

OECD Reviews of Vocational Education and Training

# Developing Vocational Education and Training with Artificial Intelligence





# **Developing Vocational Education and Training with Artificial Intelligence**

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# Foreword

Vocational education and training (VET) plays a central role in equipping people with the skills needed for work, supporting productivity, inclusion and economic resilience. At the heart of VET systems lie curricula and qualifications. They translate labour market demand into structured learning outcomes, recognised credentials and training opportunities. Yet the processes through which these VET curricula and qualifications are developed remain largely invisible to learners and the public, despite being critical to the relevance, attractiveness and adaptability of VET systems.

These development processes are under growing pressure, with rapid labour market change, while the volume and complexity of curricula and qualifications continue to expand – partly reflecting trends towards modularisation and more tailored provision. Although VET development processes are typically rigorous, collaborative and grounded in stakeholder dialogue, they are also resource-intensive and can struggle to keep pace with fast-moving change. In this context, AI has emerged as a potential tool to support and improve these processes.

AI entered education and labour markets quickly, often before VET stakeholders had a shared understanding of what it can do, how it should be used, or how it should be governed. In VET development in particular, adoption remains cautious: stakeholders recognise AI's potentials, but it also raises critical concerns. This OECD work, *Developing VET with AI* provides an evidence-based and stakeholder-consulted snapshot in this area, drawing on OECD surveys of over 290 stakeholders across 25 countries, ten country case studies identifying thirty-one concrete AI use cases (published in a separate report), and stakeholder dialogue across 80 stakeholders via interviews or workshops. The analysis shows that AI use in VET development is already being applied across key stages of VET development, from skills anticipation and consultation to drafting, validation and alignment. At the same time, the evidence confirms that AI is not a shortcut: the core foundations of VET development continue to underpin VET systems, and become even more critical when AI is used. The challenge is thus not whether to use AI, but how to integrate it transparently, securely and effectively within existing VET development processes.

Building on this evidence, this work distils five principles (whose details are published in a policy brief) for using AI in VET development, aligned with existing OECD, European Union and international AI frameworks but tailored to the VET context. It also sets out policy considerations to support countries move towards more effective, inclusive and secure AI use in VET development. In addition, it informs future national and international dialogue on the role of AI in VET and skills systems in a broader sense, including the 2026 European Union's VET Strategy.

The OECD acknowledges the pioneering efforts of countries, institutions and stakeholders that are already testing AI in this domain, and will continue to build an evidence-based understanding of how AI can support the full VET cycle – from design to delivery, assessment and outcomes.

# Acknowledgements

The OECD project “*Leveraging AI to improve the labour market relevance of VET curricula and qualifications*”, aims to provide evidence-based insights into the current AI use, potential and challenges of AI in VET curriculum and qualification development, and to develop guidance for VET stakeholders. The project was supported by the OECD’s Group of National Experts (GNE) on VET, a subsidiary body of the Education Policy Committee (EDPC).

The OECD extends its sincere gratitude to all the stakeholders across the 25 participating countries who contributed through survey, stakeholder interviews and workshops. Their insight, experience, perspectives and feedback were instrumental to the project. Special thanks are extended to country co-ordinators and co-ordinating teams in ten case-study countries that are highlighted throughout this report: Croatia, England (United Kingdom), Estonia, Germany, Ireland, Korea, Lithuania, Mexico, the Netherlands and Switzerland. The OECD also acknowledges the valuable assistance of EDPC delegates and GNE-VET members in identifying country co-ordinators and teams, facilitating contacts and providing feedback throughout the study. The OECD further recognises the initial discussions held with representatives from Lightcast and OpenSyllabus, whose expertise informed the understanding of AI applications in curriculum and labour market data analysis.

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This report was prepared by the VET team in the OECD Centre for Skills.

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# Abbreviations and acronyms

The following are the main abbreviations and acronyms cited in the report.

| Abbreviation/acronym | Full description                                                                            |
|----------------------|---------------------------------------------------------------------------------------------|
| AAC                  | Atlantic Apprenticeship Council (Canada)                                                    |
| AHOVOKS              | Agency for Higher and Adult Education, Qualifications and Grants (Belgium)                  |
| AI                   | Artificial Intelligence                                                                     |
| ASOO or AVETAE       | Agency for VET and Adult Education (Croatia)                                                |
| BIBB                 | Federal Institute for VET (Germany)                                                         |
| BrAI <sub>n</sub>    | Application of Digital Technologies Based on Artificial Intelligence in Education (Croatia) |
| CAMET                | Council of Atlantic Ministers of Education and Training (Canada)                            |
| CAMEXA               | German-Mexican Chamber of Industry and Commerce (Mexico)                                    |
| CARNET               | Croatian Academic and Research Network (Croatia)                                            |
| CAS                  | Common Award System (Ireland)                                                               |
| CDIP/EDK             | Conference of Cantonal Ministers of Education (Switzerland)                                 |
| CODQ                 | Commission for Occupation Development and Quality (Switzerland)                             |
| CONALEP              | National College of Professional Technical Education (Mexico)                               |
| CONOCER              | National Council for Standardisation and Certification of Labour Competencies (Mexico)      |
| CROQF                | Croatian Qualifications Framework (Croatia)                                                 |
| CSFO                 | Service Centre for VET, Career, and Academic Guidance (Switzerland)                         |
| CSFP/SBBK            | Conference of VET Offices (Switzerland)                                                     |
| DGETI                | Directorate General of Industrial Technological Education (Mexico)                          |
| DQR                  | German Qualifications Framework                                                             |
| EHIS                 | Estonian Education Information System                                                       |
| EQA                  | Estonian Qualifications Authority ( <i>Kutsekoda</i> )                                      |
| EQF                  | European Qualifications Framework                                                           |
| ETB                  | Education and Training Board (Ireland)                                                      |
| FET                  | Further Education and Training (Ireland)                                                    |
| GenAI                | Generative Artificial Intelligence                                                          |
| HBO                  | Higher Professional Education (Netherlands)                                                 |
| HOK                  | Croatian Chamber of Trades and Crafts                                                       |
| HRDK                 | Human Resources Development Service of Korea                                                |
| HWK                  | Chambers of Crafts (Germany)                                                                |
| ICT                  | Information and Communication Technology                                                    |
| IHK                  | Chambers of Commerce and Industry (Germany)                                                 |
| ISCED                | International Standard Classification of Education                                          |
| IRQ                  | Irish Register of Qualifications                                                            |
| KMK                  | Conference of Ministers of Education (Germany)                                              |
| KPC                  | Korea Productivity Centre                                                                   |
| KPMPC                | Qualifications and VET Development Centre (Lithuania)                                       |
| KRIVET               | Korea Research Institute for VET                                                            |
| KSB                  | Knowledge, Skills, and Behaviours                                                           |
| LLM                  | Large Language Model                                                                        |

|         |                                                                                       |
|---------|---------------------------------------------------------------------------------------|
| MBO     | Secondary VET (Netherlands)                                                           |
| MPHEC   | Maritime Provinces Higher Education Commission (Canada)                               |
| NAQ     | National Authority for Qualifications (Romania)                                       |
| NCS     | National Competency Standards (Korea)                                                 |
| NCTVETD | National Centre for TVET Development (Romania)                                        |
| NLP     | Natural Language Processing                                                           |
| NQF     | National Qualifications Framework                                                     |
| NSAA    | Nova Scotia Apprenticeship Agency (Canada)                                            |
| NSCC    | Nova Scotia Community College (Canada)                                                |
| OCW     | Ministry of Education, Culture and Science (Netherlands)                              |
| OPMQ    | French Observatories of Occupations and Qualifications                                |
| OSKA    | Skills Forecasting System (Estonia)                                                   |
| PDAS    | Programme Derived Award Standards (Ireland)                                           |
| PO      | Professional Organisations (Switzerland)                                              |
| PQI     | Private Qualification Information System (Korea)                                      |
| PTS     | Professional Training Standards (Romania)                                             |
| Q-Net   | National Qualification Portal (Korea)                                                 |
| QQI     | Quality and Qualifications Ireland                                                    |
| RENEC   | National Register of Competency Standards (Mexico)                                    |
| RNCP    | National Register of Professional Certifications (France)                             |
| ROC     | Regional Education and Training Centre (Netherlands)                                  |
| ROME    | Operational Directory of Trades and Jobs (France)                                     |
| SBB     | The Organisation for the Co-operation between VET and the Labour Market (Netherlands) |
| SCIAN   | North American Industry Classification System                                         |
| SERI    | State Secretariat for Education, Research and Innovation (Switzerland)                |
| SFMQ    | Francophone Service of Trades and Qualifications (Belgium)                            |
| SFUVET  | Swiss Federal University for Vocational Education and Training                        |
| SINCO   | National Classification System of Occupations (Mexico)                                |
| SME     | Small and Medium-sized Enterprise                                                     |
| SOLAS   | Ireland's Further Education and Training Authority                                    |
| SPC     | Sectoral Professional Committee (Lithuania)                                           |
| VDAB    | Flemish Public Employment Service (Belgium)                                           |
| VET     | Vocational Education and Training                                                     |
| VPET    | Vocational and Professional Education and Training (Switzerland)                      |
| VPETA   | Federal Act on Vocational and Professional Education and Training (Switzerland)       |

# Executive summary

Rapid labour market changes – driven by digitalisation, artificial intelligence (AI) and the green transition – are placing growing pressure on vocational education and training (VET) systems to develop and update curricula and qualifications more frequently and efficiently. While VET development processes are typically robust, collaborative and grounded in strong stakeholder engagement, they are often resource-intensive and struggle to keep pace with fast-evolving skill needs.

## Why AI matters for VET development

Curricula and qualifications form the backbone of VET programmes, translating labour market needs into structured learning outcomes, programmes and certification. When they are outdated or misaligned with labour market changes, qualification and skills mismatches persist, leading to skills shortages, even where qualifications remain trusted signals of competence.

In this context, AI opens up new possibilities to make VET development processes more responsive, efficient and evidence-driven. AI can support the timely detection of trends from large and complex data sources, facilitate mapping and comparison of competencies across standards, qualifications and curricula, accelerate drafting, revision and technical validation processes, and structure diverse stakeholder inputs more efficiently.

However, the added value of AI use in VET development depends less on the technology itself than on how effectively it is embedded within existing governance, quality assurance and multi-stakeholder, collaborative arrangements that underpin trust in VET systems.

## Current and emerging AI use in VET development

AI use in VET development is uneven across stakeholders and countries, and exploratory. It is more common among public VET agencies and industry bodies, with limited and often informal uptake among VET providers and teachers. Current applications are predominantly supportive rather than transformative, complementing established VET development processes.

AI applications span the full development cycle: supporting **input**-oriented tasks such as labour market analysis, skills anticipation and mapping (e.g. Croatia, England [United Kingdom], Germany and Mexico); **process**-oriented activities such as consultation and synthesis of stakeholder inputs (e.g. Australia, Estonia, Nova Scotia [Canada] and Switzerland); and **outputs** such as drafting learning outcomes, checking consistency and aligning curriculum content with qualification frameworks and occupational standards (e.g. Korea, the Netherlands and New Zealand).

AI use is more visible in sectors characterised by rapid change – notably digital, green and AI-related fields – and in flexible forms of provision such as modular learning and micro-credentials. Countries with stronger data infrastructures and established skills intelligence systems are better placed to move beyond small-scale pilots and experiment with more advanced AI applications (e.g. Estonia and England). Most AI tools

used in VET development are general-purpose applications or customised versions of existing platforms. Notable exceptions include England's SkillsCompass (a platform using natural language processing and generative AI to analyse occupational standards, real-time labour market data and foresight trends to identify skills needs); the Netherlands' SBB-Chat (a GPT-4-based platform for qualification drafting and process support by the Organisation for the Cooperation between VET and the Labour Market [SBB]); and Switzerland's ICT sector, which has developed occupation-specific custom GPT models for modular curriculum design and other VET-related tasks. Fully integrated, system-wide solutions remain rare, although the Netherlands is moving towards a co-ordinated, cross-institutional approach by providing a secure AI platform that integrates multiple AI tools, with outputs validated by VET teachers.

## Addressing challenges in VET development

AI is not a panacea, but it can help alleviate several long-standing bottlenecks in VET development.

- **Balancing stakeholder interests:** VET development involves social partners, VET teachers and public authorities, supporting labour market relevance, learner employability and legal compliance. However, this collaboration also creates co-ordination challenges and lengthy consultation processes, slowing decision making. AI can improve efficiency and inclusiveness by synthesising large volumes of input coherently and lowering participation barriers for less-resourced stakeholders through preparing evidence briefs.
- **Managing time and resource constraints:** VET development can take years, with lengthy procedures and limited resources as major constraints. AI can ease administrative and analytical burdens through drafting support, comparison tools and automated checks for validation and compliance – allowing experts to focus on high-value judgement and consensus-building.
- **Translating labour market change into timely updates:** Labour market information is increasingly abundant and real-time but fragmented and difficult to interpret. AI can integrate heterogeneous data sources (e.g. job vacancies, skills forecasts and qualification registers) to identify gaps and emerging needs earlier, supporting timely and evidence-informed updates, particularly in fast-changing sectors.

## Barriers and risks associated with AI use

Constraints limiting effective AI use in VET development include gaps in AI, digital and data literacy; uneven access to secure, fit-for-purpose tools; fragmented or low-quality data; limited VET-specific guidance and institutional support; and resource constraints, particularly for smaller providers and industries.

Potential risks are equally important to consider. AI could weaken collaborative governance, especially when AI outputs substitute for stakeholder dialogue; blur accountability and transparency if responsibilities for AI-supported decisions are unclear; or introduce quality concerns through over-reliance on unvalidated or biased AI outputs. Data protection and security risks are particularly important when handling sensitive, unpublished or commercially sensitive VET data. These challenges are not only technical but institutional, underscoring the need for careful design, governance and oversight.

## Five principles

Building on emerging country experience and existing OECD and EU AI frameworks, five principles guide AI use in VET development:

- **Human-centred use:** AI should support, not replace, expert judgement, validation and collective decision-making in VET development.
- **Diversity and inclusiveness:** AI use should broaden participation and avoid advantaging only well-resourced stakeholders, also respecting the choice not to use AI in VET development.
- **Accountability:** Responsibility for decisions and outcomes in VET development must remain with human actors and institutions.
- **Transparency:** VET stakeholders should understand when, how and for what purpose AI is used, and its limitations.
- **Data quality, security and protection:** AI use must rely on high-quality, relevant data and robust safeguards, ensuring compliance with legal requirements and maintaining trust in VET systems.

## Policy considerations

To move beyond fragmented experimentation and realise AI's potential, countries should consider:

- **Establish strategy with clear purpose and support:** Establish coherent national and VET-sector AI strategies that define where AI adds value in VET development, align AI use with system-level objectives, and provide role- and task-specific support.
- **Manage risks through a human-centred approach:** Manage AI-related risks by embedding human-centred governance in VET development, complementing general AI frameworks with VET-specific guidance that ensures expert validation and accountability for AI-generated outputs.
- **Balance diverse perspectives while ensuring equal access to AI use:** Balance diverse stakeholder perspectives, institutional capacities and regulatory requirements by enabling innovation in AI use for VET development while ensuring equitable access.
- **Co-create guidelines and build capacity for strategic AI use in VET development:** Co-create VET-specific AI guidelines with social partners and practitioners, and strengthen continuous, targeted capacity-building to support transparent and task-relevant AI use across VET development processes.
- **Strengthen data infrastructures and governance:** Improve data availability, quality, interoperability and machine-readability for VET curricula and qualifications, while reinforcing strong data governance, security and ethical safeguards for trustworthy and effective AI use.

# 1 Overview and key insights

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Rapid labour market and technological change – especially the rise of artificial intelligence (AI), digitalisation and the green transition – demand more agile and forward-looking vocational education and training (VET) systems. While traditional VET curriculum and qualification development processes are rigorous and collaborative, they are also lengthy, resource-intensive and often struggle to keep pace with evolving labour market needs.

The chapter highlights AI's potential to transform these processes and presents the importance of this OECD study, which provides cross-country evidence and insight and points to strategic and practical directions on how AI can support more responsive, efficient and high-quality VET development, while maintaining the core values and collaborative foundations of VET systems.

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# In Brief

## Overview on AI and the labour market relevance of VET

- Potential and challenges:** Vocational education training (VET) curricula and qualifications are central to aligning skills supply with labour market demand, yet their development is complex, resource-intensive and often lengthy, making it difficult to keep pace with rapidly evolving skill needs driven by digitalisation, green transitions and technological change. Poorly designed or outdated curricula contribute to qualification mismatches and skill shortages, despite the continued labour market value of qualifications. In this context, artificial intelligence (AI) offers significant potential to strengthen labour market relevance by making VET development more agile, efficient and evidence-based. By analysing labour market data at scale, detecting emerging skill trends, supporting competency mapping and assisting with drafting and revision, AI can complement existing consultation processes, broaden the evidence base and accelerate updates – particularly in fast-changing sectors. However, realising this potential requires careful governance, high-quality data and human-centred approaches to avoid potential risks.
- Why this study is important:** Although interest in using AI for VET development is growing, its application remains limited and fragmented. At the same time, there are currently no systematic international studies or sufficiently collected and analysed cases that identify the main challenges of introducing AI in VET development. A cross-country perspective is therefore essential to build a robust evidence base on how AI is currently used, what works, what risks arise and under which conditions AI can contribute to the improvement of VET relevance, quality and responsiveness. By systematically documenting country practices, stakeholder experiences and emerging use cases through surveys and stakeholder interviews, this study supports peer learning and provides strategic direction on effective and secure integration of AI into VET development.

