

Future-ready VET SYSTEMS AND SKILLS





Foreword	3
1. Cedefop in numbers	4
2. Closing the digitalisation and AI skill gap	5
3. Driving inclusion through evidence and action by closing the distance to participation in employment, education, and training	9
4. Analysing and monitoring progress towards EU priorities in VET	15



A message from our Executive Director

The future of Europe hinges on our ability to turn global challenges into opportunities for innovation, from megatrends like the twin transition and demographic shifts to the rapidly evolving world of work and society. This requires investing in people, strengthening their skills, and expanding opportunities across classrooms and workplaces alike, ensuring that no one is left behind.

Europe is striving for a more competitive, greener, more digital and resilient future. Yet, Europe's current labour shortages, skill gaps and mismatch make it difficult to scale up employment in the green economy, drive growth in emerging sectors, and ensure access to quality jobs for all Europeans.

Skills are a cross-cutting policy priority that can hinder or propel progress across all sectors and demographics. Cedefop is the EU Agency for skills.

This brochure highlights some of Cedefop's key achievements in 2024, including our work on the digital transformation, our research on the inclusion of vulnerable young people, and our ongoing monitoring of VET and skills policy priorities across Europe.

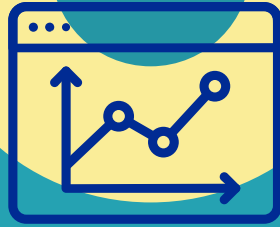
Cedefop intensified its focus on digitalisation and its impact on the future of work. This included tracking labour market trends with a new dashboard, monitoring the digital skills demand in online job ads, and launching a new survey on AI in the workplace. The last assesses AI's impact on workers and jobs, measures skill gaps, and determines AI training needed to harness AI's potential.

As part of its support for the implementation of the European Pillar of Social Rights, Cedefop focused on developing toolkits to improve the inclusion and support of early leavers from education and training, as well as young people not in education, employment or training (NEETs).

Cedefop also built on the momentum of the European Year of Skills, mobilising its skills intelligence and VET evidence, outlining what Europe needs to make the skills revolution a reality. The lessons learned in the European Year are shaping policies and actions for years to come. The links between skills, innovation, and economic and social development present both challenges and opportunities. If we get the skills revolution right, its ripple effects will drive positive change across our economies and societies.

A heartfelt thank you goes out to Cedefop's tripartite Management Board, our stakeholders, and the wider VET and skills community for their invaluable contributions. Your collaboration serves both as a compass and a litmus test for our work. We look forward to continuing this partnership, leveraging collective wisdom, support, and resources to produce the evidence Europe needs – turning ambitions for skills into real skilling opportunities for young people and adults across the continent.

Jürgen Siebel
Cedefop Executive Director



WEBSITE TRAFFIC

+36% visits

SOCIAL MEDIA FOLLOWERS

f 18 040 (+2%)

in 15 325 (+37%)

X 13 650 (+0.5%)



PUBLICATIONS

413 667 downloads (-7%)

Take-up (citations) in 2023-24 of Cedefop's work in

208 EU policy documents

124 papers of int. organisations

978 academic articles



QUALITY OF CEDEFOP EVENTS

96.5% satisfaction rate



CONTRIBUTIONS TO MEETINGS
that inform policies

83 virtual

90 physical

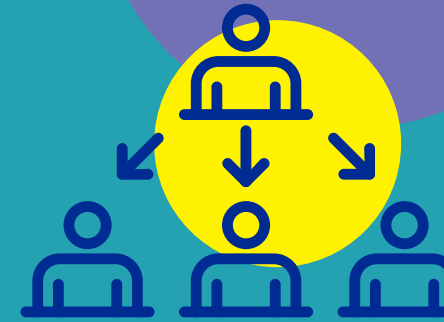
53 EXTERNAL EVENTS

ORGANISED IN 2024 including

29 hybrid/physical events

24 virtual events, including
5 virtual get-togethers

3 400 external attendees (+25%)



