditions and adjusting salaries, provide diverse and sufficient professional development opportunities, including internships in companies and exposure to international experiences through staff mobility. In addition, flexible entry pathways to teaching from the labour market and the 'blended teachers' models are not yet widely explored. The Herning Declaration also calls for attention to teacher and trainer mental well-being, a field not much explored so far.

Despite efforts and targeted actions across countries, the perceived lower status of VET compared to general and academic education persists as a key obstacle to modernisation and increased participation in VET, both in IVET and CVET. Measures to increase the attractiveness of VET include expanding VET programmes to higher qualification levels (EQF 5-8) to move beyond traditional upper secondary VET and to develop vocationally oriented pathways at tertiary level through for example developing short-cycle higher technical programmes and improving the permeability between VET and higher education. Supporting innovation and internationalisation can be a key driver to increase the attractiveness of VET. Mobility of VET staff, such as teachers, trainers, and guidance professionals is less developed than that of learners. While some initiatives and projects are reported, internationalisation remains uneven and weakly embedded in national VET systems, despite its strategic importance for attractiveness and excellence as set out in the 2020 Council Recommendation on VET. Strengthening the positive image of VET and thereby improving its attractiveness — can also be further supported through targeted promotion of benefits and graduates' employment prospects including via awareness campaigns, lifelong guidance mobility opportunities, and participation in international skill competitions. Strengthening mobility schemes and institutionalising internationalisation, including through the recognition of learning outcomes acquired in mobility as part of VET programmes or of professional development for staff, combined with awareness raising can help close the gaps.

While progress on promoting equality of opportunities and gender-inclusive VET systems is seen as modest (Priority 5), countries are implementing targeted measures for vulnerable groups. Examples include preventing early school leaving through early identification and social support, using flexible learning pathways to increase participation in lifelong learning, lifelong guidance and financial incentives. Meanwhile, there is less evidence for gender inclusiveness and counteracting gender stereotypes in choosing occupations, depending on national contexts and needs. The lack of gender balance and the

underrepresentation of women in STEM fields and in VET have significant labour-market consequences. These imbalances contribute to persistent skills shortages, limit economic productivity, and reinforce structural inequalities in employment and wages. Addressing inclusiveness in VET is crucial to ensure that vulnerable groups (e.g. long-term unemployed, people with disabilities, young people not in education or training) can complete quality training so that they are well equipped to enter the labour market, thereby increasing overall employment rates and productivity at large. Countries would benefit from more coordination among policies, responsible bodies and services. Financial incentives should be combined with information, lifelong guidance and effective outreach from early stages.

Countries focusing on quality assurance in VET (Priority 6) have also made some progress. About half of the countries working on new strategies to align national quality assurance systems with the EQAVET priorities, strengthening self-assessment by VET providers (e.g. internal evaluation processes, continuous improvement and feedback loops), and improving stakeholder involvement in governance. Continuity and increased investments are key to achieve the objectives in terms of advancing excellence, innovation and quality assurance and to unlock their full potential for learners and VET systems.

Social partners are central to the governance and implementation of VET policies, contributing to policy development, curriculum design, quality assurance, funding decisions, and career guidance. There is scope to further expand their role (Cedefop & ETF, 2025), both of employer organisations and trade unions, to the implementation of measures, in particular on skill intelligence and identification of skill needs, provision of apprenticeships and employment opportunities for vulnerable groups, reskilling and upskilling, recognition and validation of non-formal and informal learning.

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8 Annex – Overview of national reform measures per priority topics

Thematic priorities	Countries that reported implementation as per NIPs[163]
VET is agile in adapting to labour market changes	
Modernising VET standards, curricula, programmes and training courses	AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, EL, ES, FI, FR, HR, HU, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI and SK.
• integrating digital skills and competences in VET curricula and programmes	AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, FI, FR, HU, IT, LV, MT, PL, PT, RO, SI and SK.
• integrating green transition and sustainability in VET curricula and programmes	AT, DE, DK, EE, FR, HU, PL, PT, SE and SI.
Developing and updating learning resources and materials, mostly digital	AT, BE-FR, BE-NL, BG, CY, DE, DK, ES, HU, LU, NL, PL and PT.
Establishing and developing skills intelligence systems, including graduate tracking	BE-NL, CY, EE, FR, HR, HU, LV, MT, PL, RO, SI and SK.
Engaging VET stakeholders and strengthening partnerships in VET	BE-FR, BE-NL, BG, CY, DE, DK, EE, EL, ES, FR, HU, IT, LT, LU, LV, MT, NL, PL, PT and RO.
Acquiring key competences	AT, BE-FR, BE-NL, BG, CY, DE, DK, ES, FI, FR, HR, HU, IT, LT, LU, NL, PL, PT, RO, SI and SK.