### 1.1. AI and the labour market relevance of VET development: Potential and challenges

Vocational education training (VET) plays a central role in connecting labour market demand with the supply of skills and in equipping learners with employability (OECD, 2023<sup>[1]</sup>). Curricula and qualifications – which refer, in this report, broadly to occupational/professional/VET standards (or regulations), qualifications and curricula – form the foundation of VET in achieving this goal. Getting their development right is thus critical: it determines how those skills required by the labour market are identified and structured, how these skills are taught, developed, assessed and certified, and how VET systems remain responsive to evolving labour market needs. When VET is designed to focus on job-specific skills and rapid school-to-work transitions without sufficiently integrating transversal skills and general education foundations, it may support strong initial employment outcomes but risk weakening adaptability and resilience to technological and structural change over longer careers (Hanushek et al., 2016<sup>[2]</sup>; Malamud and Pop-Eleches, 2010<sup>[3]</sup>). VET outcomes also vary across learners depending on programme design features – such as the integration of work-based learning, the use of practical training components and the structuring of skills to acquire (Attanasio, Kugler and Meghir, 2011<sup>[4]</sup>).

The process of VET curriculum and qualification development (thereafter, *VET development*) is necessarily rigorous and collaborative, involving dialogue between education and labour market actors and drawing on diverse stakeholder perspectives. However, it is also complex, demanding and lengthy, and varies across jurisdictions, institutions and sectors (OECD, 2025<sup>[5]</sup>). For VET policymakers, maintaining oversight while ensuring transparency, efficiency and responsiveness remains an ongoing challenge. For other VET stakeholders including social partners and providers, the process is resource-intensive and often an additional task to their day job (OECD, 2025<sup>[5]</sup>).

The growing deployment of artificial intelligence (AI) – a machine-based system that can, for a given set of human-defined objectives, make analysis, predictions, recommendations or decisions, with varying levels of autonomy (OECD, 2021<sup>[6]</sup>; OECD, 2024<sup>[7]</sup>) – offers a promising opportunity to address these challenges, but one that requires careful consideration. AI could help make the VET development processes more agile, efficient and evidence-based (OECD, 2025<sup>[5]</sup>), yet to date there has been limited research, assessment or guidance on how AI can support VET development, whether within countries or across borders. This study seeks to fill that gap by exploring how AI can contribute to more timely, relevant and efficient development of VET curricula and qualifications, and at the same time identify common challenges and provide collective guidance.

### ***The need for relevant and responsive VET curricula and qualifications: Design matters***

Skills requirements are constantly evolving, driven by technological innovation, demographic shifts and global transitions such as digitalisation and the move towards greener economies (OECD, 2025<sup>[8]</sup>; OECD, 2022<sup>[9]</sup>). This dynamism places a premium on VET systems that can detect early signals of emerging skill needs and translate them into timely updates of curricula and qualifications.

From a public policy perspective, maintaining up-to-date occupational and training standards is essential to reducing skill mismatches and supporting economic growth. When VET stakeholders can rely on accurate and current standards, they are better able to design effective VET curricula and programmes that promote a more efficient allocation of human capital and help prevent unemployment (OECD, 2024<sup>[10]</sup>).

While skills mismatches often reflect gaps in individuals' competence, qualification mismatches may stem from poorly designed or outdated curricula and qualifications – which makes the question of *what to design* and *how to design it* – particularly in terms of content relevance, learning outcomes and responsiveness to labour market change – central to VET policy. Evidence from the OECD Survey of Adult Skills (PIAAC) shows that nearly one-third of adults experience qualification mismatch (OECD, 2024<sup>[11]</sup>). Employers frequently report shortages in job-specific skills, alongside growing demand for digital competencies (Marcolin and Quintini, 2023<sup>[12]</sup>). At the same time, education and qualification premia remain higher than skills premia, underscoring the continued importance of qualifications and the need for the associated curricula to better align with actual skill requirements (OECD, 2024<sup>[10]</sup>).

### ***Developing and updating VET is complex, demanding and often lengthy process***

While approaches to VET development vary across countries, they universally require collaboration, consultation and co-ordination among key stakeholders – employers, employees, VET teachers, trainers and policymakers – to ensure alignment with labour market needs and educational objectives. These processes often involve reconciling diverse and sometimes competing interests. Decisions on which skills to include or exclude in VET curricula and qualifications may benefit some employers while disadvantaging others, and introducing new qualifications can reduce the appeal or value of existing ones, affecting stakeholders who have already invested in older ones. Despite these tensions, a core purpose of the process is to build consensus to serve broader goals of employability, labour market relevance and education and training quality (OECD, 2025<sup>[5]</sup>).



Beyond stakeholder dynamics, VET development is further complicated by bureaucratic or legal procedures, resource constraints and the need to balance occupation-specific competencies with transferable skills (OECD, 2024<sup>[13]</sup>; OECD, 2025<sup>[5]</sup>). At the core of this challenge are VET stakeholders' efforts and commitment to ensure VET curricula and qualifications remain responsive to labour market demands while also supporting learners in acquiring not only specific skills but also skills that support mobility across occupations and employers, as well as progression into further education and training. As emerging technologies continue to reshape skill needs, many VET systems – along with AI developers, ICT experts and VET teachers especially those teaching IT and AI – are beginning to explore how AI tools can support more efficient and evidence-based development processes (OECD, 2025<sup>[5]</sup>). Early applications include labour market analysis, competency mapping and automated drafting, especially in fast-evolving sectors affected by digitalisation and the green transition (OECD, 2025<sup>[14]</sup>; OECD, 2025<sup>[5]</sup>).

Across countries, developing or revising VET curricula and qualifications to meet these diverse objectives and conditions typically takes from several months to multiple years (OECD, 2024<sup>[13]</sup>). For example, in Finland, developing a full qualification can take up to three years, with individual qualification units (modules) requiring several months. In Luxembourg and French-speaking Belgium, the process also extends up to three years, while in Latvia and Estonia, complete programme development typically takes nine months to one year. In Quebec (Canada), the average timeframe is around 18 months (OECD, 2024<sup>[13]</sup>).

Many systems report significant delays due to lengthy approval processes, limited expert availability and insufficient employer involvement, and the difficulty of integrating rapidly advancing technologies into qualification content (OECD, 2024<sup>[13]</sup>; OECD, 2025<sup>[5]</sup>). Emerging sectors, such as green hydrogen (UOK, 2023<sup>[15]</sup>), face additional pressure to deliver timely updates and, in some cases, entirely new qualifications. Ensuring that VET systems remain resilient and responsive will require not only strong and efficient stakeholder collaboration, but also the integration of innovative approaches capable of addressing this accelerating change.

### ***AI has potential to improve VET development, and may possibly change how it works***

The rapid rise of AI – especially the spread of generative AI since 2023 – has accelerated global interest in its impact on work, learning, productivity and broader societal challenges (Milanez, 2023<sup>[16]</sup>; OECD, 2022<sup>[17]</sup>; TechCouncil of Australia & Microsoft, 2023<sup>[18]</sup>). In response, countries are rapidly expanding their policy foundations for AI adoption as well as targeted use across education and training sector. Nearly all OECD countries now have national AI strategies, though their scope and ethical safeguards vary widely (OECD, 2023<sup>[19]</sup>). Several governments – for example, Australia ([National AI Plan](#)) (FSO & JSC, 2025<sup>[20]</sup>), Czechia (Digital Education Strategy, [National AI Strategy](#)), Estonia ([AI Leap](#)), Ireland ([National AI Strategy](#); [ICT Skills Action Plan](#); [Commitment to establishing guidelines on the use of AI](#) in education), England ([National AI Strategy](#) and [AI Opportunities Action Plan](#)) and the Netherlands ([Strategic Action Plan for AI](#)) – have launched targeted initiatives, ranging from AI-enabled curriculum pilots to national AI-skills agendas and AI frameworks (OECD.AI, 2025<sup>[21]</sup>). These efforts reflect a growing recognition that AI can help VET systems become more responsive, efficient, inclusive and future-ready, supporting diverse VET stakeholders, including policymakers, industry partners, teachers, trainers and learners, notably neurodivergent learners (OECD, 2026<sup>[22]</sup>).

More concretely, these developments create new opportunities to transform how VET curricula and qualifications are designed and updated, improving labour market relevance and process efficiency (Verhagen, 2021<sup>[23]</sup>). AI can analyse vacancy data, detect emerging skill trends and support both national standard-setting and local curriculum adaptation, addressing long-standing challenges in consultation processes by enabling more comprehensive, systemic integration of labour market information and ensuring that smaller employers and emerging sectors are not overlooked. By bringing speed, relevance and breadth of coverage, AI can help VET systems rapidly incorporate essential labour market signals and

avoid a too narrow focus on inputs from a limited number of stakeholders (e.g. national VET councils with space for only a few social partners or large employers from well-established industries with resources to influence VET development) (OECD, 2025<sup>[5]</sup>).

AI can also be used to better understand the content of initial and continuing VET programmes, the skills profiles and education training pathways of young people and adults, including through the analysis of VET graduate tracking data, as well as patterns emerging from curriculum implementation. When synthesised and presented accessibly, these data sources can provide VET stakeholders with a more holistic and robust evidence base for VET development. Countries with well-established consultation processes can use AI-synthesised insights as complementary inputs that can widen and deepen understanding of skill needs and accelerate their translation into occupational standards, qualifications and VET curricula. At the same time, VET teachers and trainers and providers can be supported by AI assistants or agents that help prepare curriculum-based lesson planning, manage workloads, monitor student progress and performance, propose instructional strategies, and assist in designing or localising curriculum content based on real-time classroom insights or identified gaps in curriculum implementation and recommend differentiated resources aligned with learning goals (OECD, 2025<sup>[24]</sup>; OECD, 2026<sup>[22]</sup>). Consequently, AI use in VET development can also help improve the effectiveness of VET delivery, assessment and outcomes (see Table 1.2).

### ***However, the potential of AI should be reviewed carefully against potential risks***

While AI offers important opportunities to enhance the efficiency, flexibility and responsiveness of VET curriculum and qualification development, its use also introduces risks that require careful consideration. VET stakeholders express concerns about the uncertainties inherent in rapidly evolving AI systems, particularly given the limited evidence base on their effectiveness in VET development processes (OECD, 2025<sup>[5]</sup>). As AI models often operate as opaque systems, their outputs may be difficult to interpret or validate, underscoring the continued need for human-centre approaches (OECD-Education International, 2023<sup>[25]</sup>). In this regard, core human skills – such as critical thinking, judgment and creativity – remain essential safeguards against misuse or misinterpretation of AI-generated insights.

A key concern is over-reliance on or premature use of AI-generated outputs. If users become accustomed to accepting AI outputs without scrutiny, they may inadvertently embed biases or inaccuracies into VET standards, curricula or assessment frameworks. Evidence shows that AI tools trained on imperfect or unrepresentative data can reproduce and amplify those biases, influencing quality, instructional recommendations if left unchecked (OECD, 2026<sup>[26]</sup>). Such risks point to the importance of ensuring that AI supports, rather than substitutes for, expert judgement and stakeholder consensus-building. At the same time, the access to effective AI systems and quality data to inform AI-assisted VET development is uneven across stakeholders, institutions and countries.

Effective and secure integration of AI into VET development will therefore require robust governance frameworks, high-quality and well-curated data, strong ethical standards and transparent decision-making processes. It also calls for collaboration and consultation across all VET stakeholders to ensure that AI tools align with educational objectives rather than commercial incentives alone. These concerns are increasingly reflected in emerging governance and regulatory responses, such as the European Union's Artificial Intelligence Act, which adopts a risk-based approach and emphasises transparency, human oversight and accountability for high-risk AI uses, including those relevant to education and training (European Parliament and Council of the European Union, 2024<sup>[27]</sup>). Although AI in teaching, learning and assessment is advancing quickly (OECD, 2026<sup>[26]</sup>), its use in VET development remains at an early stage. Continued experimentation – guided by evidence and good practices, peer learning and clear safeguards – will be crucial for realising AI's potential while maintaining the integrity, inclusiveness and trust of VET systems (see Chapter 5, Section 5.2).

## 1.2. Why this cross-country study is important

Leveraging AI for the development of VET curricula and qualifications (thereafter, *VET development*) presents an important opportunity and a forward-thinking approach for VET systems to strengthen alignment between skills provision and labour market needs. As labour markets continue to be reshaped by demographic change, digitalisation, green transitions and accelerated technological innovation, VET systems must be forward-looking in responding to these shifts more rapidly and systematically than ever before. Harnessing AI to inform VET development can support more agile, coherent and forward-looking VET systems, capable of providing learners with the skills needed to succeed in evolving labour markets. At the same time, barriers, risks and trade-offs of using AI in VET development need to be assessed, anticipated and addressed. However, there are currently no systematic international studies or sufficiently collected and analysed cases that identify the main challenges of introducing AI in VET development.

### ***This report addresses opportunities and challenges facing VET systems in developing VET curricula and qualifications***

Despite growing interest in AI's potential, the use of AI in VET development remains limited. Current applications tend to focus on labour market matching and analysis (OECD, 2023<sup>[1]</sup>; Broecke, 2023<sup>[28]</sup>), while the processes of setting national occupational standards, designing qualifications, and supporting curriculum development still largely rely on traditional approaches. This represents a crucial opportunity to harness the capabilities of AI, not just in the context of the current labour market, but as a foundational element in shaping future-ready VET systems.

The present challenges facing VET systems in VET development are multiple. Consultation mechanisms, whether highly structured or more informal, face inherent limitations. National councils typically include a restricted number of social partners, which can inadvertently exclude smaller employers or emerging sectors where new skill needs may arise first. In systems with strong provider-level autonomy, VET institutions face similar challenges, requiring them to gather labour market intelligence, interpret skill needs and translate these into curricula – tasks that are demanding in both time and expertise. These constraints create gaps between the speed at which labour market requirements evolve and the ability of VET systems to update or design qualifications that reflect these developments.

AI provides an opportunity to address these long-standing challenges by offering faster and broader analysis of labour market information, highlighting emerging skills, and helping VET systems to synthesise information from multiple sources. However, without evidence, guidance and shared learning, countries risk fragmented experimentation or inconsistent adoption that may fail to deliver meaningful improvements. A systematic, cross-country understanding is therefore essential.

While AI has been increasingly used across education and training for content creation, learner support and assessment (OECD, 2021<sup>[6]</sup>; OECD, 2026<sup>[26]</sup>), its application in developing and updating VET curricula and qualifications remains at an early stage. Unlike the AI use in teaching, training and learning as well as assessments, applying AI to curriculum and qualification development may raise fewer concerns about personal data, as these processes do not usually rely on learner-level or class-level information. However, more forward-looking approaches may increasingly draw on supply-side skills data – such as information on the skills possessed by VET learners or graduates – to inform VET development, which introduces additional considerations. Questions therefore remain about transparent and secure use, governance, transparency and accountability as well as validity and quality of data. Evidence remains limited, and different perspectives – from AI developers to VET practitioners – are necessary to understand how AI can enhance agility, relevance and employability. AI's growing capability to detect patterns, anticipate change and support decision-making has implications for how VET systems organise expertise, validation and quality assurance (Calvino, Reijerink and Samek, 2025<sup>[29]</sup>).

## ***This report relies largely on inputs from VET stakeholders across countries***

The OECD study “*Leveraging AI to Improve the Development of VET Curricula and Qualifications*” aims to strengthen the evidence base on how AI is currently used – or could be used – in VET development process. It is grounded in past and ongoing global efforts to bring agility, precision, speed and efficiency to VET development (Box 1.1), VET stakeholders’ inputs across countries, and existing frameworks and principles on AI. This report is part of this study, together with a policy brief that highlights key strategic directions for VET stakeholders.

This study supports peer learning by documenting country practices, identifying emerging use cases and providing strategic directions to help countries make informed decisions, steering and support. This work was supported by the OECD Group of National Experts on VET (established as a subsidiary body of the OECD Education Policy Committee [EDPC] in April 2007 to help Members and Partners develop effective, efficient and evidence-based VET policies) and the EDPC.

The study draws on several sources: desk research, cross-country data collection via surveys, analysis of relevant international policies and practices, and ten in-depth country case studies through almost 80 stakeholder interviews. All ten country examples contributed to the comparative policy and data analysis, while additional countries (25 countries in total) participated in the survey component. All the contributors were invited to international workshops held online on 3 December 2025, where they discussed preliminary findings of the study and provided initial feedback, bringing together 117 participants (89 unique) across 21 countries. Together, these elements provide a robust picture of how VET systems currently approach AI adoption, the drivers of experimentation, and the challenges encountered.

### **Box 1.1. Examples of efforts to bring agility, precision, speed and efficiency to VET curriculum development in the European Union**

#### **2020 Council Recommendation VET**

The recommendation highlights the need for “*high quality and innovative VET systems that provide people with skills that help them get or create jobs in demand on the labour market*” and “*working towards implementing a VET policy which equips young people and adults with the knowledge, skills and competences to thrive in the evolving labour market and society*”. It calls for VET to be agile in adapting to labour market changes, including “VET curricula, programme offers and qualifications are regularly updated, as relevant, building on skills intelligence”.