ENVIRONMENTAL FOOTPRINT



-29% Electricity consumption
from the grid

+77% Electricity from
renewable sources

Check out the full list of publications, events, and online tools delivered in 2024



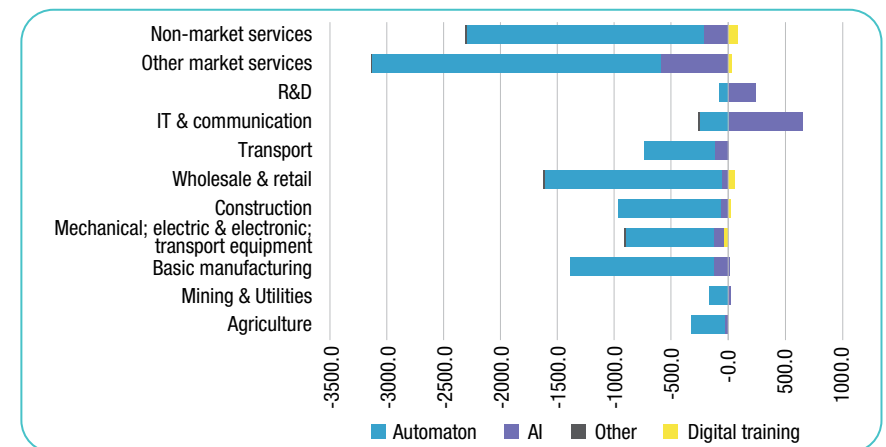
Closing the digitalisation and AI skill gap

The digital transition needs a skills revolution

Rapid digitalisation and technological advancements offer major economic and societal opportunities, which are held back by major skill gaps. Cedefop's data show that 1 in 2 workers have digital upskilling potential and 3 in 5 workers need AI skills. These skill gaps contribute to broader labour shortages, stifling competitiveness, innovation, and inclusion. If left unaddressed, they will continue to hinder growth, worsen workforce shortages, and deepen social exclusion.

Due to its cross-cutting and transformative impact, digitalisation is a core focus of Cedefop's work. In 2024, Cedefop used its [skills forecast framework](#) to assess the effects of digitalisation and digital skills policies on employment and skills through 2035. Achieving the EU's digital transition goals is expected to drive job growth in sectors such as computer programming, research and development (R&D), and telecommunications. New job opportunities will also emerge in non-market services, including education and training.

Figure 1. Scenario, employment impact of digital transition by sector, EU-27 (difference in '000t from baseline)

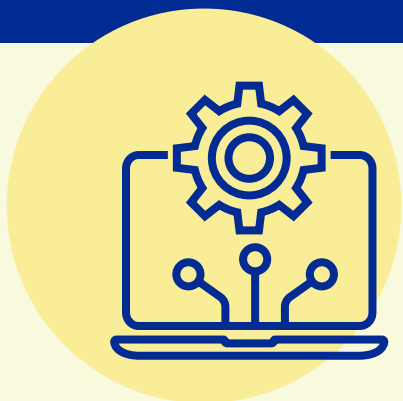
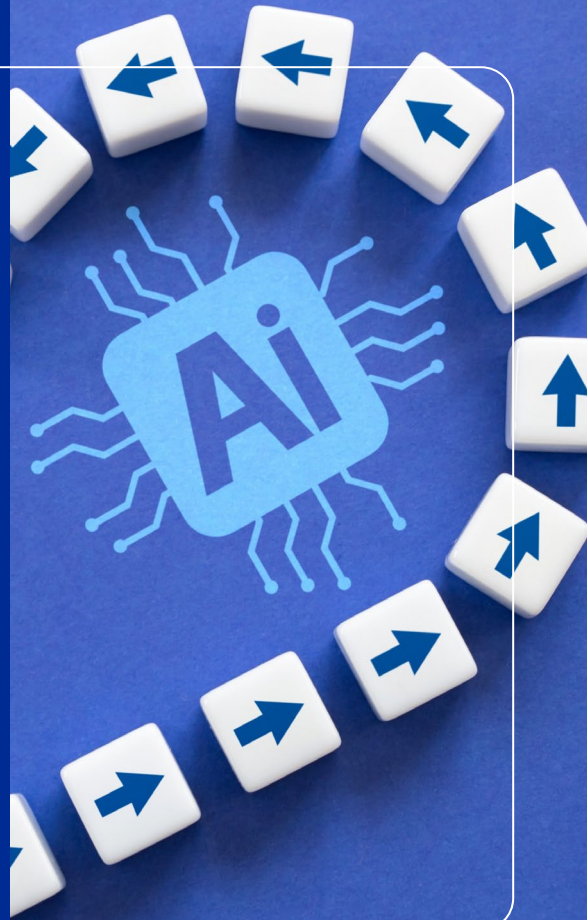