[163] Disclaimer: the countries indicated are those that have dedicated measures in their NIPs directly addressing the issue and have reported progress on those measures. Other countries might have actions implemented, but they have not been reported because not included in the NIP.

Thematic priorities	Countries that reported implementation as per NIPs[163]
Reinforcing work-based learning, including apprenticeships	AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, EL, ES, FR, HR, HU, IT, LT, LV, NL, PL, PT, RO, SI and SK.
Flexibility and progression opportunities are at the core of VET	
Providing for individuals' re- and upskilling needs	AT, BE-FR, BG, CY, DE, DK, EE, ES, FI, FR, HU, LU, LV, NL, PL, PT, SE and SK.
Financial and non-financial incentives to learners, VET providers and companies	BE-NL, CY, DE, DK, FR, HU, MT, NL, PT, RO, SE and SK.
Diversifying modes of learning: face-to-face, digital and/or blended learning; adaptable/flexible training formats	BE-FR, BE-NL, BG, CY, DE, EL, ES, FI, FR, HU, LU, LV, MT, PT and SI.
Using learning-outcome-based approaches and modularisation	BE-FR, BE-NL, CY, ES, HU, LT, LU, LV, PT and RO.
Developing and applying qualifications smaller/shorter than full	BE-NL, DE, FI, FR, HR, HU, IT, LV, MT, NL, PL, PT and SK.
Learners' possibilities of accumulation, validation and recognition of learning outcomes acquired non-formally and informally	AT, BE-NL, BG, CY, DE, ES, FR, HU, IT, LT, MT, PT, SE and SK.
Advancing Micro-credentials and Partial Qualifications	BE-NL, DE, FI, HR, HU, LV, MT, NL, PL, PT and SK.
VET is a driver for innovation and growth and prepares learners for the digital and green transitions and occupations in high demand	
Supporting Centres of vocational excellence (CoVEs)	AT, BE-FR, BG, DE, DK, EE, ES, FR, HR, HU, LT and SK.
Modernising infrastructure for vocational training, including for	AT, BE-NL, BG, CY, DE, DK, EL, HU, IT, LT, LV, PL, PT, SI and SK.

Thematic priorities	Countries that reported implementation as per NIPs[163]
digital and green	
VET is an attractive choice based on modern and digitalised provision of training and skills	
Permeability between IVET and CVET and general and vocational pathways, academic and professional higher education	AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FI, FR, HU, LT, NL, PT, RO, SE and SK.
Expanding VET programmes to EQF levels 5-8	AT, DE, IT, PT, RO and SK.
Systematic approaches to and opportunities for initial and continuous professional development of school leaders, teachers and trainers, including for digital and green skills	AT, BE-FR, BE-NL, BG, CY, DE, DK, EE, ES, FI, FR, HR, HU, IT, LT, LU, LV, NL, PL, PT, RO, SI and SK.
Lifelong guidance	AT, BE-FR, CY, DE, DK, ES, FR, HU, MT, NL, PL, PT, RO, SE and SK.
Mobility of learners and staff	AT, BE-NL, DE, DK, FR, HR, LT, LV, MT, NL and PL.
Internationalisation in education and VET, including international skill competitions	AT, CY, DE, DK, EE, EL, HR, LV, PT and PL.
Promotion and targeted campaigns for VET and LLL	AT, BG, DE, DK, EE, HR, LV, MT, NL, PL, PT and RO.
VET promotes equality of opportunities	
Ensuring equal opportunities and inclusiveness in education and training	AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FI, FR, HR, HU, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI and SK.
Focus on vulnerable groups	AT, BE-FR, BE-NL, CY, DE, DK, EE, ES, FI, FR, HU, LT, LU, LV, NL, PL, PT, RO, SE and SK.
Building more gender-inclusive VET systems	AT, BE-NL, CY, DE, DK, FR, MT, NL and SI.

Thematic priorities	Countries that reported implementation as per NIPs[163]
VET is underpinned by a culture of quality assurance	
Further developing national quality assurance systems	AT, BE-FR, BE-NL, CY, EE, FR, HR, HU, IT, LT, LV, MT, PL, PT, RO, SI and SK.
Governance	
Establishing and developing formal stakeholder engagement	BE-FR, BE-NL, CY, EL, FR, HU, IT, LT, LU, LV, MT, PL, PT and RO.
Fostering informal cooperation	BE-FR, BE-NL, BG, CY, DE, DK, EE, ES, FR, HU, IT, LT, LV, NL, PL, PT and RO.