#### **Osnabrück Declaration 2020**

The Declaration highlights that “Labour market and skills intelligence as well as research should inform VET decision-makers and support VET providers and practitioners in developing and adapting their VET offers to changing labour market and social needs.” One of the short-term deliverables identified in the Declaration states “Develop national and regional skills intelligence systems including skills anticipation and graduate tracking; enable social partners, decision-makers, stakeholders and providers to adapt and update VET programmes, curricula and guidelines in a timely and effective manner” (European Commission, 2024<sup>[30]</sup>).

#### **Herning Declaration (2025)**

Adopted in September 2025, the [Herning Declaration on attractive and inclusive VET for increased competitiveness and quality jobs \(2026-30\)](#) builds on and updates the Osnabrück Declaration. It reaffirms the commitment to agile, relevant and high-quality VET systems, while shifting the focus from post-pandemic recovery towards long-term competitiveness, skills shortages and technological change. The Declaration explicitly recognises the growing role of digitalisation and emerging

technologies, including artificial intelligence, and stresses the need to harness their potential responsibly to improve the responsiveness, relevance and attractiveness of VET. It also reinforces the role of social dialogue, stakeholder co-operation and evidence-based approaches – including skills intelligence and graduate tracking – in guiding curriculum development and system-level reforms.

### ***Draghi report on the future of European competitiveness***

The report underlines how the integration of AI into curriculum development is crucial for Europe's future, as it aligns with the EU's strategy to harness AI-driven innovation to close the productivity gap, equip the workforce with necessary skills, and ensure social inclusion in the face of rapid technological advancements.

Source: European Commission (2020<sup>[31]</sup>), Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience, 2020/C 417/01, [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC\\_2020\\_417\\_R\\_0001](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2020_417_R_0001); European Commission (2020<sup>[32]</sup>), Osnabrück Declaration 2020 on vocational education and training as an enabler of recovery and just transitions to digital and green economies, [https://www.cedefop.europa.eu/files/osnabrueck\\_declaration\\_eu2020.pdf](https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf); European Commission (2024<sup>[30]</sup>), The Future of European Competitiveness, [https://commission.europa.eu/topics/competitiveness/draghi-report\\_en#paragraph\\_47059](https://commission.europa.eu/topics/competitiveness/draghi-report_en#paragraph_47059).

### *Methodology: Overview of survey design and country case studies*

The study combines evidence from three targeted surveys and ten case studies to address the following key questions:

- How commonly AI is used in developing VET curricula and qualifications; which types of VET programmes and stages of development are involved?
- What type of data and AI tools are used?
- How do the AI-driven insights complement other information/processes?
- What have been the drivers and enabling factors for using AI? What have been the challenges?
- What is hindering AI adoption for curriculum/qualification development? How can these obstacles be overcome?
- How can AI-driven insights be effectively integrated with feedback from industry to ensure the relevance and quality of VET curricular/qualifications?
- How can the right balance be found between data and qualitative inputs, as well as between labour market-relevant skills and more general skills?
- How can the effectiveness of AI-driven curriculum and qualification development be monitored and evaluated?
- How can stakeholders be supported in making effective use of the data? How should they be informed about the limitations of the data/AI-driven insights? What level of data granularity is needed and in what format? What tools could be used to allow for easy visualisation or tailoring? Which data/information should be extracted (and how frequently)? Who should collect the data or support data collection?

These questions guided both the survey and the country interviews. The results collected from the survey analyses and case studies are integrated into this report, and all ten case studies are published in a separate report (OECD, 2026<sup>[33]</sup>). Relevant country policies and practices were reviewed through desk research.

## Survey design

Surveys, focussing on ISCED levels 3-5, were distributed to three stakeholder groups: VET policymakers, VET providers and industry partners involved in the process of developing VET curricula, qualifications or occupational standards. The VET policymakers were identified via the OECD's Group of National Experts on VET and the OECD Education Policy Committee networks, and these policymakers distributed the survey to their relevant VET providers and industry partners.

The survey was conducted between April and November 2025 through e-mail and SurveyMonkey. It was designed as a focussed group survey, not a population-level sample and therefore the respondents and their responses are not a statistically representative sample. Only valid responses (i.e. those that include the respondent's name, institution, country and contact information) were retained for analysis; and after data cleaning, the final sample comprised 39 responses from VET policymakers, 47 from industry partners and 205 from VET providers. In total, 25 countries participated in at least one of the three surveys (bolded countries are included in case studies): Austria, Belgium (French Community), Canada (Nova Scotia), Costa Rica, **Croatia**, Czech Republic (hereafter "Czechia"), **Estonia**, Finland, France, **Germany**, Greece, **Ireland**, **Korea**, Latvia, **Lithuania**, **Mexico**, **the Netherlands**, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, **Switzerland** and the United Kingdom (**England**; Scotland).

Definitions of AI, curriculum/qualification development in VET, and AI use in this context were included in the surveys, as below, to ensure consistency across respondents:

- **AI** is a machine-based system that can, for a given set of human-defined objectives, make analysis, predictions, recommendations or decisions, with varying levels of autonomy (OECD, 2021<sup>[6]</sup>; OECD, 2024<sup>[7]</sup>).
- **Curriculum/qualification development in VET** refers to "the process of designing, improving, organising and planning" VET programmes/qualifications, including: analysing education and training needs and needs for changes to qualifications; defining learning objectives and outcomes, content, activities, materials and resources, duration and level of the action, type of learning (school-based or work-based), requirements, methods, approaches, or standards (Cedefop, 2015<sup>[34]</sup>; Cedefop, 2025<sup>[35]</sup>). Box 1.2 provides details.
- **Use of AI in VET curriculum and qualification development** refers to using AI to develop, evaluate and update VET curricula and qualifications/standards by improving data collection and analysis, automating creation or modification of existing content in curricula/qualifications, and helping co-ordination among relevant stakeholders. This may include using AI techniques (e.g. natural language processing, large language models, big data analysis) or AI platforms/tools (e.g. AI-driven course content analyser/generator/customiser) to map skills needs, analyse/modify/generate competency frameworks or standards, assess qualification descriptions, and structure learning outcomes. For the purposes of this study, AI applications that support personalisation of VET delivery are not included.

### Box 1.2. Definition and scope of VET curriculum and qualification development in this report

#### VET curriculum development

"Curriculum" refers to designed and planned learning activities, while 'programme' refers to the implementation of these activities (Cedefop, 2015<sup>[34]</sup>). Curriculum development refers to "the process of designing, improving and planning" VET programmes including the following key components (Cedefop, 2025<sup>[35]</sup>):

- Analysis of education and training needs.



- Definition of learning objectives and outcomes, topics, content of programmes and activities, materials and resources, the duration and level of the action, type of learning (school-based or work-based), entry requirements, methods and approaches (assessment of learners, validation of learning outcomes and evaluation of programmes).
- Definition of standards (competence, educational, occupational, assessment, certification and validation standards).

The VET curriculum development includes aligning learning outcomes with National Qualifications Frameworks (NQFs), balancing between theoretical components, soft skills and practical training to gain hands-on experience in workshops, simulations or workplaces. It also includes approval by national VET authorities, evaluation and feedback from stakeholders to ensure relevance and quality.

The scope of this report does not include the actual VET delivery and curriculum implementation by VET institutions, teachers and workplaces nor building and personalising learning content/materials, teaching/assessment/evaluation methods/strategies/approaches among teachers and students.

### Qualification and occupational standards development

Development of occupational standards and qualifications refers to the process of designing and structuring competences and formal credentials to meet industry, national and international education and labour market needs (OECD, 2024<sup>[10]</sup>). Occupational standards typically define the required knowledge, skills and attitudes for a given role, while qualifications certify that individuals meet these standards. Although this distinction or integration is common, it is not consistently applied across countries. Key components include competency standards and qualification levels aligned with national or regional qualification frameworks that indicate the difficulty and complexity of the knowledge and skills associated with any qualification.

**Table 1.1. Occupational standards, qualifications and curriculum in VET**

| Aspect              | Occupational standards                                                                     | Qualifications                                                                                              | VET curricula                                                                                      |
|---------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Focus</b>        | Define occupational competencies                                                           | Translate competencies into certification                                                                   | Develop structured learning programmes                                                             |
| <b>Developed by</b> | Industry bodies, employers, sector councils                                                | Ministries of education, labour or sectoral, qualification authorities or sectors; in some cases, employers | Ministry of education; VET institutions, curriculum designers, teachers                            |
| <b>Purpose</b>      | Guide workforce skills and training needs, labour market planning and qualification design | Ensure formal recognition and certification of skills; define how skills are tested and certified           | Provide teaching and learning plans, and planning for exams, practical assessments and assignments |
| <b>Structure</b>    | Competency frameworks, skill sets, job roles                                               | Learning outcomes, assessment criteria, certification levels                                                | Course content, high-level lesson plans, training materials                                        |

Source: Author's elaboration based on the OECD Surveys and Interviews conducted as part of this study (OECD, 2025<sup>[5]</sup>).

### Country case studies

Ten country case studies complemented the surveys by providing contextual insights into the use of AI in VET development. Countries were selected to ensure geographic diversity, variation in VET system size and governance arrangements, differing stages of AI adoption (from nascent to more advanced) and willingness to participate in the study, including distributing stakeholder surveys and nominating participants for interviews. The case studies were conducted through semi-structured interviews with policymakers, providers, industry partners, researchers and AI/IT experts, identified by each country focal point which was nominated by the country delegates of OECD's Group of National Experts on VET and

the OECD Education Policy Committee networks. Each focal point provided a list of 7-10 stakeholders to interview, and a total of 76 stakeholders across ten countries participated in the interviews. One-hour online interviews explored the same themes as the surveys but allowed deeper and wider examination of national contexts, detailed use cases, enabling factors and perceived potential risks. Transcripts formed the basis for qualitative analysis, supporting the analysis of AI use cases, the interpretation of survey findings and the formulation of VET-specific principles (OECD, 2026<sup>[36]</sup>) and policy considerations (Chapter 5). The summaries in Box 1.3 below present a concise overview of ten case studies, highlighting AI use cases in VET development. A separate report presents these case studies in details, which illustrate concrete practices, institutional arrangements and lessons learned, providing practical examples and insights to inform policymakers and VET stakeholders seeking to move from ad hoc experimentation towards more strategic, system-level use of AI in VET development (OECD, 2026<sup>[33]</sup>).

### Box 1.3. Overview of ten case studies focussing on AI use cases in VET development

#### 1. Croatia

Croatia is advancing AI skills in school curricula through the BrAIIn project, yet its use in VET development remains limited and experimental. The OECD Surveys conducted as part of this study (OECD, 2025<sup>[5]</sup>) shows only 13% of VET providers use AI in VET development, below the international average (21%). Policymakers use AI informally for tasks such as analysing qualifications, aligning with EU frameworks and drafting learning outcomes, as in the case of the Directorate for Labour Market and Employment – always under human oversight. A notable pilot by the Croatian Academic and Research Network (CARNET) demonstrates more structured adoption, yet VET institutions remain cautious due to concerns over data quality, transparency and over-reliance. Barriers include limited capabilities, lack of resources and low institutional support, though interest in future use exists. Stakeholders emphasise AI as a support tool, not a replacement for expert judgement, and call for formal guidelines, training and capacity building to strengthen digital and AI literacy.

#### 2. England (United Kingdom)

England is piloting an AI platform, SkillsCompass, developed by Skills England (formerly IfATE). This AI-enabled platform uses natural language processing and generative AI to analyse employer-defined occupational standards, real-time job vacancy data and foresight trends, identifying emerging skills needs and gaps. It can support evidence-based decisions for updating qualifications, mapping knowledge, skills and behaviours, and signalling priorities to awarding organisations and training providers. While AI adoption remains at an early stage and human validation is essential, SkillsCompass demonstrates how AI can accelerate labour market alignment and improve system coherence in VET. Other uses in England include AI-generated duty statements, qualification mapping tools and ad hoc applications by awarding bodies and further education colleges for curriculum planning. However, interviewed stakeholders expressed concerns around data quality, stakeholder buy-in and sector-wide guidance, making AI a promising but still evolving tool in England's VET system.

#### 3. Estonia

Estonia is gradually integrating AI into VET curriculum and qualification development through both national initiatives and local experimentation. At the systemic level, the Estonian Qualifications Authority (EQA) is piloting AI tools to draft and refine occupational standards, describe competencies and align skills with qualification frameworks, while developing a customised AI solution and the Skills Compass platform that connects skills, occupations and labour market data for more efficient, integrated updates. AI is also being tested to automate technical validation of micro-credentials and support the country's labour market forecasting system. At the institutional level, VET teachers and



working groups for curriculum development use AI to draft learning outcomes, module descriptions and teaching materials, significantly accelerating processes for creating new VET curricula. Despite strong support from stakeholders and national AI initiatives, challenges remain around data readiness, stakeholder skills and maintaining teacher ownership, with AI seen as a tool for efficiency and translation of labour market input rather than a replacement for expert judgement.

#### **4. Germany**

Germany's use of AI in VET curriculum and qualification development is cautious and largely informal, reflecting its emphasis on consensus-based processes, legal precision and stakeholder trust in VET. While pilots by the Federal Institute for Vocational Education and Training (BIBB) explore AI for drafting and comparing regulatory documents within secure and internal systems, systemic adoption is limited by fragmented data and strict data protection laws. AI is mainly used experimentally for tasks such as labour market analysis, competency mapping and drafting support. Expert input and judgement is still needed due to the legal weight of training regulations, risks of potential premature dissemination and the still limited quality of AI-generated output. Interviewed stakeholders see potential for efficiency gains, especially in IT-related occupations, yet stress the need for clear guidelines, robust infrastructure and capacity building. Despite growing interest and isolated initiatives, Germany prioritises transparency and human oversight, aiming to balance innovation with the integrity of its trusted VET system.

#### **5. Ireland**

Ireland's use of AI in VET curriculum and qualification development is still exploratory and largely informal. At the national level, Ireland's state agency for further education training (SOLAS) operates digital platforms for tracking skills and qualifications, but AI is not yet embedded systematically in curriculum generation. Quality and Qualifications Ireland (QQI) is piloting AI tools such as Microsoft Copilot for tasks including refining text, comparing standards and identifying gaps, with strict human oversight and data protection. Individual educators experiment with ChatGPT to draft exam questions and teaching resources aligned with QQI descriptors. Stakeholders emphasise that AI can improve efficiency and support content creation, but must operate within robust quality assurance frameworks, ethical guidelines and closed systems to ensure trust and compliance.

#### **6. Korea**

Korea is integrating AI into VET curriculum and qualification processes, mainly as a support tool. The Human Resources Development Service of Korea (HRDK) is testing AI to streamline updates to the National Competency Standards (NCS), applying GPT-based tools to check formatting and structural compliance of competency units. However, content development remains expert-led, as AI still lacks the contextual and sector-specific understanding required. HRDK's customised GPT tool is currently used to check compliance with the NCS manual, ensuring consistency and efficiency without compromising content quality. Korea Research Institute for Vocational Education and Training (KRIVET) is also exploring AI for data mining and forecasting skill gaps, but only as an experimentation. Private sector initiatives use AI to analyse labour market trends for modular qualification updates. At the VET school level, AI supports project-based learning and formative assessment, while higher VET institutions train VET teachers in generative AI for content creation and updating and adjusting VET curricula. Across all cases, AI adoption remains experimental, with strong emphasis on human oversight, data security and sectoral expertise.

#### **7. Lithuania**

Lithuania's use of AI in VET curriculum and qualification development is emerging but remains ad hoc and individual-driven. VET teachers and VET providers use tools such as ChatGPT and Copilot to draft

learning outcomes, structure programmes, generate teaching materials and analyse data, while sectoral associations (e.g. ICT, woodworking, construction and hospitality) experiment with AI for document structuring, translations and competence mapping, particularly for green and digital skills. Regional stakeholders report widespread informal use across VET schools for curriculum needs analysis and updating modules, also noting limited training, infrastructure gaps and caution towards adopting AI-supported approaches in traditionally expert-driven curriculum development processes. Employers and private companies are more advanced, using AI for HR and short training design, but systemic integration into VET development is not yet observed. Interviewed stakeholders see AI as a support tool for efficiency and idea generation, not a replacement for expert judgment, and called for clear, relevant guidelines, secure platforms and capacity building – a recent policy initiative responding to this need is underway.

## **8. Mexico**

Mexico's use of AI in VET curriculum and qualification development is emerging and decentralised, driven mainly by individual curriculum designers. Free AI tools are used experimentally for labour market analysis and relevance studies, drafting content and mapping competencies, particularly in technical careers and dual VET pathways. Sectoral Coordination for Academic Strengthening (COSFAC) and General Directorate of Industrial and Technological Education (DGETI) have piloted AI for foresight studies, competency alignment and curriculum validation, while some chambers and providers apply AI for translations, structuring documents and generating didactic suggestions. Despite growing interest, AI use remains limited (6% of VET institutions) due to resource constraints, lack of training, data privacy concerns and infrastructure gaps. Stakeholders emphasise that AI complements human expertise rather than replacing it, and call for national guidelines, secure platforms and capacity building to enable effective integration into VET development.