Source: Cedefop digital transition scenario.

While **digital technologies** can automate human tasks, leading to job displacement and potential job losses, they also offer **opportunities to enhance skilled work and improve overall job quality.**

Cedefop research shows that 6 out of 10 adult workers do not fully understand:

- how machines or computers learn from data using algorithms;
- how they recognise images, text, or other data;
- how to interpret the findings of AI applications and understand their limitations.



42% of workers have an AI skill gap, but only **15%** receive training in AI technology.

© Andrii Yalanskyi/shutterstock.com

Towards a human-centred digital transition

The productivity-enhancing effect of AI fosters worker versatility and enables engagement in more fulfilling tasks. Cedefop's research suggests that while AI will replace some human tasks and jobs – particularly in the wholesale, retail, and construction sectors – digital transformation is an engine of jobs in information communication technology (ICT) and R&D. By 2035, automation and AI could lead to a modest 5% reduction in employment, though this depends heavily on the pace of automation and AI deployment.

Technological readiness, funding availability, regulatory frameworks, and social partner dynamics all influence this timeline. What is clear is that to navigate the digital transition successfully, significant investment in human capital – through digital skills training, including AI education at all levels – is essential.

Overcoming AI skill gaps

Complementing other efforts to assess the impact of digitalisation and AI, in 2024, Cedefop launched an AI skills survey, gathering insights from employed adults across 11 EU Member States on AI's impact on jobs and tasks. The survey, presented at a Brussels seminar in cooperation with the Belgian Presidency of the European Council, revealed that **42% of workers have an AI skill gap, but only 15% receive training in AI technology**, and that, while AI literacy is still underdeveloped, many basic skills are often lacking.

As digital technologies are increasingly adopted across various occupations and sectors, possessing a strong set of digital skills is no longer optional – it is a necessity. Providing opportunities for both young people and adults to develop these skills is crucial for preventing shortages and boosting productivity. In 2024, Cedefop, in collaboration with the OECD, released *Apprenticeships and the digital transition*, a flagship report on

Key findings in 2024 highlight the **rapid digitalisation affecting many non-IT roles** and the growing demand for a ‘willingness to learn’ as a standout skill in demand across sectors.



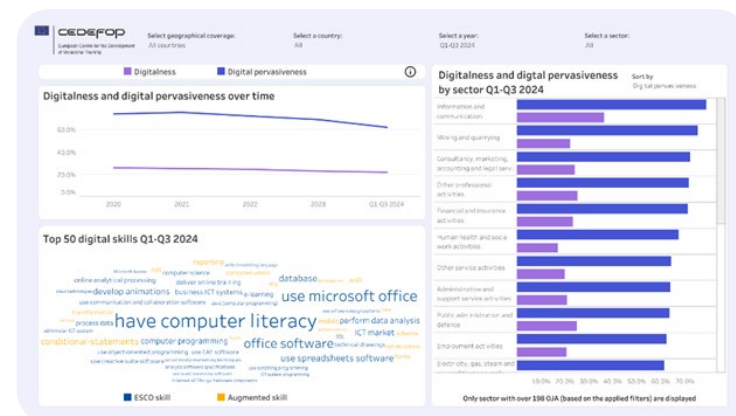
apprenticeships, outlining how they can help cultivate the skills needed for the digital transition and how digital technologies can improve apprenticeship delivery.

Monitoring the real-time acceleration of digitalisation across the labour market

In 2024, Cedefop enriched SkillsOVATE, the online tool providing detailed insights into jobs and skill demands based on online job advertisements in 32 European countries. The tool now features digital dashboards that track ICT staff recruitment trends and digitalisation patterns in occupations, sectors and regions.

Key findings in 2024 highlight the rapid digitalisation affecting many non-IT roles and the growing demand for a ‘willingness to learn’ as a standout skill in demand across sectors. Two thirds of non-ICT roles now require digital skills, with digital literacy becoming a baseline expectation. Advanced skills in data analysis, graphic design, and animation development are increasingly sought after.

Figure 2. SkillsOVATE digitalisation dashboard



Driving inclusion through evidence and action

by closing the distance
to participation
in employment,
education, and training

Cedefop's research shows that:

almost

1 in 10 young people abandons their studies

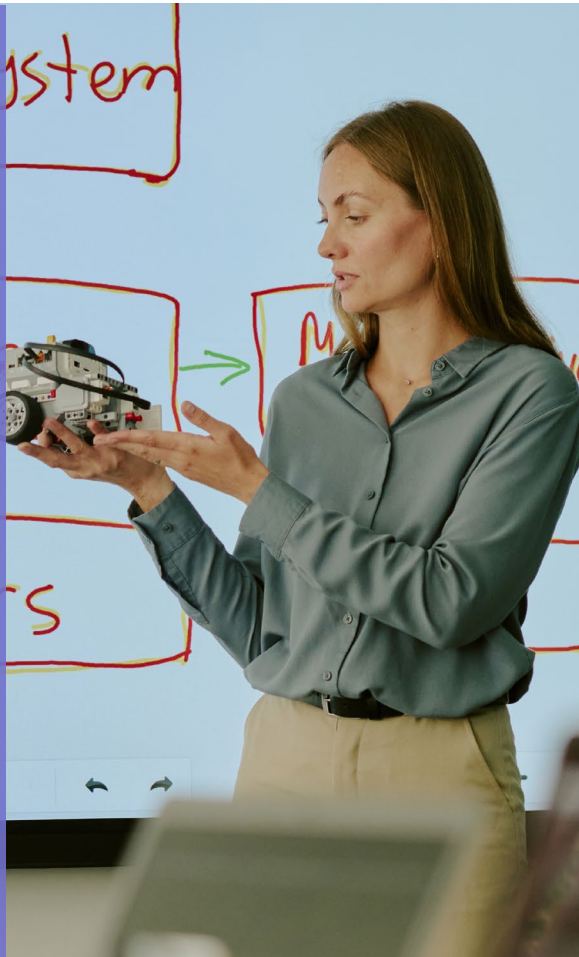
before qualifying in upper secondary education; early leaving from education and training jeopardises their job and life prospects.

.....

Some Member States still lag substantially behind the EU targets, while regional and gender disparities continue to persist.

For example, in 2023 NEETs aged 15 to 29 ranged from

4.8% in the Netherlands to **19.3%** in Romania.



more than **70% of NEETs are at risk of long-term exclusion** due to protracted inactivity.

Inclusion and support for early leavers from education and training, as well as young people not in education, employment or training (NEETs), lie at the heart of Cedefop's work, fully aligned with the European Pillar of Social Rights and Europe's goal of reducing early leavers share from 9.5% to below 9% and the NEET share from 11.2% to 9% by 2030.