## **9. The Netherlands**

AI use in Dutch VET curriculum and qualification development remains at an early, experimental stage. AI is viewed as a tool to improve efficiency and alignment with labour market needs, with recognised challenges around data privacy and stakeholder Organisation for the Cooperation between VET and the Labour Market (SBB) pilots AI for automating overlap checks between qualifications and optional modules, operates a secure GPT-4 platform ("SBB confidence. Existing initiatives are mainly driven by sector bodies and large VET institutions. The Chat") for drafting and process support, and develops CompetentNL, a national skills platform to harmonise qualification descriptions and prepare for AI-enabled services. At the institutional level, ROC Mondrian, regional VET centre, experiments with multi-agent AI systems for curriculum planning and learning material generation, under strict human oversight and ethical review. Sector-wide efforts by VET College Association (MBO Raad), SURF (collaborative ICT organisation for Dutch education and research institutions) and Npuls (a nationwide programme funded by the National Growth Fund to make education future-proof through digital innovation in the Netherlands) promote secure digital environments such as EduGenAI, alongside training in AI literacy and digital didactics. EduGenAI is a secure AI platform developed with Npuls and SURF that integrates tools such as ChatGPT, Mistral, Copilot and Gemini within a protected environment, ensuring privacy, data security and adherence to public values – all outputs are validated by VET teachers. Broader rollout of EduGenAI and the finalisation of sector pacts is expected in 2026, alongside expanded training in AI literacy and digital didactics.

## **10. Switzerland**

Switzerland's use of AI in developing VET curricula and qualifications is at an early stage, with around 20% of VET providers reporting experimentation, mainly for curriculum design and adjustment and data analysis, while policymakers show little use or awareness. Concerns include lack of guidelines, data

security and privacy, and limited AI literacy, though interest exists among providers and industry partners – particularly the ICT sector, which uses customised GPT models for modular curriculum design and exam question generation. Some VET schools have launched AI labs and ethical guidelines, and mandated VET experts and consultancies see potential for AI to accelerate competence profile development, reducing costs and timelines. However, AI is viewed strictly as a supportive tool, not a substitute for expert judgement, given Switzerland’s consensus-driven, practice-oriented VET system. There is limited formal guidance specific to AI use in VET development yet, while some schools developed their own guidelines on AI. Interviewed stakeholders emphasised the need for clear rules, training and systemic collaboration among SERI, Cantons and professional organisations to ensure effective sector-wide integration of AI.

Source: OECD (2026<sup>[33]</sup>), Ten Country Case Studies on VET Development and AI Use, [www.oecd.org/content/dam/oecd/en/publications/support-materials/2026/06/developing-vocational-education-and-training-with-artificial-intelligence\\_e9f76b4e/Ten-country-case-studies-on-VET-development-and-AI-use](http://www.oecd.org/content/dam/oecd/en/publications/support-materials/2026/06/developing-vocational-education-and-training-with-artificial-intelligence_e9f76b4e/Ten-country-case-studies-on-VET-development-and-AI-use).

### *Terminology, scope and limitations of this study: VET development process leveraging AI*

Terminology related to “vocation/al, occupation/al and profession/al” curricula, qualifications and standards, varies across countries, often due to linguistic and institutional differences. While “occupation/al” typically refers to job-specific tasks and responsibilities (OECD, 2024<sup>[10]</sup>) and “profession/al” to specialised knowledge and skills, “vocation/al” refers to education and training for specific jobs, emphasising practical skills and direct workplace application (Wedekind, 2018<sup>[37]</sup>). Therefore, “profession/al” typically refers to higher education equivalent to “vocational”, which typically refers to upper-secondary and post-secondary level education and training (OECD, 2022<sup>[38]</sup>). When examining education, training and qualification systems across countries, these terms are used in a mixed and often confusing way, particularly due to the use of translated terms in English from national language.

This report does not draw strict distinctions between these terms, as AI applications used to support their development are largely similar. For clarity, the report uses the term “VET curricula and qualifications” to refer broadly to occupational/professional/VET standards (or regulations), qualifications and curricula at ISCED levels 3-5 (i.e. upper secondary, post-secondary and short-cycle tertiary level), while acknowledging that country notes may use national terminology. The main focus of the study is on how AI can support the design, improvement and updating of VET curricula and qualifications, including tasks such as analysing skills needs, structuring learning outcomes, mapping competency requirements, and shaping learning pathways and certification requirements.

The scope of this study is VET development within the full VET cycle, and Table 1.2 highlights how it links to other stages of the VET cycle (VET delivery, assessment and outcomes) by mapping key inputs, processes and outputs across the full VET cycle. It shows how each stage of the cycle feeds into the next – for example, labour-market insights inform curricula and qualifications, which guide teaching and learning, leading to skills acquisition, while labour-market outcomes feed back into future VET development.

As the use of AI – particularly in VET development – remains at an early stage in most countries, this study draws not only on concrete institutional-level use cases, barriers and potential risks but also on plausible assumptions and forward-looking perspectives derived from individual experiences. Therefore, the findings should be understood as a snapshot of the use cases, challenges and potential risks identified in 2025, reflecting an evolving landscape in which AI adoption in VET development is still emerging. They do not represent definitive or final conclusions, but rather an interim picture within an ongoing process of technological and institutional change.

**Table 1.2. The scope of this study on VET development and its relevance within the full VET cycle**

Simplified cycle of VET (row) and tasks in each cycle (column)

|         | <b>VET development</b>                                                                   | <b>VET delivery</b>                                                                                                         | <b>VET assessment</b>                                                                                     | <b>VET outcomes</b>                                                                         |
|---------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Input   | <b>Skills assessment and anticipation<br/>Labour market data collection and analysis</b> | Develop individual classroom-level or company-level VET plans based on national, local, sectoral or school-level curriculum | Developing exam questions and tasks to test skills acquired based on qualifications and curricula         | VET graduates and their skills and qualifications                                           |
| Process | <b>Discussion, co-ordination and consultation among stakeholders</b>                     | Teaching/training and learning                                                                                              | Assess learners based on learning outcomes and assessment methods defined in qualifications and curricula | Recruitment, matching skills with labour market demand (or transition to further education) |
| Output  | <b>Create/modify qualification and curriculum content</b>                                | Skills acquired<br>Curriculum delivered                                                                                     | Validating the exam results.<br>Certifying acquired skills.                                               | Meeting labour market needs (the degree of which feed back into VET development as input)   |

**Structure of the report**

This report begins by setting the context and outlining why labour market relevance and responsiveness in VET development matter, highlighting AI's potential to improve this area and its limitations – and explaining the importance, overall narrative, methodology and terminology of this study (Chapter 1). It then describes how VET curricula and qualifications are typically developed across countries and identifies key challenges that AI could help address (Chapter 2). Building on this foundation, the report analyses current and emerging AI use cases (Chapter 3), associated barriers and risks (Chapter 4), and policy considerations for effective and secure AI integration to support VET development (Chapter 5).

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## **2 The potential of artificial intelligence in vocational education and training development**

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This chapter provides an overview of how countries develop curricula and qualifications in vocational education and training (VET). It maps the common processes involved in translating occupational requirements into learning outcomes, curriculum content and certification criteria, and highlights the complex interplay among national VET authorities, sectoral bodies, employers, trade unions and VET providers in this development process. Drawing on OECD survey evidence, the chapter identifies key challenges in current VET development processes and highlights areas where AI could help improve efficiency, responsiveness and alignment with labour market needs.

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# In Brief

## The transformative potential of AI in VET development: Challenges it can help address

- **Unique context of VET development:** Vocational education and training (VET) curriculum and qualification development across OECD and European Union (EU) countries operates within complex, multi-layered governance arrangements (e.g. cross-ministries, cross-sectors, public-private and national-local) that translate labour market needs into occupational standards, qualifications and curricula. While the development process widely varies across countries – from centralised, legally regulated systems to decentralised, provider-led models – these three components are closely interlinked and typically developed through structured, stakeholder-driven processes. Industry actors often lead occupational standards and qualification design, while education authorities and VET providers play a central role in translating these into curricula aligned with national qualification frameworks and evolving labour market demand.
- **Challenges in VET development:** While such multi-stakeholder and multi-level arrangements strengthen relevance, rigour and legitimacy, they are lengthy, resource-intensive and co-ordination-heavy processes – still with data gaps and uneven stakeholder representation – that struggle to keep pace with rapid change driven by digitalisation, green transitions, emerging technologies as well as lifelong learning demands. These pressures are compounded by the need to balance diverse stakeholder interests, manage large and increasing volumes of standards and curricula, and interpret fragmented and fast-changing labour market information – draws on multiple sources, including legal frameworks, labour market intelligence, skills anticipation and expert input. This underscores the growing demand for more efficient analytical and development tools to support competency mapping and ensure relevance.
- **Using AI to improve VET development:** Within this context, AI emerges as a complementary tool that can enhance efficiency, relevance, evidence synthesis and analytical capacity without replacing human judgement or collective decision making. Given current AI capabilities and stakeholder acceptance, its most plausible contributions lie in: (i) supporting stakeholder consultation through structured synthesis, (ii) streamlining drafting and compliance checks, and (iii) improving labour market intelligence by integrating and analysing large-scale, heterogeneous data sources. Used within robust governance, quality assurance and ethical frameworks, AI can help VET systems move towards more agile, timely and evidence-informed development while preserving legitimacy and educational and training quality.

### 2.1. Common practices in VET curriculum and qualification development

To understand how artificial intelligence (AI) can support the development of vocational education and training (VET) curricula and qualifications (thereafter, *VET development*), it is necessary to examine how these are currently developed, interconnected and aligned with labour market demand. Across OECD and EU countries, VET development is shaped by different operational and procedural arrangements, stakeholder roles and sources of input. Drawing from the OECD surveys conducted as part of this study, this chapter ultimately builds the informative basis about VET development for Chapter 3, which explores how AI can be effectively leveraged in the VET development process with concrete country examples.

### ***How is the development of VET curricula and qualifications organised?***

VET curricula are structured education and training plans that specify programme content, delivery processes and pedagogical approaches (see Box 1.2, in Chapter 1). They typically serve as the principal pathways to VET qualifications, which are often based on occupational standards and developed with strong involvement of social partners.

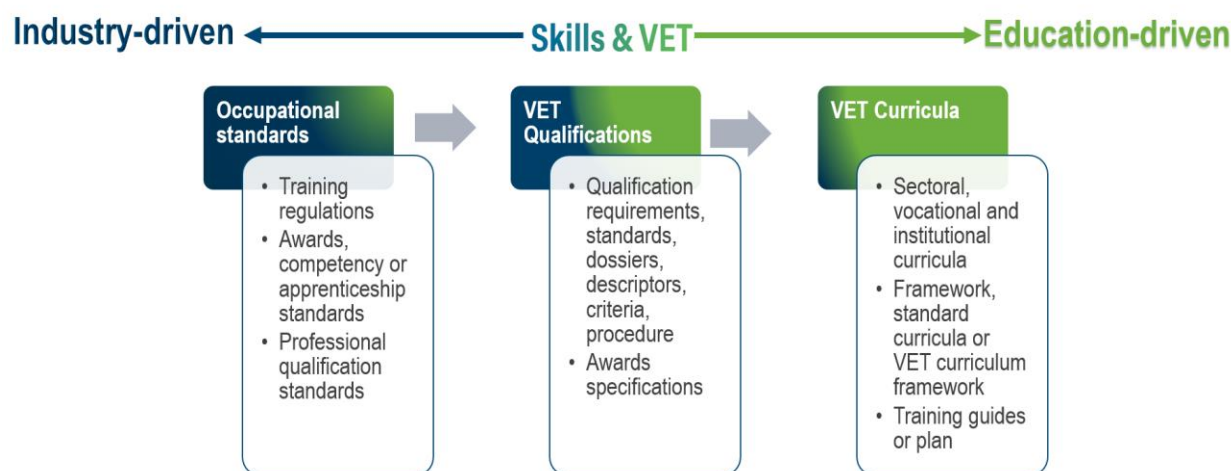
Countries organise VET development in different ways. In countries such as Croatia, Germany, Lithuania, Mexico and Switzerland, dedicated legal and regulatory frameworks set the rules and procedures for developing national occupational standards, qualifications and, in many cases, the associated curricula. In other countries such as England (United Kingdom), Ireland and Korea, accredited VET providers or awarding bodies enjoy varying degrees of autonomy in designing curricula or qualifications – usually within centrally defined structures, such as employer-developed occupational standards (England), programme validation and awards standards frameworks (Ireland), or national competency standards (Korea). Some systems combine both approaches: for example, in Estonia, Finland and the Netherlands, qualifications are centrally defined, while VET providers retain autonomy to develop curricula or locally tailored units within national qualification requirements (OECD, 2025<sup>[1]</sup>).

#### *The development of occupational standards, VET qualifications and curricula is inter-linked*

*Occupational standards or qualifications* define overall occupational structures, competency requirements and learning outcomes, while *curricula* translate requirements into teachable and assessable programmes. In this sense, the development of occupational standards, qualifications and curricula is inter-linked, and involves a process of co-development between industry and education (Figure 2.1).

- **Occupational standards** – also called professional or sectoral standards – define the skills, knowledge, abilities and attitudes needed for effective performance in specific occupations, often serving as national or sectoral competency frameworks that guide workforce development, VET qualification and curricula design (OECD, 2024<sup>[2]</sup>).
- **Qualifications** formalise these standards into certification frameworks, typically mapped to National Qualifications Frameworks (NQFs) (Gasskov, 2018<sup>[3]</sup>) – structured learning and assessment requirements for certification, thus often include criteria for examination, accreditation and certification.
- **Curricula** translate qualification requirements into structured VET programmes, specifying educational goals and core competences, course content, teaching methodologies and assessment methods, and thus provide teaching and learning plans to deliver training and assess learners (Cedefop, 2015<sup>[4]</sup>). NQFs are the main tool for ensuring quality in the alignment between standards and qualifications to curriculum.

Figure 2.1. VET development is a process of translating labour market needs into curricula



Note: This figure presents a simplified overview of VET curricula and qualifications, summarising national terminologies used to refer to the three elements. Each country also applies different processes and methodologies.

Source: Author's elaboration based on OECD (2025<sup>[1]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

While closely connected, the degree of integration between standards, qualifications and curricula varies across countries (Table 2.1). Some systems follow sequential development processes (e.g. Croatia, Estonia, Lithuania and the Netherlands), while others integrate some of these processes more closely (e.g. Australia, England, Germany and Switzerland) or manage parallel but linked processes (e.g. Korea). This is particularly evident in apprenticeships and work-based programmes where occupational standards, training plans and assessments are often directly embedded in curricula, as in England, Switzerland and Germany. In England, apprenticeship content, training plans and end-point assessments are mapped directly to occupational standards, and the curriculum is set out in the apprenticeship standard and assessment plan. In Switzerland, VET ordinances integrate occupational profiles, training plans and qualification procedures, forming the backbone of dual VET. In Germany, training regulations and framework curricula guide both in-company training and school-based VET, ensuring harmonised and standardised content and assessment across regions and companies (Table 2.1).

Table 2.1. Different approaches to structuring standards, qualifications and curricula in VET across countries

| Country                                            | Occupational standards                                                        | Qualification                                                                                                                                                         | Curricula                                                                                                                                                                                                                                                           |
|----------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Australia<br>(Australian Qualifications Framework) | Training Package: Competency standards, Qualifications, Assessment guidelines |                                                                                                                                                                       |                                                                                                                                                                                                                                                                     |
| Croatia                                            | Occupational standards                                                        | Qualification standards                                                                                                                                               | VET curricula: Sectoral Curricula, Vocational Curricula and Institutional Curricula                                                                                                                                                                                 |
| England<br>(United Kingdom)                        | Occupational standards                                                        | No common qualifications: Skills England/IfATE reviews and approves qualifications that are developed by AOs, to ensure these qualifications are mapped to standards. | No common curricula or framework: For apprenticeships, curricula are set out in the apprenticeship standards. For T Levels and other qualifications, AOs develop curricula based on occupational standards, and Skills England/IfATE approves and Ofqual regulates. |

| Country                   | Occupational standards                                                                                                      | Qualification                                                                                                                        | Curricula                                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Estonia                   | Occupational qualification standard                                                                                         | Qualification criteria, assessment procedures                                                                                        | National curricula                                                                                                      |
| France                    | Référentiel des activités professionnelles (RAP) / Référentiel de compétences                                               | Référentiel de diplômes de l'enseignement professionnel                                                                              | Référentiels de diplômes de l'enseignement professionnel                                                                |
| Finland                   | National qualification requirements (competences in different fields and assessment criteria).                              |                                                                                                                                      | National curricula (educational framework plans and school programmes) and local curricula                              |
| Germany                   | National training regulations (occupational standards that define VET qualifications and curricula for in-company training) |                                                                                                                                      | National framework curricula outline the school-based VET on the basis of training regulations                          |
| Greece                    | Occupational profiles                                                                                                       | <a href="#">Standard curricula/training guides</a> , educational manual and bank of exam topics                                      |                                                                                                                         |
| Ireland                   | Award standards<br>Programme derived award standards (provider-led)                                                         | Award (VET qualifications) Specifications                                                                                            | VET programme by accreditation                                                                                          |
| Korea                     | National Competency Standards                                                                                               | National/private qualifications (not always directly linked to curricula, except curriculum-based national technical qualifications) | NCS-based curricula<br>NCS learning modules<br>National VET curricula                                                   |
| Lithuania                 | Professional qualification standards (profesiniaistandartai)                                                                | Qualification descriptors                                                                                                            | VET curriculum (programmes) are developed on the basis of sectoral qualification standards by VET experts and employers |
| Mexico                    | National competency standards, Labour competence standards, Technical standards of each profession                          | National certifications                                                                                                              | Common Curriculum Framework for Higher Secondary Education / COSFAC VET curriculum framework                            |
| Netherlands               | Qualifications (qualification file)                                                                                         |                                                                                                                                      | Individual curricula developed by each VET provider                                                                     |
| Portugal                  | Competency standards                                                                                                        | Qualification                                                                                                                        | VET curricula                                                                                                           |
| Romania                   | Professional Training Standards                                                                                             | Professional qualifications                                                                                                          | National and local curricula                                                                                            |
| Slovak Republic           | Qualification standards                                                                                                     |                                                                                                                                      | National Curriculum (ŠVP) for VET                                                                                       |
| Scotland (United Kingdom) | National Occupational Standards                                                                                             | Vocational qualifications                                                                                                            |                                                                                                                         |
| Spain                     | Professional skills (occupational standards)                                                                                | Academic and/or professional grades (VET qualifications)                                                                             | VET curricula                                                                                                           |
| Switzerland               | Occupational profile                                                                                                        | Qualification procedure or examination regulations                                                                                   | Training plan                                                                                                           |

Note: Case study countries are highlighted in blue.