Cedefop promotes inclusion by developing tailored interventions and fostering innovative solutions to empower vulnerable and at-risk youth.

Through dedicated research, policy recommendations, and stakeholder engagement, Cedefop contributes to creating more inclusive learning and employment pathways across Europe.

In 2023 :

11.2% of 15- to 29-year-olds in the EU were neither in employment nor in education and training;

9.5% of 18- to 24-year-olds in the EU had completed at most, lower secondary education and were not in further education or training (early leavers).

In 2023,

9.6 million
young people
(aged 15 to 29)
in the EU were
NEETs, representing
11.2% of this age group.
The NEET status is more
prevalent among women
(12.5% compared to
10.1% for men);

.....
in two EU Member States
the proportion of young
female NEETs was at least
10 percentage
points (pp)
higher than the
corresponding
share for young
men. The largest
differences were found
in Czechia (10.9 pp) and
Romania (10.7 pp).



© SvetaZi/shutterstock.com

Addressing early leavers and young people not in education, employment or training (NEETs)

Through a dedicated knowledge hub, Cedefop supports policymakers and VET practitioners in designing, implementing, and evaluating policies and practices to address the diverse needs of learners at risk, early leavers, and NEETs. This hub includes tailored toolkits, evidence-based policies, practices, and guidelines.

VET toolkit for empowering NEETs

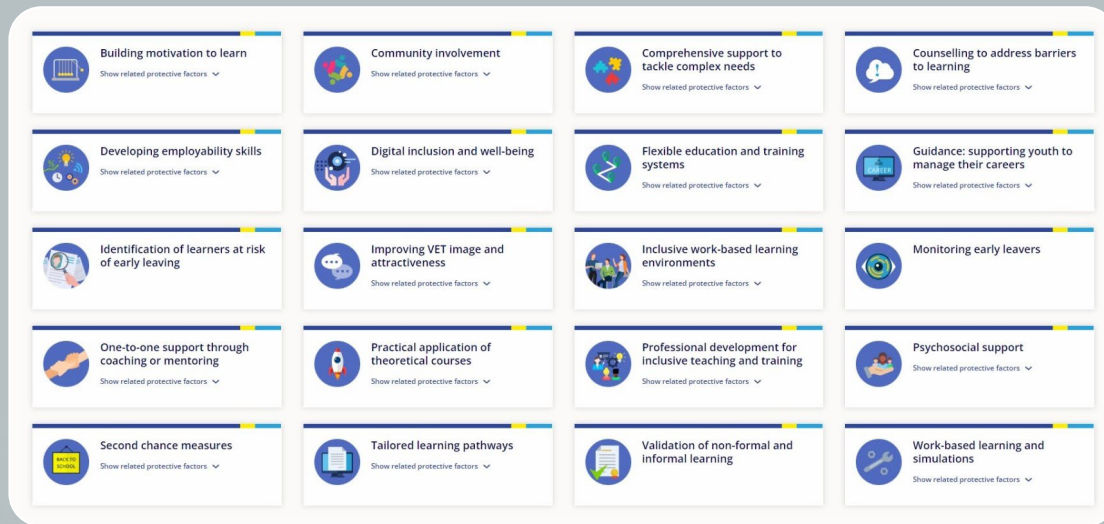
In 2024, Cedefop:

- **significantly expanded the resources of the VET toolkit for empowering NEETs**, which now includes new targeted **guidelines and intervention approaches** for NEETs reintegration into education and training, or the workforce;
- **collected inspiring good practices** across the EU, **focusing on those working directly with young people at risk**, including NEETs living in remote areas, female NEETs, and other groups of NEETs such as migrants, low-skilled individuals, and young people with disabilities;
- **developed and released two new evaluation tools to monitor policies and practices, along with numerous relevant policy and research studies**. More than **40 new entries** were added to the toolkit, covering active labour market policies, youth transitions, digital inclusion, mental health, and integration pathways.

In addition, two new intervention approaches were published:

- **mentoring programmes** that provide personalised guidance for NEETs, offering access to new opportunities and networks while helping them overcome barriers to education, training, and employment;
- **targeted support for female NEETs** through specialised outreach approaches to re-engage them in employment through VET.

Figure 3. 20 key intervention approaches to support learners at risk and early leavers



VET toolkit for tackling early leaving

In 2024, Cedefop continued enriching its [VET toolkit for tackling early leaving](#) with hundreds of resources for practitioners and policymakers **working with learners at risk and early leavers from education and training.**

- The toolkit includes a total of 20 key intervention approaches** for addressing early leaving from VET. These can assist on an array of key topics, ranging from identifying at-risk students and monitoring early leavers to building motivation, supporting professional development for inclusive teaching, fostering community involvement, and promoting digital inclusion and wellbeing for both learners, teachers and trainers.
- The toolkit also offers two [evaluation tools](#), one for policymakers and one for VET practitioners. These tools aim to guide government representatives on what strategies need to be implemented, and prompt VET providers and other relevant organisations to reflect on how to implement them.
- In addition, more than 20 key policy documents and research studies** were made available in 2024 amounting to a total of 192 bibliographical [resources](#), 64 good practices and 51 tools.

Preparing teachers and trainers to promote inclusion

In 2024, Cedefop placed great emphasis on VET teachers' continuing professional development and wellbeing. In 2025, Cedefop is set to launch its [European VET teachers survey \(EVTS\)](#), which will provide valuable insights into how VET teachers engage in training to promote inclusion, address violence and bullying, and support students' wellbeing. To support the planning and implementation of the survey, in 2024 Cedefop established the [EVTS stakeholder group](#), comprised of around 100 members representing ministries from the 23 countries joining the survey, as well as European and national members of the EU social partners for education (ETUCE and EFEE).



Figure 4. Different profiles and needs of NEETs



Strategic engagement and knowledge-sharing

Throughout 2024, Cedefop's work on inclusion was widely disseminated, enriching policy debate and exchange through:

- **involvement in 10 high-impact events**, engaging key stakeholders to address teacher shortages, teachers' participation in continuing professional development, **digital inclusion and wellbeing**, **inclusive education and training environments**, **tackling bullying and youth violence**, **gender-specific challenges of NEETs**, and **monitoring early leaving from VET across the EU**;
- **strengthened collaboration with key EU stakeholders**, including the European social partners for education: the European Trade Union Committee for Education (ETUCE) and the European Federation of Education Employers (EFEE);
- the continuous expansion of the **European network of ambassadors tackling early leaving from VET**, which has grown to 102 members from 23 EU Member States and EU-level experts. This initiative fosters **peer learning and disseminates good practices** for inclusive educational ecosystems. Interested individuals can apply to **become an ambassador for inclusion in and through VET**.



Become →
an ambassador

Analysing and monitoring progress

towards EU priorities
in VET

Implementing European priorities in VET

Monitoring and analysing progress towards European VET priorities, as set out in the 2020 Council Recommendation on VET and the Osnabrück Declaration, is central to Cedefop's mandate. This includes tracking key VET policy developments in EU Member States, Norway and Iceland, as outlined in their [national implementation plans \(NIPs\)](#). [ReferNet](#), Cedefop's VET expertise network, plays a crucial role in this process.

Cedefop's analysis shows that progress on planned measures advanced in 2023, some NIP-related policies were launched, and others transitioned from design to implementation. Most developments focused on aligning VET and labour market needs, customising individuals' learning pathways, and expanding lifelong learning opportunities.