Source: OECD (2025<sup>[1]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

### *Development process of VET curricula and qualifications: Structured and stakeholder-driven*

Across countries, VET development follows a structured, multi-phase and stakeholder-driven process, involving labour market analysis, occupational profiling defining competencies and specifying qualification requirements, pedagogical design and assessment planning. Stakeholder engagement – particularly with employers, sector bodies, education experts and labour market intelligence units – is central throughout. While revision cycles vary across countries and sectors, most VET systems include periodic reviews (often every 3-5 years), complemented by ad hoc updates to respond to technological or economic change (OECD, 2025<sup>[1]</sup>).

VET development typically begins with comprehensive input gathering through labour market analysis, employer surveys and stakeholder insights – and increasingly supported by AI techniques such as large

language models (LLM) and natural language processing (NLP). These *inputs* inform the drafting and refining of occupational standards, qualification profiles and curricula. Draft *outputs* are refined through consultation *process*, validated and approved within national regulatory and quality assurance frameworks, considering consistency across sectors and occupations. Governance arrangements often combine national co-ordination with sectoral or provider-level responsibility, balancing consistency with flexibility. Increasingly, VET systems are embracing flexible pathways, micro-credentials and recognition of prior learning to support lifelong learning and inclusion, with a growing need to respond to digitalisation, AI, green skills and adaptability to economic shifts.

### ***Which stakeholders are involved in VET curriculum and qualification development?***

VET development is driven by a wide range of stakeholders who collectively ensure that VET programmes remain relevant, high quality and responsive to labour market and educational needs. Governments and policymakers establish national strategies and regulatory frameworks, while industry representatives often lead occupational standards and qualification design; and VET providers and teachers contribute to curriculum development and pedagogical alignment. In several countries – including Belgium, Estonia, Finland, the Netherlands, Portugal and the Slovak Republic – providers enjoy autonomy to design curricula within national qualification requirements, tailoring content to regional labour market needs, employer partnerships and institutional specialisation and resources. At the same time, national co-ordination bodies or qualification authorities (e.g. BIBB, QQI, SERI, HRDK and SBB) play a critical role in ensuring coherence, quality and alignment with national and European/international frameworks.

VET development is also multi-layered, spanning national, regional and local levels, and often involving multiple ministries and sector-specific authorities. These arrangements support relevance and adaptability but require intensive co-ordination, contributing to longer development cycles.

#### *Multiple stakeholders are involved in VET curriculum and qualification development*

Multiple stakeholders are involved in VET development (Table 2.2). Typically, industry representatives lead the development of occupational standards and qualifications, while education representatives – including VET providers, curriculum specialists and teachers – tend to lead curriculum development. Both domains, however, influence each other significantly. Government agencies, such as VET authorities and qualification regulators, play a central role in co-ordinating processes, balancing perspectives and ensuring compliance. Additional support is often provided by mandated experts or specialised bodies – for example, universities, research institutions or consultancy organisations – who undertake technical drafting, conduct analyses or facilitate the development process, often compensating for the limited capacity of stakeholders whose main responsibilities lie outside curriculum and qualification development.

**Table 2.2. Examples of the roles of stakeholders in VET development in selected countries**

| Country            | Stakeholders, their roles and relationships in VET development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Australia          | Historically, Industry Reference Committees (IRCs), Skills Service Organisations (SSOs) and the Australian Industry and Skills Committee (AISC) co-ordinated the development of training packages, which included industry consultation, drafting (SSOs), endorsement (AISC) and ministerial approval. Today, this role is carried out by Jobs and Skills Councils (JSCs), which are composed of ten industry-led bodies funded by the Australian Government (Through the Department of Employment and Workplace Relations). JSCs develop and maintain nationally accredited VET qualifications.                                                                                                                                                                                 |
| Belgium (Flanders) | Industry, VET providers and government bodies may all propose or initiate new qualifications or curricula, reflecting a highly collaborative model.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Costa Rica         | Advisors and management of the Planning and Curriculum Design Unit (Directorate of Technical Education and Entrepreneurial Skills, Ministry of Public Education, MEP) lead curriculum design by aligning proposals with national education policies, analysing skills needs and resource requirements, conducting documentary reviews, and preparing Level-4 ETP curricula and approval documentation for the National Council of Education. They co-ordinate the NQF for TVET focusses on identifying qualifications and developing standards by analysing policy priorities, researching employer needs, mapping occupations and productive functions, and defining qualification levels. This work is carried out in close collaboration with public institutions (MEP, MTSS, |

| Country         | Stakeholders, their roles and relationships in VET development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | INA, CONARE, UNIRE, UCCAEP) and sector experts, through interviews, advisory panels, and validation workshops, to ensure curricula and qualifications are evidence-based, sector-validated, and nationally coherent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Finland         | The Finnish National Agency for Education (EDUFI) develops and revises qualification requirements in close co-operation with a wide range of stakeholders, including VET providers, teachers, students, employers, unions and sectoral working-life committees. Stakeholders contribute through surveys, statements, workshops, interviews and student panels. Webinars and networking events support implementation after approval (Finnish National Agency for Education, 2025 <sup>[5]</sup> ; Finnish National Agency for Education, 2023 <sup>[6]</sup> ).                                                                                                                                                            |
| Germany         | The Federal Institute for Vocational Education and Training (BIBB) co-ordinates the drafting of training regulations with experts from employer and employee associations, VET school representatives and federal ministries. These regulations define occupational profiles, competencies, training plans and assessment standards for in-company training. The Standing Conference of the Ministers of Education and Cultural Affairs (KMK) oversees the development of framework curricula for school-based VET, which Länder can adapt to regional needs, ensuring coherence with work-based components.                                                                                                               |
| Slovak Republic | The Ministry of Education sets the legal framework, approves national curricula (ŠVP) for VET and oversees quality assurance. The State Institute of Vocational Education (SIOV) acts as the expert guarantor, co-ordinating the development of and consultation on national VET curricula and the involvement of ministries, employers, schools and experts in the development process, monitoring labour market trends and supporting innovation projects (e.g. dual education, Centres of Excellence) as well as European initiatives. VET schools are required to develop their own school curriculum (ŠkVP).                                                                                                          |
| Switzerland     | Professional organisations (POs) define the vocational competencies required in an occupation and develop the occupational profile, training plan and qualification procedure. Expert bodies such as the Swiss Federal University for Vocational Education and Training (SFUVET) provide methodological and technical support. The State Secretariat for Education, Research and Innovation (SERI) ensures compliance of VET qualifications and curricula with the legal framework. Once approved by the SERI, these components form part of the legally binding VET Ordinances. VET schools subsequently develop school-level curriculum plans and teaching materials, under cantonal oversight, based on the ordinances. |

Note: Case study countries are highlighted in blue.

Source: OECD (2025<sup>[11]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

### *Multi-layer development and implementation of VET curriculum and qualifications*

VET development is not only multi-stakeholder, but also multi-layered process. Many countries develop VET curricula and qualifications at different levels – national, regional, local or institutional levels. Even in countries where VET providers do not play a significant role in the development (e.g. England [United Kingdom], Germany and Switzerland), VET schools and teachers often have autonomy to adapt content within the parameters of national or regional regulations.

- **Local VET curriculum and qualification development offers flexibility and speed:** In several VET systems, responsibilities for VET curriculum and qualification development are distributed across national, regional and local levels.
  - In Finland, alongside nationally defined qualification units, VET providers or local businesses may design local units tailored to regional labour market needs or choose to develop local curricula based on national qualification requirements. These local units – limited to 15 competence points – do not require national approval, provided they remain within the provider's licence and comply with national competence requirements. They can be elevated to national units if they demonstrate broader relevance (OECD, 2025<sup>[7]</sup>).
  - In Canada, provinces and territories develop and update VET curricula and qualifications in collaboration with employers, unions and VET institutions through surveys, focus groups and working groups. Consistency across more than 50 skilled trades is supported by the federally administered Red Seal Program. Red Seal Occupational Standards (RSOS), which outline Red Seal curricula and qualifications, are developed by the Canadian Council of Directors of Apprenticeship (CCDA) – which includes federal, provincial, and territorial apprenticeship authorities – and guide both federal and provincial and territorial curricula (apprenticeship training) and certification examinations. VET institutions adjust curricula accordingly, and Red Seal exam blueprints are revised to reflect new standards (Red Seal Program, 2024<sup>[8]</sup>).



- **Private qualifications and curricula promote flexibility and speed:** In some countries, private qualifications and curricula exist to give flexibility.
  - In Korea, national qualifications are expected to align with the National Competency Standards (NCS), while private qualifications are developed by private entities offering flexibility and responsiveness to emerging or niche skill demands.
- **Qualifications and curricula developed by multiple ministries and sector-specific standards:** VET qualifications and curricula are often developed through collaboration across multiple ministries, administrative branches and sectoral authorities to ensure alignment with sector-specific legislation and standards.
  - In Finland, the Ministry of Education and Culture (MoEC) oversees overall VET governance, including licensing education providers and structuring qualifications. However, qualifications in sectors such as social welfare and healthcare, transport, real estate, construction and natural resources are governed by statutes and regulations specific to those sectors, under the purview of relevant sectoral ministries. The Finnish National Agency for Education (EDUFI) prepares national qualification requirements, while sectoral ministries ensure that qualifications meet legal and professional standards relevant to their domains. This multi-authority approach ensures that qualifications are pedagogically sound, legally compliant and responsive to labour market needs.
  - Similarly, in Korea, nationally regulated qualifications are administered by 29 ministries under 94 sector-specific laws. For instance, sector-specific bodies such as the Korea Health Personnel Licensing Examination Institute (under the Ministry of Health and Welfare) and the Ministry of Employment and Labour oversee healthcare and technical qualifications respectively.
  - In Lithuania, sectoral standard groups and the Qualifications and VET Development Centre co-ordinate the development of sectoral standards and qualifications, with input from VET providers and employer associations.

These examples illustrate the multi-level, cross-sectoral, multi-agency and public-private nature of VET development and governance, which helps ensure that qualifications remain relevant, agile and responsive to evolving labour market needs, but at the same time contributes to lengthy, complex and demanding processes that require intensive co-ordination.

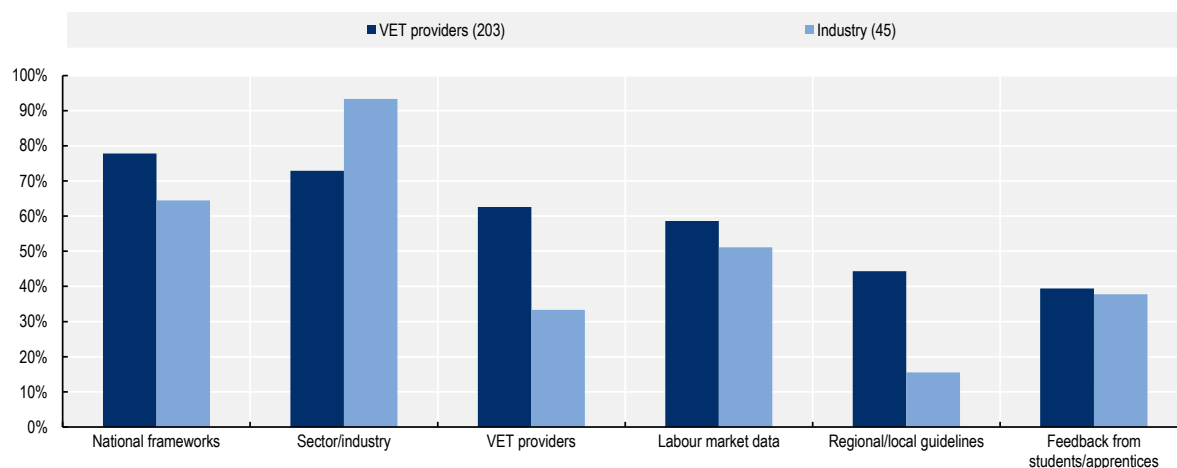
### ***What are the key sources of inputs for VET curricula and qualifications?***

VET development in many countries draw on multiple inputs, including national frameworks and standards to skill intelligence that includes labour market data and VET stakeholder perspectives. The OECD Surveys conducted as part of this study (OECD, 2025<sup>[1]</sup>) shows that national frameworks, inputs from sector, industry and providers as well as labour market data are the primary sources for developing VET curricula and qualifications: 78% of VET providers and 64% of industry partners use national frameworks, such as legislations, occupational/competency standards, national qualification frameworks, as primary source. 73% of VET providers and 93% of industry partners reported using sector and industry inputs as their primary sources, and 59% of providers and 51% of industry partners reported using labour market data as their primary sources. 63% of providers use their own inputs (Figure 2.2).



**Figure 2.2. Primary sources for the development of VET curricula and qualifications**

Share of survey respondents



Source: OECD (2025<sup>[1]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

*Key source of input 1: Legal frameworks defining the development of VET curriculum and professional standards/qualifications*

VET development in many countries is governed by a combination of national legislation, ministerial decrees and sectoral regulations. VET laws typically designate the key agency that oversees the relevance and quality of VET, ensuring that VET curricula and qualifications meet national standards and rules.

For example, in Switzerland, the Vocational and Professional Education and Training Act (VPETA) and associated ordinances issued by the State Secretariat for Education, Research and Innovation (SERI) provide the legal foundation for the development, implementation and periodic review of VET programmes and qualifications. These ordinances, developed by professional organisations and approved by the SERI, define the competencies to be acquired, the rules for implementation, and the procedures for qualification.

In Croatia, the process is defined by the Vocational Education Act, the Act on the Croatian Qualifications Framework (CROQF), and a series of methodologies and guidelines issued by the Agency for Vocational Education and Training and Adult Education (AVETAE or ASOO). These legal instruments stipulate that VET curricula must be competency- and learning-outcome-based, grounded in occupational and qualification standards, and aligned with the CROQF.

England provides another example, where the development of VET curricula and qualifications is governed by a combination of Department for Education (DfE) policy frameworks, SkillsEngland/IfATE (Institute for Apprenticeships and Technical Education, former SkillsEngland) guidance, and regulatory oversight by Ofqual. While their occupational standards are developed by employers, the legal and policy framework ensures that qualifications and curricula developed based on those standards are aligned with labour market needs and national skills priorities, and that they undergo rigorous approval and quality assurance processes.