Some of the common trends captured across European countries, include:

- **curriculum reforms and modernisation:** many countries have updated and introduced new VET programmes incorporating emerging technologies and green and digital skills;
- **expanding work-based learning:** strengthening apprenticeships and other work-based learning forms is seen as crucial for bridging education and employment;
- **flexible and modular learning:** more countries are implementing microcredentials, modular training programmes, and recognition of prior learning to raise learning flexibility;
- **investing in VET infrastructure and advocacy:** governments are modernising

VET facilities, promoting VET careers through success stories, and encouraging participation in national and international skills competitions;

- **engaging various stakeholders** – local governments, employers, VET providers, and experts – in shaping VET policies. Efforts have been made to strengthen partnerships, with employers playing a key role in defining work-based learning demands and trade unions advocating for apprentices' rights and

training quality;

- **common challenges:** while countries focus on specific priorities and measures, based on their national contexts and challenges, some transversal challenges persist, such as sustaining reform efforts in the context of political change and instability, and planning and availability of funding;
- **continuity of reform:** despite the progress, countries need more time to implement the initiated reforms fully.



In 2024, to complement its analysis, Cedefop conducted a series of national VET stakeholder interviews across the EU-27+ to gather insights into EU priorities for VET in their countries and on specific issues identified through Cedefop's 2022-24 progress analysis.

Stakeholders confirmed the relevance of the commonly agreed priorities, emphasising a need for coordinated policy frameworks and resource allocation, strengthened stakeholder cooperation and partnerships, further development of skills anticipation mechanisms, and professional development for VET teachers and trainers. They also highlighted the importance of digitalisation and the integration of advanced technologies (including AI, augmented and virtual reality) in teaching and learning, aligning with the green and digital transitions, promoting VET benefits, expanding lifelong learning opportunities, improving career guidance and support services, and recognising learning and qualifications from third countries. These findings were largely confirmed by participants during an online [validation workshop](#).

In 2024, Cedefop presented its analysis outcomes at the Advisory Committee on Vocational Training (ACVT) meetings, focusing on NIP implementation, and contributed to the meeting of Directors General for Vocational Training (DGVT) on the use of AI in VET and digitalisation.

Cedefop's analysis also informed the European Commission's comparative work [Education and Training Monitor 2024](#), and organised a virtual get-together, [VET in action – evidence from implementing EU priorities in national VET plans](#), attended by 180 participants from over 50 countries.

Cedefop released its first biennial national [policy briefs on VET policy developments](#), and, in cooperation with ReferNet, published the [Thematic perspectives](#) series on implementing EU priorities from 2020-23, with a focus on 2023 progress and VET stakeholder involvement. Cedefop also summarised preliminary findings and some practice examples in its briefing note [Moving towards common policy goals and aligned progress reporting](#).

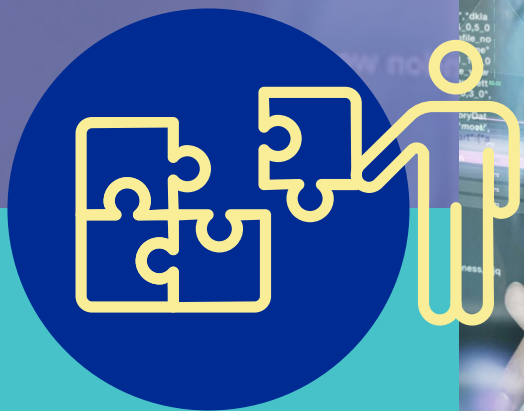
To understand countries' progress towards EU priorities better, Cedefop updated its [VET in Europe online database](#). The database, which incorporates input from ReferNet partners, offers a comprehensive overview of national VET system features, providing insights into the contexts shaping policy developments.

Additionally, [national news on VET](#), prepared in collaboration with ReferNet partners, regularly informed stakeholders across the EU about their latest developments, innovative projects, and successful practices.

Making VET attractive – what national VET stakeholders think

Findings from national stakeholder interviews highlight that the modernisation of VET infrastructure and the evolution of learning methods have significantly raised VET's attractiveness. Key trends include:

- **providing partial qualifications and modular provision;**
- **digitalisation of learning:** increased adoption of blended and distance learning models;
- **better mobility programmes:** greater support for cross-border learning experiences;
- **stronger progression pathways:** easier transitions between VET and higher education;
- **better-equipped teachers:** continuing professional development for VET teachers and trainers;
- **investment in digital infrastructure:** development of online learning platforms to improve accessibility.



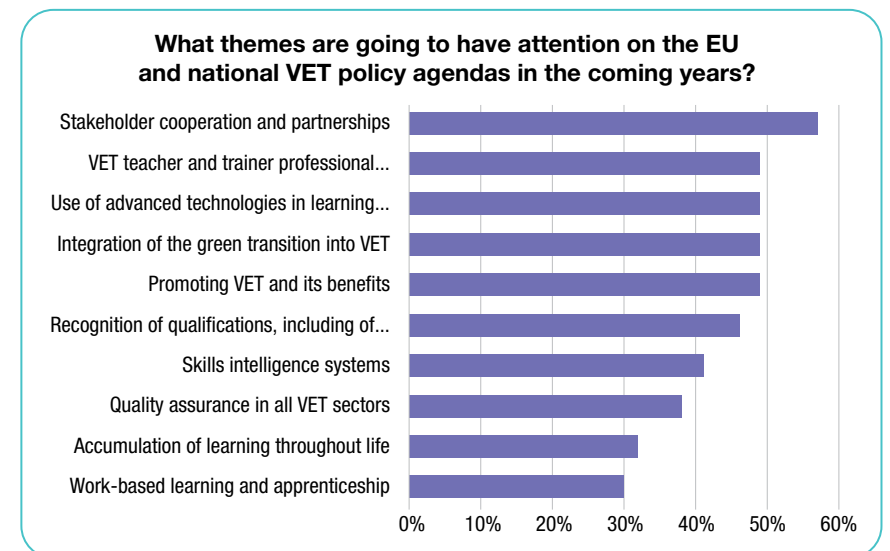
What hinders attractiveness?

Stakeholders identify several obstacles to making VET more attractive, including challenges in attracting and retaining highly qualified teachers, teacher ageing and retirement, low employer engagement in providing training opportunities, high costs of advanced technologies, the need for teacher training to use those technologies, and insufficient resources.

What can help?

Solutions proposed by stakeholders include improving VET teacher working conditions and professional development, making entry requirements to teaching more flexible, and implementing more targeted, systematic communication and promotion campaigns, along with improved lifelong guidance.

Figure 5. **National stakeholder perspectives. Opinions of validation workshop participants, 31 October 2024, on key themes shaping EU and national VET policy agendas in the coming years.**



FUTURE-READY VET systems and skills

The European Centre for the Development of Vocational Training (Cedefop) is an EU Agency dedicated to supporting vocational education and training (VET), skills and qualifications policies across the EU. Established in 1975 and based in Thessaloniki, Greece, Cedefop helps shape policies that equip people with the skills needed for the future of work.

Cedefop:

- **supports skills for the green and digital transitions**
– helping Europe adapt to changing job markets;
- **promotes lifelong learning**
– ensuring people can upskill and reskill throughout their careers;
- **enhances labour market insights**
– providing data on skills trends and job opportunities;
- **strengthens social inclusion**
– making education and training accessible for all.

By working with EU institutions, governments, and social partners, Cedefop plays a key role in building a more competitive, resilient, and inclusive Europe.



CEDEFOP

European Centre for the Development
of Vocational Training

Europe 123, Thessaloniki (Pylea), GREECE
Postal address: Cedefop service post, 57001 Themi, GREECE
Tel. +30 2310490111, Fax +30 2310490020, Email: info@cedefop.europa.eu



© European Centre for the Development of Vocational
Training (Cedefop), 2025.

Follow us on social media



www.cedefop.europa.eu



Publications Office
of the European Union

© Chokniti-Studio/shutterstock.com