**Table 2.3. Governance and legal frameworks of the development of VET curricula and qualifications in selected countries**

Laws and regulations that countries must adhere when developing VET curricula and qualifications

|                                  | Examples of key oversight laws, frameworks, regulations and guidelines                                                                                                                                                                                                                                                                                                                                                                                                                                          | Examples of key oversight agency                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Australia</b>                 | National VET Regulator Act 2011                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Australian Skills Quality Authority (ASQA)                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Belgium (Flanders)</b>        | Decree on the Qualification Structure 2009; Decree on Dual Learning 2018; Decree on Adult Education 2007                                                                                                                                                                                                                                                                                                                                                                                                        | Flemish Agency for Higher Education, Adult Education, Qualifications and Study Grants (AHOVOKS)                                                                                                                                                                                                                                                                                                                                        |
| <b>Belgium (French-Speaking)</b> | Accord de co-opération entre la Communauté française, la Région wallonne et la Commission communautaire française concernant le Service francophone des Métiers et des Qualifications (SFMQ) ; Code de l'enseignement fondamental et de l'enseignement secondaire Article 1.3.1-1                                                                                                                                                                                                                               | Service francophone des Métiers et des Qualifications (SFMQ)                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Costa Rica</b>                | National Qualifications Framework for Technical and Vocational Education and Training of Costa Rica (MNC-EFTP-CR); Current educational policies approved by the CSE (National Council of Education)                                                                                                                                                                                                                                                                                                             | National Council of Education (CSE); Ministry of Public Education (MEP)                                                                                                                                                                                                                                                                                                                                                                |
| <b>Croatia</b>                   | Act on the Croatian Qualifications Framework, Vocational Education Act, Act on Crafts, AVETAE guidelines, various methodological guidelines.                                                                                                                                                                                                                                                                                                                                                                    | AVETAE (ASOO), Ministry of Science, Education and Youth; Ministry of Labour, Pension System, Family and Social Policy; Ministry of Economy                                                                                                                                                                                                                                                                                             |
| <b>Czech Republic</b>            | School Act including secondary, higher VET; Act on the verification and recognition of the results of further education; National Register of Qualifications (NSK)                                                                                                                                                                                                                                                                                                                                              | Ministry of Education, Youth and Sports; National Training Fund; National Register of Qualifications (NSK)                                                                                                                                                                                                                                                                                                                             |
| <b>England (United Kingdom)</b>  | Ofqual regulation (Handbook: General Conditions of Recognition, and regulatory frameworks); Apprenticeships, Skills, Children and Learning Act 2009; SkillsEngland/IfATE operational guidance and standards; DfE technical education policy publications; awarding body regulations.                                                                                                                                                                                                                            | Skills England (formerly IfATE), Department for Education, Office of Qualification and Examinations Regulation (Ofqual)                                                                                                                                                                                                                                                                                                                |
| <b>Estonia</b>                   | Professions Act; Regulations on the list of occupational fields, rules for establishing, terminating, and operating occupational qualification councils, the procedure for appointing representatives, and the list of documents required for institutions to award qualifications; Ministry of Education and Research regulations on statutes of the qualification register, procedures for preparing, amending, and recording occupational qualification standards, and the statute and form of certificates. | Ministry of Education and Research; Estonian Qualifications Authority                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Finland</b>                   | National qualification requirements by EDUFI<br>Statutes in different administrative branches (e.g. social welfare and healthcare, transport, real estate, construction, natural resources)                                                                                                                                                                                                                                                                                                                     | Finnish National Agency for Education (EDUFI)                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>France</b>                    | Répertoire national des certifications professionnelles (RNCP) et Répertoire spécifique (répertoire des certifications et habilitations qui correspondent à des compétences professionnelles complémentaires aux certifications professionnelles)                                                                                                                                                                                                                                                               | France Compétences                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Germany</b>                   | Vocational Training Act (Berufsbildungsgesetz, BBiG); training regulations (Ausbildungsordnung); framework curricula (Rahmenlehrplan); BIBB guidelines; Länder-specific regulations for full-time vocational schools                                                                                                                                                                                                                                                                                            | Federal Institute for Vocational Education and Training (BIBB); Federal Ministry for Education, Family Affairs, Senior Citizens, Women and Youth (BMFSFJ) and other Federal Ministries like Federal Ministry for Economic Affairs and Energy (BMWE), Federal Ministry of Agriculture, Food and Regional Identity (BML), Federal Ministry of Health (BMG); Standing Conference of the Ministers of Education and Cultural Affairs (KMK) |
| <b>Greece</b>                    | Curricula for Vocational Education, Secondary and Post- Secondary Vocational Training and Apprenticeship class                                                                                                                                                                                                                                                                                                                                                                                                  | Ministry of Education, Religious Affairs and Sports; National Organisation for the Certification of Qualifications and Vocational Guidance (EOPPEP)                                                                                                                                                                                                                                                                                    |
| <b>Ireland</b>                   | National Framework of Qualifications; QQI guidelines, awards standards, and programme validation process                                                                                                                                                                                                                                                                                                                                                                                                        | Quality and Qualifications Ireland (QQI); Further Education and Training Authority                                                                                                                                                                                                                                                                                                                                                     |

|                    | Examples of key oversight laws, frameworks, regulations and guidelines                                                                                                                                                                                                                                                                                                                                                        | Examples of key oversight agency                                                                                                                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Korea</b>       | Vocational Competency Development Act (직업능력개발법); National Technical Qualifications Act (국가기술자격법); National Lifelong Vocational Competency Development Act (국가평생직업능력개발법); National Competency Standards; Framework Act on Qualifications                                                                                                                                                                                       | Ministry of Employment and Labour (MoEL) and its implementation agency, Human Resources Development Service of Korea (HRD Korea), line ministries; Korea Research Institute for Vocational Education and Training (KRIVET) |
| <b>Latvia</b>      | Professional qualification standards                                                                                                                                                                                                                                                                                                                                                                                          | State Education Development Agency                                                                                                                                                                                         |
| <b>Lithuania</b>   | Description of the Procedure for the Preparation, Updating and Approval of Professional Qualification Standards; Methodology for developing qualification standards (KPMPC); Description of the Procedure for Preparation and Legalisation of Formal VET programmes (approved by the Minister for Education); Methodology for developing modular VET programmes; National Qualification standards                             | Ministry of Education, Science and Sport; Qualifications and VET Development Centre (KPMPC)                                                                                                                                |
| <b>Mexico</b>      | Sistema Nacional de Clasificación de Ocupaciones (SINCO); Sistema de Clasificación Industrial de América del Norte (SCIAN); National Occupational Classification System; National Register of Standards of Competence; General Education Law, the Common Curriculum Framework for Higher Secondary Education, Mexican Qualifications Framework; System of Assignment, Accumulation, and Transfer of Academic Credits (SATCA). | Secretaría de Educación Pública; Co-ordinación Sectorial de Fortalecimiento Académico; Dirección General de Educación Tecnológica Industrial; Dirección General de Educación Tecnológica Agropecuaria y Ciencias del Mar   |
| <b>Netherlands</b> | Education and Vocational Training Act, Regulation on models and assessment framework for regional VET and qualifications.                                                                                                                                                                                                                                                                                                     | The Organisation for the Co-operation between VET and the Labour Market (SBB); Ministry of Education, Culture and Science                                                                                                  |
| <b>Romania</b>     | Law of Pre-university Education; National Qualifications Framework; Classification of Occupations in Romania; Methodology for the development and updating of professional qualifications taught through pre-university education                                                                                                                                                                                             | Ministry of Education                                                                                                                                                                                                      |
| <b>Slovenia</b>    | Starting points for the preparation of educational programmes for lower and secondary vocational education and secondary professional education programmes                                                                                                                                                                                                                                                                    | Institute of the Republic of Slovenia for Vocational Education and Training                                                                                                                                                |
| <b>Spain</b>       | Organic Law on the Organisation and Integration of Vocational Training; Royal Decrees on vocational training.                                                                                                                                                                                                                                                                                                                 | Ministry of Education, Vocational Training and Sports.                                                                                                                                                                     |
| <b>Switzerland</b> | VPETA; VET Ordinances; framework curricula (Rahmenlehrpläne); guidelines (Wegleitungen); examination regulations (Prüfungsordnungen)                                                                                                                                                                                                                                                                                          | State Secretariat for Education, Research and Innovation (SERI)                                                                                                                                                            |

Note: Case study countries are highlighted in blue.

Source: OECD (2025<sup>[11]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

### *Key source of input 2: Skills anticipation, skills intelligence and labour market data*

VET development is informed by skills needs assessment and anticipation or skills intelligence. Skills anticipation (or skill needs assessment and anticipation) refers to the strategic evaluation of current and future skill needs in the labour market, using consistent and systematic methods. It involves identifying skill gaps and shortages, and evaluating the capacity of qualification systems and VET provisions to meet demand. This process can take place at national, regional, local or sectoral levels and provides quantitative (e.g. employment and job vacancy trends by occupation or qualification) and qualitative (e.g. evolving skill profiles within jobs) insights into emerging skill needs and future gaps (Cedefop & UNESCO-UNEVOC, 2025<sup>[9]</sup>). Skills intelligence encompasses the identification, collection, analysis, synthesis and presentation of labour market and skills data. It supports the anticipation and forecasting of skill needs, addresses gaps and mismatches, and informs education and training provision. It offers insights into labour market profile and employment trends, occupational requirements, working conditions, pathways through education and employment (Cedefop & UNESCO-UNEVOC, 2025<sup>[9]</sup>).

There are several skills anticipation methods including skills forecasts, foresights and surveys as well as graduate tracking and sectoral analyses. Increasingly, big data and other AI tools are used to assess and

anticipate skill and jobs developments, especially in the context of digital transformation and the green transition. Online job advertisement data provides (quasi) real-time insights into employer demands, complementing traditional tools such as stakeholder workshops and labour market statistics. These trends help map skills shortages – both short, medium and long term – and alleviate them, by guiding adjustments in VET curricula and qualifications (Cedefop & UNESCO-UNEVOC, 2025<sup>[9]</sup>).

Skills anticipation, skills intelligence or labour market data are used at the beginning of the VET development process, as input. Croatia and Lithuania are required to conduct a labour market needs analysis and employer surveys to identify current and future skills gaps. In Ireland, VET providers consult labour market data, employer feedback and national skills reports (e.g. from SOLAS and QQI) to design and update VET curricula and programmes. Similarly, in Switzerland, professional organisations conduct regular reviews of economic and technological trends, using labour market intelligence to update VET Ordinances and framework curricula. These approaches ensure that VET curricula are not only responsive to current employer needs but also anticipate future skills requirements, making use of both quantitative data (e.g. employment statistics, job vacancy analyses) and qualitative intelligence (e.g. expert panels, focus groups, and sectoral working groups) to guide curriculum development and qualification standards (OECD, 2026<sup>[10]</sup>).

In France, the *Observatoires Prospectifs des Métiers et des Qualifications* (OPMQ; French occupation and skills observatories) conduct sector-specific foresight studies to anticipate future skill needs, which directly inform the design and revision of training programmes and occupational standards. Their insights support policymakers, training providers, and social partners in aligning VET offerings with evolving labour market demands (OECD, 2019<sup>[11]</sup>). In Greece, the Central Council for VET (KSEK), together with regional councils (SSPAE) is responsible for monitoring the labour market changes and qualification needs.

### *Key source of input 3: Input and output repository*

Across many countries, VET development increasingly relies on robust input and output repositories – databases and platforms that capture labour market trends, skills registers, occupational standards, educational records, curricula and micro-credentials. When augmented by AI, these systems can automate the analysis of large-scale data, identify emerging skills and generate actionable insights for curriculum design and policy decisions. By integrating and leveraging such repositories, countries can ensure that VET programmes remain relevant, responsive, and aligned with evolving workforce needs in a rapidly changing world.

Estonia is significantly advanced in this area. Estonian labour market and skills forecasting system (OSKA) provides labour market analysis and relevant input for VET development, while [Skills Register](#) linked to occupational standards and qualifications (via [Occupation Register](#)) and supports the comparison and validation of learning outcomes, certificates and diplomas across educational levels. Estonian Education Information System ([EHIS](#)) covering education institutions, registered curricula, their learning outcomes and student records. Estonia is also currently developing a registry for micro-credentials. Meanwhile, VET teachers in Estonia use social media groups and informal networks to share resources including prompts for AI use (e.g. Estonia), and these platforms could be also leveraged by AI to analyse emerging trends, support prompt engineering and facilitate peer learning (OECD, 2025<sup>[11]</sup>).

In Belgium (Flanders), Qualifications and curricula are made available through the Kwalificatiedatabank (Qualification Database). Occupational standards are included in the “Competent” database. The content of the database is managed and updated by the Flemish Public Employment Service (VDAB), while the database is a joint product of the Belgian public employment services Actiris, ADG, Bruxelles Formation, Forem and VDAB. Standards are periodically reviewed to ensure they remain relevant and responsive to changing labour market needs. Updates are informed by analyses of labour market data, including online job vacancies (OECD, 2024<sup>[12]</sup>).

In France, Occupational standards are organised through the ROME system (*Répertoire Opérationnel des Métiers et des Emplois*), which helps match job offers with job seekers, and is managed by the French Public Employment Service, France Travail. The recent transition to ROME 4.0 marks a significant update, with a shift to a skills-based approach to meet evolving labour market demands. A dedicated online platform, where sectoral funds, social partners, training providers and other key actors can suggest updates, review and provide feedback on draft profiles prepared by France Travail, has been developed to facilitate stakeholders' involvement (OECD, 2024<sup>[2]</sup>).

In addition, there are international resources. For example, pan-European projects like the [European Software Skills Alliance](#) and Digital Europe enables the participating countries to contribute to and benefit from shared databases and frameworks for software and AI skills, which can be further enhanced by AI for benchmarking, automated curriculum generation, and best practice exchange (Box 2.1).

### Box 2.1. European Software Skills Alliance and Digital Europe

The European Software Skills Alliance (ESSA) and Digital Europe projects include participation from a wide range of European countries. For ESSA, participating countries include Belgium, Estonia, Germany, Greece, Hungary, Italy, Ireland, France, the Netherlands, Poland, Slovenia, Spain, Luxembourg and the United Kingdom. The Digital Europe Programme is even broader, involving all EU member states as well as EFTA/EEA countries (Iceland, Norway, Liechtenstein), and several candidate and associated countries such as Albania, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro, North Macedonia, Serbia, Türkiye, Ukraine and Switzerland (with some limitations on objectives) (Digital Europe Programme, 2025<sup>[12]</sup>). These alliances and programmes foster cross-country collaboration on digital skills, software competencies and curriculum development, leveraging AI and shared resources for Europe-wide impact.

## 2.2. What tasks could AI help improve in VET development?

VET systems operate in an environment of accelerating technological change, most recently with the emergence of AI. While digitalisation and online learning environments (Jeon, 2025<sup>[13]</sup>) as well as policy attempts such as modularisation, micro-credentials and competency-based frameworks have increased access, flexibility and relevance in VET (OECD, 2023<sup>[14]</sup>; OECD, 2023<sup>[15]</sup>; OECD, 2023<sup>[16]</sup>), formal curricula and qualifications often struggle to keep pace with evolving skill demands due to limited occupational or skills coverage, outdated content and lengthy revision cycles (Moein et al., 2024<sup>[17]</sup>). Established development processes – grounded in expert consultation, validation and compliance with national qualification frameworks – safeguard legitimacy and quality, but are resource-intensive and difficult to adapt rapidly (OECD, 2025<sup>[1]</sup>). The resulting tension between stability and responsiveness raises a systemic question: *how can VET systems shift from static, complex and periodic updates towards more agile, iterative and evidence-informed approaches?*

In this context, AI is increasingly viewed as a tool to support faster adaptation and improved relevance, provided that its use is embedded within robust governance and quality assurance arrangements. AI is expected to have efficiency gain and productivity improvement (Brynjolfsson, Li and Raymond, 2025<sup>[18]</sup>). Typical criteria for efficient occupational and training standard setting – such as responsiveness, timeliness, agility, user-friendliness and quality (OECD, 2024<sup>[2]</sup>) – are the areas where AI can help deliver improvements. Evidence from the OECD AI Capability Indicators suggest that current AI systems can perform intermediate-level tasks in language processing, classification and pattern recognition (OECD, 2025<sup>[19]</sup>; OECD, 2023<sup>[20]</sup>), which are directly relevant to curriculum drafting, occupational profiling and large-scale data analysis.



At the same time, AI systems face clear limitations: they may privilege easily codifiable or digitised skills and learning methods, potentially narrowing the breadth of curricula. Generative AI tools can introduce inaccuracies, cultural bias or opaque sourcing, complicating their integration into established validation procedures. Without involving VET stakeholders (e.g. in co-designing AI tools or AI-supported processes), AI-supported processes may shift or increase workload rather than reduce it, while raising concerns related to data governance and ethics. Moreover, current AI systems still lack the contextual judgement, robust reasoning, dynamic learning and social intelligence (OECD, 2025<sup>[19]</sup>; OECD, 2023<sup>[20]</sup>), which are required for VET development processes. Addressing these risks requires interdisciplinary collaboration, ethical governance, professional development and monitoring frameworks to ensure AI supports, rather than disrupts, educational equity, quality and effectiveness (see Chapter 3).

Within these constraints, AI is most plausibly positioned as an assisting tool in VET development to complement existing processes rather than replace them. Fully automated qualification design or curriculum revision remains beyond both current AI capabilities and stakeholder acceptance (OECD, 2025<sup>[11]</sup>). However, three key, interconnected areas illustrate where AI could help improve persistently challenging tasks in VET development (detailed discussion of each bullet point is under “Challenging task” section below and Chapter 3 explores country examples in a greater detail):

- **Assisting in balancing diverse stakeholder interests by synthesising processes and evidence** (see Challenge 1 below): While AI cannot fully resolve the complexities of stakeholder co-ordination, it can improve stakeholders’ preparedness, reduce and support their tasks such as streamline documentation, synthesise inputs and iterative consultation across multiple feedback rounds.
- **Streamlining lengthy and resource-intensive processes** (see Challenge 2 below): AI can help reduce time and resources throughout VET development processes that typically involve multiple stages of drafting, legal and regulatory procedures, compliance checks, validation and approval, often across several institutions and legal frameworks.
- **Improving labour market intelligence and relevance through integrating comprehensive insight and detecting gaps** (see Challenge 3 below): AI can integrate and analyse large-scale, heterogeneous labour market and education data to identify emerging skills, identify gaps between demand and existing provision, and support timelier, evidence-informed updates to VET curricula and qualifications.

### ***Challenging task in VET development 1: Balancing diverse stakeholder interests***

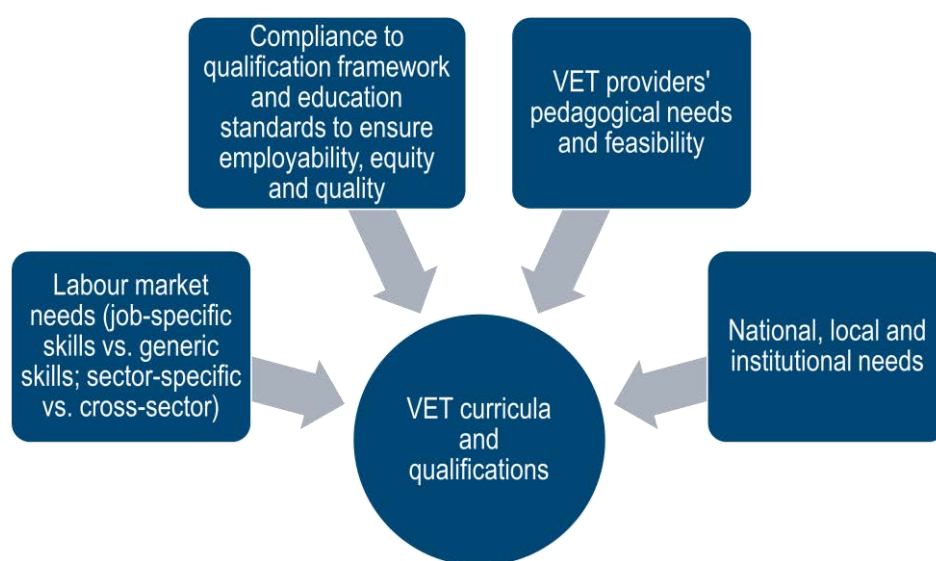
VET development is inherently collaborative process, involving a diverse array of stakeholders. While this diversity ensures broad representation, thus legitimacy and relevance, it also introduces competing priorities: employers emphasise job-specific competencies, educators focus on pedagogical coherence and progression pathways, and regulators seek compliance with legal frameworks. Unequal capacity to engage – particularly among small and medium-sized enterprises (SMEs) – further complicates co-ordination and slows decision making.

Co-ordinating input and aligning goals across these diverse groups takes time and efforts and can lead to delays or conflicting priorities. These conflicting interests (see Figure 2.3), if not delicately balanced, may result in compromises that dilute the effectiveness of the curriculum and qualifications that are far from labour market demands, and delay the development, revision and reform cycles.

The OECD Surveys conducted as part of this study show that “*balancing different stakeholder needs, interests and priorities*” is among the most frequently cited challenges among VET policymakers (64%) (Figure 2.4, Panel A). Related challenges include “*gathering comprehensive views and inputs*” (56% of policymakers; 44% of industry representatives), “*ensuring effective consultation, collaboration and co-ordination across stakeholders*” (56% of policymakers; 30% of industry representatives), and “*balancing*

*national standards with local flexibility*” (reported by 47% of providers, 33% of industry representatives and 31% of policymakers) (Figure 2.4, Panel A). Balancing national and local needs is reported across a range of countries, where local autonomy can enhance responsiveness but also lead to inconsistent implementation that may undermine national coherence and comparability of VET curricula and qualifications – particularly during periods of structural transitions such as the shift to green skills (OECD, 2025<sup>[7]</sup>).

**Figure 2.3. Conflicting stakeholder needs, interests and priorities in the process of VET development**



Source: Author's elaboration, based on (OECD, 2025<sup>[11]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

While few stakeholders expect AI yet to fully address these issues (14-24% reported “*co-ordination*” as main motivations or objectives for using AI in VET development; Figure 2.4, Panel B), AI can support consensus-building indirectly by synthesising large volumes of stakeholder inputs, processes and evidence, and preparing stakeholders for working group meetings and advisory processes through concise briefs, enabling more informed discussions and reducing bottlenecks in decision making. AI has potential to offer new avenues for addressing co-ordination challenges in VET development. Used transparently (i.e. clearly specifying when and how AI is used in VET development, for what purpose, on which data and with what limitations) (OECD, 2026<sup>[21]</sup>), such tools may improve the efficiency and inclusiveness of consultation without displacing collective decision making.

By facilitating structured input collection, synthesising diverse perspectives – some stakeholders noted AI's perceived “objectivity” – and enabling scalable engagement, AI can support more inclusive and efficient consultation processes. Wider access to generative AI could help SMEs contribute more effectively to VET development processes by producing structured inputs for consultation and stakeholder engagement without requiring extensive technical capacity in translating company skills requirements into trainable curricula. AI-powered chatbots and data aggregation tools can summarise large volumes of employer feedback, learner surveys, and public consultations, making engagement more inclusive and



efficient, fostering collaborative curriculum development and ensuring that VET qualifications reflect diverse stakeholder perspectives while reducing bottlenecks in consultation processes (OECD, 2025<sup>[22]</sup>).

### **Challenging task in VET development 2: Managing time and resources constraints**

Developing high-quality VET curricula and qualifications requires substantial time, expertise, and administrative capacity. The scale of the task is also significant: countries manage hundreds of occupational standards, qualifications and curricula, many of which are extensive and highly detailed (Table 2.4). Development processes therefore take several years for new qualifications and nearly as long for updates, with initial VET processes in countries like Norway longer than continuing VET. Budget constraints could further limit capacity, scope and speed of development, stakeholder engagement and approval of new qualifications, while complex approval procedures hinder responsiveness to emerging industry needs – as reported in England.

The OECD Surveys conducted as part of this study indicate that a majority of stakeholders cite “*lengthy procedures*” (53-61%) and “*resource limitations*” (56-61%) as major challenges (Figure 2.4, Panel A). They Stakeholders primarily associate AI with “*speed and scale*” (64-75%), reflecting its potential to process large datasets and stakeholder inputs, identifying and synthesising patterns, trends and perspectives that are difficult to detect manually, and reducing time and cost (Figure 2.4, Panel B). In this sense, AI is seen as a tool to compress time-intensive analytical and co-ordination phases that often delay VET development.

Stakeholders also expect that AI can “*automate drafting*” of curriculum components such as learning outcomes, competencies, module descriptions, assessment tasks and evaluation criteria within modules or learning outcome units (57-75%, Figure 2.4, Panel B). AI’s benefits extend well beyond drafting alone. While few stakeholders (20-30%) expect to resolve “*regulatory constraints*”, requirements and complexity (Figure 2.4, Panel A), AI can still assist with technical alignment by checking consistency and “*compliance with legal and regulatory frameworks and standards*” (7-50% stakeholders reported, Figure 2.4, Panel A), reducing human error and time through automated checks. For example, AI can link learning outcomes to competency sets or credit points through automated checks (e.g. Croatia), and also accelerate consistent, accurate and efficient content generation at scale (e.g. England).

Emerging initiatives reflect this broader understanding of AI’s role. For example, the OECD’s Teaching Compass, complimented by the development of an AI curriculum analyser tool to support curriculum analysis and implementation has emphasised how generative AI can support curriculum transformation, including analysing curriculum content, supporting teachers’ curriculum implementation, and strengthening coherence between intended, implemented and learned curricula (see [2025 discussion from the OECD Global Forum on the Future of Education and Skills 2040](#)). AI tools, particularly Natural Language Processing (NLP), can improve clarity, detect inconsistencies and support drafting while reducing manual workload (OECD, 2025<sup>[22]</sup>). Overall, AI’s potential to address time and resource constraints in VET development lies not only in automating drafting and reducing manual and repetitive work of experts, but also in restructuring how evidence is gathered, synthesised, translated into decisions and validated. This enables faster production of high-quality documents for VET systems, supporting more responsive updates to occupational standards, qualifications and curricula in VET.

**Table 2.4. Examples of the scale of VET qualifications and curricula in selected countries**

|                  | <b>Numbers and volumes of VET qualifications, courses and competencies to be managed and developed</b>                                                                                                                                                    |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Australia</b> | National Training Register type (training.gov.au; accessed 12 May 2026): qualification (over 8 000), unit of competency (over 75 000), accredited course (over 19 000)                                                                                    |
| <b>Denmark</b>   | Upper-secondary VET has more than 100 different study programmes and each programme may target more than one job. Post-secondary VET (International Standard Classification of Education [ISCED] level 5) provides six programmes and 27 specialisations. |

|                                  | Numbers and volumes of VET qualifications, courses and competencies to be managed and developed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Estonia</b>                   | 530 professional standards for 90 professionals ( <a href="http://www.kutseregister.ee">www.kutseregister.ee</a> ); Skills Register that includes 3 000 skills descriptors, aiming for 8 000 by 2029.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>England (United Kingdom)</b>  | Around 700 occupational standards (Level 2-7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Korea</b>                     | National Competency Standards include 13 343 competency units under 1 100 detailed subgroups.<br>National qualifications under individual sectoral laws are administered by 29 ministries across 94 legal acts (196 qualifications across 567 categories in 2022); National technical qualifications regulated by the National Technical Qualifications Act have 546 qualification types in 2022.<br>Registered private qualifications are overseen by 40 ministries and agencies, including 55 741 qualification types in 2024 across a wide range of fields such as IoT appliances, drone maintenance, insect management and communication skills (KRIVET, 2025 <sup>[23]</sup> ).<br>The 2022 mechanical engineering curricula spans 1 258 pages with 18 theoretical and 55 practical subjects. |
| <b>Lithuania</b>                 | 604 qualifications (Vaitkute, 2022 <sup>[24]</sup> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Mexico</b>                    | An example of curriculum document for a <a href="#">VET programme on AI</a> is nearly 100 pages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Netherlands</b>               | More than 700 vocational courses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Scotland (United Kingdom)</b> | Occupational standards (OS) are grouped in “suites” and there are around 900 suites as of 2025, with almost 23 000 separate OS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Switzerland</b>               | 200 apprenticeship qualifications; upper-secondary VET students can choose from 245 occupations. For post-secondary VET, there are about 420 federal examinations (260 federal professional examinations, and 160 advanced federal professional examinations), as well as 55 study programmes in professional colleges.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Source: OECD (2025<sup>[1]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews. Korea from NCS Classification (NCS 분류) (n.d.<sup>[25]</sup>), NCS Classification, [www.ncs.go.kr/th01/TH-102-001-02.scd0](http://www.ncs.go.kr/th01/TH-102-001-02.scd0).

### ***Challenging task in VET development 3: Anticipating and translating evolving labour-market demand into VET curricula and qualifications***

Ensuring the responsiveness of VET curricula and qualifications is a persistent challenge for VET policymakers, providers and industry partners. Established update cycles and consultation mechanisms often struggle to keep pace with rapid technological change, sectoral transformation and emerging skill requirements in a timely and sufficiently granular manner. While the results from the OECD Surveys conducted as part of this study (OECD, 2025<sup>[1]</sup>) suggest that relatively few stakeholders (16-36%) perceive accessing and analysing labour market data as a major challenge, many interviewees report that available information remains fragmented, outdated or difficult to interpret, limiting its usefulness for forecasting skills needs and aligning curricula with emerging trends. These challenges are often linked not only to data availability, but also to limited interoperability across data sources: labour market, education and qualification data are often stored in disconnected systems, use different classifications, formats or structures, making it difficult to combine and analyse them systematically. Even when data are available, effective interpretation requires advanced analytical capacity and sector- and occupation-specific expertise that is not consistently available across VET systems.

Within this context, AI can help address these gaps by integrating diverse data sources – from job vacancy postings and economic reports to employer surveys – and identifying patterns or mismatches that manual methods may overlook, including skills in high demand that are not covered by existing VET qualifications or programmes. This may enable earlier identification of emerging gaps, more evidence-based decision making and timelier updates to occupational standards, qualifications and curricula, particularly in fast-changing sectors where traditional mechanisms may be too slow or insufficiently representative. The added value of AI lies not in replacing sector expertise, but in augmenting it with systematic, scalable evidence through the analysis of large volumes of heterogeneous data and the forecasting of future competency needs.

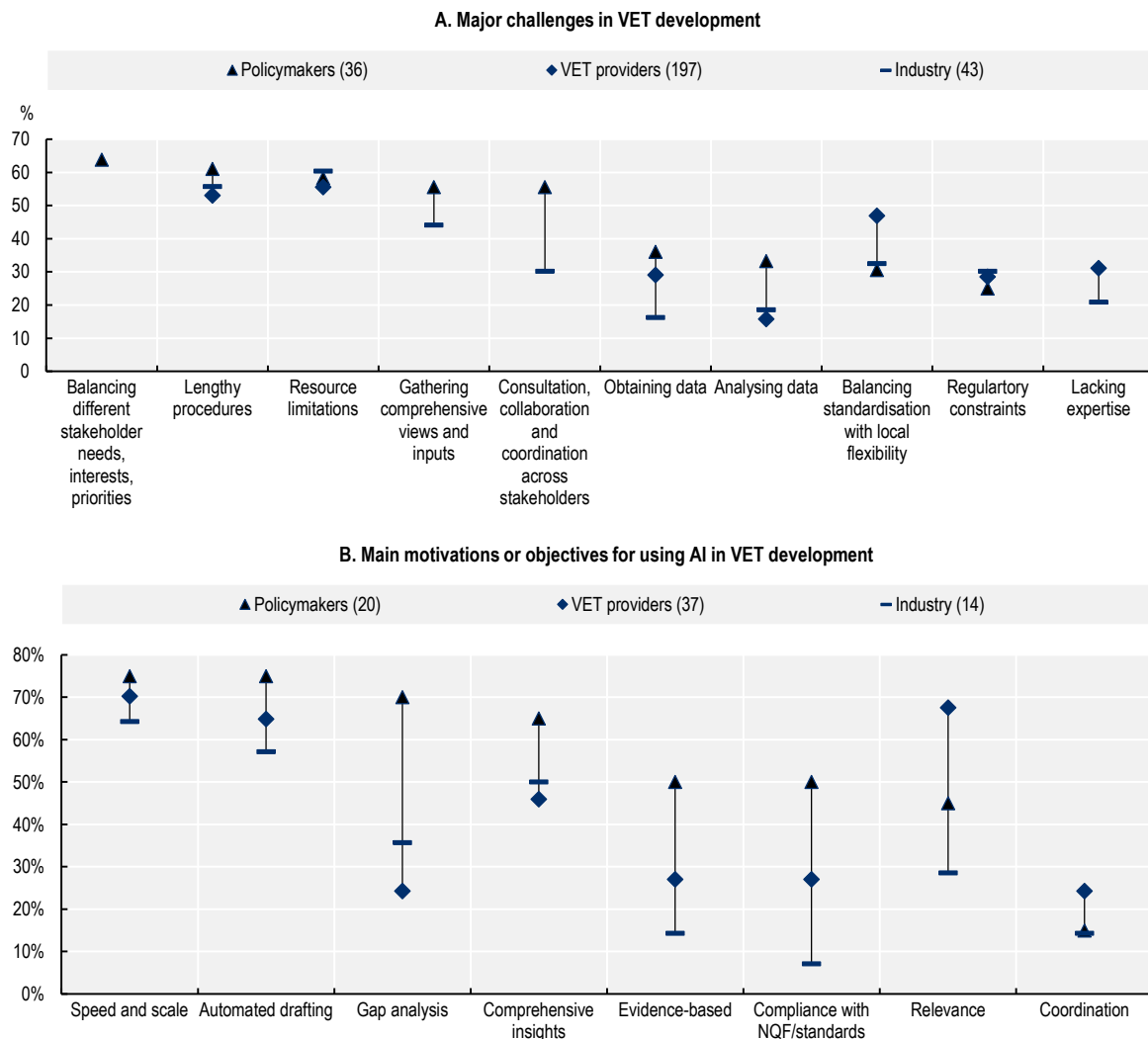
Recent research highlights the potential of Natural Language Processing (NLP) techniques to extract meaningful insights on skills acquisition from large volumes of textual content, reinforcing AI’s role in supporting curriculum development (Gonzalez-Gomez et al., 2024<sup>[26]</sup>). Increasingly, AI is used to analyse

unstructured and large-scale labour market data from job portals, employer databases and social media to anticipate emerging skill needs and identify new occupations, skill gaps and sectoral trends in near real time, informing curriculum design and updates (Cedefop & UNESCO-UNEVOC, 2025<sup>[9]</sup>). The OECD Surveys conducted as part of this study (OECD, 2025<sup>[11]</sup>) show that countries already apply AI techniques (machine learning and NLP) to skills forecasting and description, using big data analytics, real-time labour market data or AI-generated synthetic data – or linking curricula and occupational profiles with such data (e.g. [Cedefop's Skills OVATE](#) and national initiatives in Australia, Canada, New Zealand, the United Kingdom and the United States). These applications demonstrate AI's potential to improve responsiveness, efficiency and inclusiveness in VET development.

Moreover, stakeholders' insight confirms that unlocking underutilised data sources is key to realising AI's full potential in VET development, leveraging longitudinal student data, career guidance interactions and continuous feedback loops from industry and learners to inform agile updates and enable predictive analytics for skills forecasting (OECD, 2025<sup>[11]</sup>).

**Figure 2.4. Major challenges in VET development and main motivation for using AI**

Percentage of respondents in each stakeholder group



Note: The number of respondents is in brackets.

Source: OECD (2025<sup>[11]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

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# **3**

## **Leveraging AI for vocational education and training development: Current and emerging use cases**

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This chapter explores how artificial intelligence (AI) is beginning to reshape the development and revision of curricula and qualifications in vocational education and training (VET). Drawing on OECD survey data and country case studies, it shows that while AI adoption remains uneven and largely experimental, its use is expanding across key tasks of VET development – from labour market analysis and stakeholder consultation to curriculum drafting, mapping and format validation. The chapter highlights how governments, industry partners and VET providers are using AI to enhance efficiency, responsiveness and evidence-based decision-making. It also examines the types of tasks, programmes and data where AI is most commonly applied, including green and digital skills, modular VET and micro-credentials, and discusses the governance, data and capacity conditions shaping current practices.

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# In Brief

## How do countries use AI to support VET development?

### Current and emerging use of AI to support VET curriculum and qualification development:

- AI use in VET development is at an early stage – largely supportive, uneven and often informal, with significant variation across stakeholder groups and countries. VET policymakers report the highest awareness and adoption of AI in VET development, followed by industry stakeholders and VET providers.
- The most relevant and common applications spans input (data analysis, forecasting and mapping), process (stakeholder consultation and evidence synthesis) and output (content generation and framework modernisation) tasks of VET development.
- AI use is relatively visible in areas linked to digital, green and AI-related skills, and in the development of modular provision and micro-credentials.
- AI-supported VET development draws on a broad mix of labour-market intelligence, qualification frameworks, administrative data and stakeholder feedback. Countries use a spectrum of tools ranging from general-purpose AI applications to customised institutional systems, with system-level adoption remaining rare and largely contingent on strong governance, infrastructure and co-ordination.

Artificial intelligence (AI) is increasingly used to develop and revise curricula and qualifications in vocational education and training (VET). While the adoption of AI remains at an early stage in most countries with a varying degree of advancement, its potential to enhance efficiency, responsiveness and evidence-based decision making is increasingly recognised (Delia, 2025<sup>[1]</sup>; OECD, 2026<sup>[2]</sup>; OECD, 2025<sup>[3]</sup>; Moein et al., 2024<sup>[4]</sup>). AI can be deployed across all stages of the VET development process – from initial information processing to support consultation and labour market analysis, to the drafting, revision and format validation of curricula, qualifications and occupational standards, provided that barriers and potential risks are well managed (see Chapter 4).

### 3.1. Who uses AI to support VET development, and how?

AI use in the development of VET curricula and qualifications (thereafter, *VET development*) remains limited, uneven and largely exploratory. The results from the OECD Surveys conducted as part of this study (OECD, 2025<sup>[3]</sup>) indicate that 41% of VET policymakers, 36% of industry representatives and 21% of providers use or are aware of AI use in this context (Figure 3.1, Panel A). This suggests that experimentation is concentrated among central government agencies and industry partners than VET institutions, partly reflecting the fact that VET institutions focus more on teaching, training and programme delivery than development and updates of curricula and qualifications. Current applications are mostly supportive, including preparing draft competencies and learning outcomes, analysing job postings or other evidence on labour market demand, and mapping curricula and qualifications to detect overlaps and inconsistencies.

These figures are indicative and likely underestimated partly due to disclosure concerns, but broadly align with wider benchmarks. The 2023 OECD Digital Government Index highlights while some governments

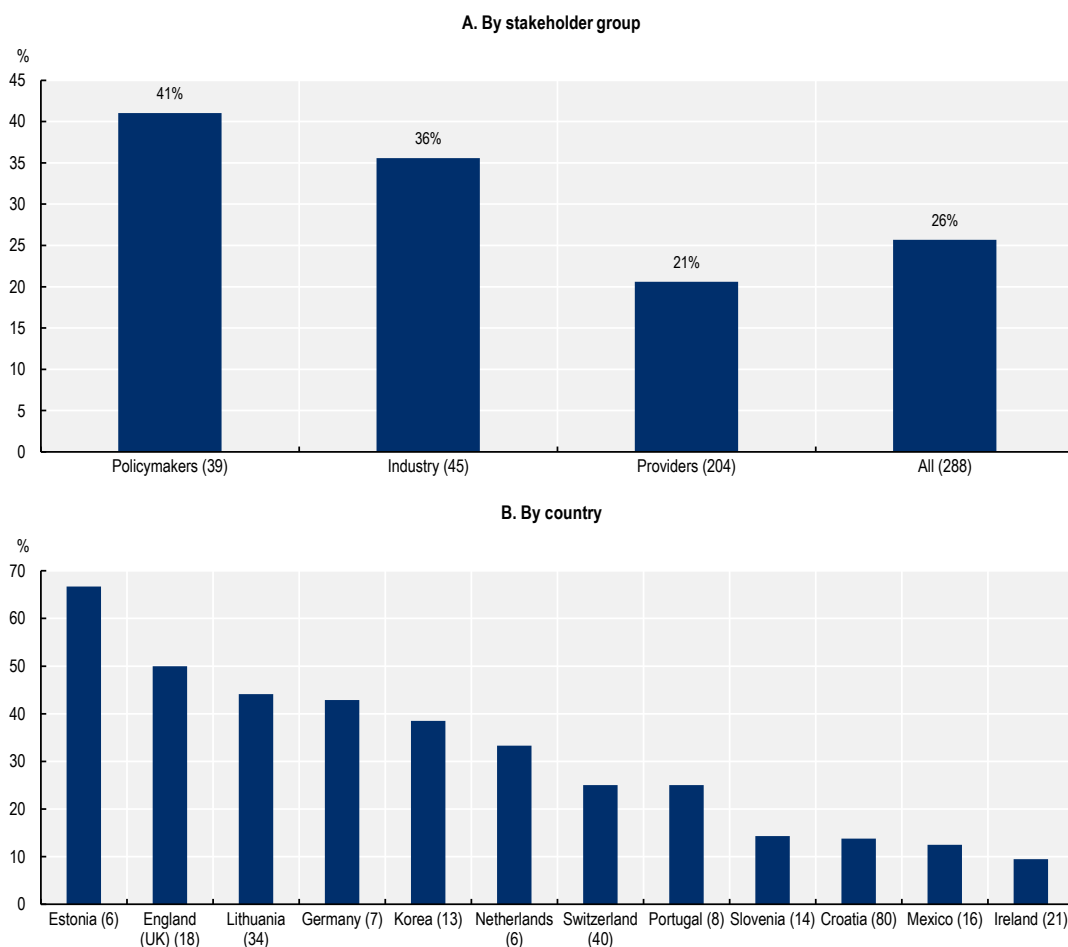


have been deploying a wide range of initiatives to enhance their capacity to use AI, implementation is still a challenge for most – 70% of countries had used AI to improve internal governmental processes, while only 33% had used AI to enhance policy design and implementation (OECD, 2025<sup>[5]</sup>). AI uptake in EU firms is around 42% (European Commission, 2020<sup>[6]</sup>), global business adoption ranges from 42% to 72% (IBM Watson, 2022<sup>[7]</sup>; McKinsey, 2024<sup>[8]</sup>), while generative AI use surged to 65% in 2024, up from 33% in 2023 (McKinsey, 2024<sup>[8]</sup>). While 36% of teachers used AI in their teaching in general according to 2024 OECD Teaching and Learning International Survey (OECD, 2025<sup>[9]</sup>), within VET early signs of growth are more evident: 65% of VET educators have tried AI for lesson planning, content creation and personalised learning (VET2Sustain, 2025<sup>[10]</sup>).

The OECD Surveys (OECD, 2025<sup>[3]</sup>) conducted as part of this study also show a wide country variation in AI use for VET development, ranging from 67% of respondents in Estonia to 10% in Ireland, although sample sizes in several countries are small. In England (United Kingdom), half of VET stakeholders reported using or being aware of AI in this context, followed by 44% in Lithuania and 43% in Germany and 39% in Korea (Figure 3.1, Panel B).

**Figure 3.1. AI use varies across VET stakeholders, with public VET agencies and industry partners making greater use of AI than VET providers**

Percentage of respondents who use AI or are aware of the use in VET curriculum and qualification development



Note: The number of respondents is in bracket. In Panel B, only countries with more than five respondents are presented.

Source: OECD (2025<sup>[3]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

## AI use among VET policymakers

Governments are increasingly leveraging and exploring AI to automate and tailor public services, improve decision making and support civil servants – including in education and skills sector (OECD, 2025<sup>[5]</sup>). Moreover, government access to vast amount of data that can be used as inputs for AI systems (OECD, 2025<sup>[5]</sup>). In VET, AI is being piloted to assist with curriculum and qualification development, underpinned by national digital and AI governance frameworks that enables sectoral agencies (including those in education and VET) benefit from the national standards and infrastructures and ensure security, interoperability and trust. For example (OECD, 2025<sup>[3]</sup>):

- In Croatia, the Ministry of Labour, Pension System, Family and Social Policy (MROSP) has used AI in developing a [Catalogue of Green and Digital Skills](#) that applies across sectors, while primarily aiming to identify and fund in-demand skills, with a particular emphasis on digital and green transitions. The catalogue draws on competences extracted and classified from the Croatian Qualifications Framework (CROQF).
- In the Czech Republic (hereafter ‘Czechia’), the National Pedagogical Institute (NPI) uses AI on a pilot basis to support VET development, particularly for mapping competencies in the National Register of Qualifications (NSK) and improving consistency in methodological materials. AI is applied across all VET sectors (ISCED levels 3-5) for initial content mapping, drafting and refining methodological materials, translation, and ensuring alignment between curricula and qualification frameworks, always under human expert supervision. Current use remains in development and testing phases, with plans to expand towards more systematic AI-supported content development while safeguarding quality and coherence.
- In England (United Kingdom), Skills England/IfATE developed the SkillsCompass, which uses natural language processing (NLP) and generative AI to analyse labour market data and generate suggested content for qualifications and occupational standards. The AI-powered tool is being trialled to create duty statements for occupational standards and to update standards based on AI-detected labour market trends.
- In Estonia, government-led initiatives such as the X-tee platform have set high standards for secure data exchange and interoperability across government agencies. These standards enable VET-related agencies such as the Estonia Qualification Agency (EQA) to pilot AI tools within protected national infrastructures and under strict human oversight (OECD, 2025<sup>[5]</sup>).
- In Finland, since 2024, the Finnish National Agency for Education (EDUFI) has used AI on a voluntary basis to support the development of qualification units (modules; micro-credentials) that cater to the green and digital skills. These units outline key work tasks and associated skill requirements. The initiative was led by EDUFI’s content creators, who serve as preparers and experts of national qualification requirements, including competences and assessment criteria across fields. AI has supported the initial drafting of qualification units (modules) initially in digital and green transition areas and later also in fields such as social and healthcare. In 2025, EDUFI launched a project to scale up and systematise the use of AI tools in qualification development across VET sectors. The project helps to use AI more coherently in the preparation of qualification requirements, initial consultation to combine different data sources and to define the competences needed in different fields.
- In Germany, the Federal Institute for Vocational Education and Training (BIBB) mirrors the Ministry of Justice’s cautious, security-focussed approach by using AI only in closed, controlled environments, prioritising data protection, human oversight, legal compliance and incremental adoption to ensure draft VET regulations meet national standards for legal compliance and public trust (OECD, 2026<sup>[11]</sup>).

### ***AI use among industry partners***

AI adoption in the world of work is outpacing education and training (Borgonovi et al., 2025<sup>[12]</sup>), creating both motivation and pressure for VET systems not only to adapt curricula and qualifications in line with evolving occupational demands, but also to reconsider how these curricula and qualifications are developed. Evidence from the OECD employer survey on the impact of AI in the workplace in 2022 (Lane, Williams and Broecke, 2023<sup>[13]</sup>) shows substantial AI uptake in industry: 42% of employers surveyed in the financial sector and 29% in the manufacturing sector report AI use, primarily in data analytics, fraud detection, production processes and maintenance. Larger employers and younger, male and more educated workers show higher uptake (Lane, Williams and Broecke, 2023<sup>[13]</sup>). Overall, almost 35% of workers in AI-using companies interact directly with AI, and 60% of employers report positive impacts: on productivity (80%), job performance (63%) and working conditions (Lane, Williams and Broecke, 2023<sup>[13]</sup>). These trends are echoed in EU-wide and global surveys, indicating that 42-57% of companies use at least one AI technology (European Commission, 2020<sup>[6]</sup>; McKinsey, 2024<sup>[8]</sup>).

As AI transforms business processes to the emergence of new occupational profiles, integrating AI-driven labour market insights and employer feedback into the development and updates of qualification frameworks and curricula can help ensure that VET programmes remain relevant, responsive and future-ready. Recent OECD work on firm-level AI adoption highlights the importance of the development and updates of qualification frameworks and curricula in the context of AI-related skills (OECD/BCG/INSEAD, 2025<sup>[14]</sup>).

- In Estonia, an industry partner reports that LLMs have been used since 2024 in VET development, following improved model capability, but without systematic integration. While AI models (ML, LLM) are used mainly for background analysis, skills forecasting and efficiency support, they remain cautious about AI use beyond data gathering, analysis and process automation (OECD, 2025<sup>[3]</sup>).
- Emerging cases include the Netherlands, where some industry partners have used AI-driven labour market data since 2022 to support market and skills analysis; and countries where AI use began more recently (2024-2025) for topic exploration, presentation refinement, case-study development for training exercises, and checking learner submissions for certification (Ireland), initial consultation and data-finding support (Portugal), and language translation and formulating topics for training programme development (Lithuania) (OECD, 2025<sup>[3]</sup>).
- In Switzerland, an industry partner reports that AI was first used to support the development of a five-day training course, initiated by an industry association, and is applied in analysis phases for revising job profiles, such as comparing skills across professions. Other partners report institutional AI adoption from 2023-2024, including licensed GPT and Copilot Chat, mainly for initial consultation and drafting (OECD, 2025<sup>[3]</sup>).
- In the United Kingdom, an industry partner reports AI adoption since 2024, but with use largely limited to background policy research. Efforts are emerging to formalise usage through training, documentation and internal AI strategy, although constrained by time and resource limitations. For example, the company's Head of Digital record individual uses, promote possible uses and offer training to those not yet using AI (OECD, 2025<sup>[3]</sup>).

### ***AI use among VET providers***

While overall AI use among VET providers in curriculum and qualification development remains limited and largely exploratory, VET teachers and curriculum developers are increasingly experimenting with AI to support tasks such as drafting curriculum documents, mapping competencies and creating learning activities. Some early-moving providers report more advanced adoption. For example:

- In England, interviewed VET providers have used AI since 2022 to support teaching planning and content development across a wide range of subject areas, driven by the availability of AI tools and led institutionally by Directors of Blended and Online Learning within established teaching and learning policies. AI use spans further and higher education provision, supporting technical, academic, employability, and personal development skills, mainly in drafting, planning, and learning-resource development, with limited application so far in assessment. Other VET providers report more recent, organic adoption over the past 12 months to support curriculum design and resource creation in skills-based programmes (including ESOL, English, maths, and digital skills), alongside the development of staff policies, learner guidance, and targeted staff training. Use remains voluntary, with uneven uptake due to varying staff confidence and limited capacity – particularly among part-time staff.
- In Ireland, private or community-based providers use AI for drafting programme components or conducting initial labour market scans, while public Education and Training Boards (ETB) remain cautious and rely more heavily on traditional stakeholder consultation and formal QA processes. Some private VET providers began using AI in early 2024 as part of their digital transformation strategies to improve efficiency, personalisation, and labour-market responsiveness. AI has been tested for labour market analysis, content creation, curriculum mapping, and learner resource development for QQI Level 5 and 6 (ISCED 3-4) programmes (e.g. draft lesson plans, quizzes and assessment templates aligned with award specifications). Use has evolved from experimentation to a supportive tool embedded in curriculum planning and instructional design, with staff training and internal policy development alongside existing QQI quality-assurance agreements under which all AI-assisted outputs are reviewed and validated by qualified staff.
- In the Netherlands, ROC Mondrian (a regional VET centre) is piloting multi-agent AI systems to support curriculum building, including drafting competencies, structuring learning plans and aligning content with qualification dossiers (OECD, 2025<sup>[3]</sup>).
- In Switzerland, several VET providers report AI use to support drafting exam materials, lesson plans or module descriptions, with some institutions collaborating across VET schools to share AI-supported competency matrices and teaching resources during VET reforms, especially in ICT professions where technological change is rapid (OECD, 2025<sup>[3]</sup>). In the Canton of Zurich (a region in Switzerland), VET teachers organically began forming informal AI user networks as early as 2021, partly in response to the late publication of revised VET regulation for IT professions and associated module descriptions, which were essential for curriculum development. AI was used to accelerate the production and quality of curricula, competency mapping, lesson plans, assessments, and quality checks, mainly for school-based components of full VET programmes and some modular content, especially in ICT and other fast-changing technical fields. Only recently have some VET teachers been permitted to reclaim the costs for professional-grade AI accounts. However, this practice remains unstructured and lacks formal regulatory clarity from educational authorities or supportive institutional frameworks or clear cantonal policy direction.

VET providers in Croatia, Korea, Lithuania and Slovenia generally report limited, informal use. In Korea, VET teachers note that AI is used mainly for simple applications – such as drafting or summarising course materials – and often on an individual, ad-hoc basis rather than as part of the institutional-level workflow. In Croatia and Lithuania, VET teachers occasionally use AI for idea generation, background searches or lesson preparation on an individual basis (OECD, 2025<sup>[3]</sup>).

### 3.2. In which tasks is AI used to support VET development?

Overall, AI enhances efficiency in data analysis, supports stakeholder co-ordination and content generation, but does not replace expert-led decision making and high-stake validation. AI applications in

VET development can be broadly categorised into three tasks or phases: *input*, *process* and *output*, as noted in Chapter 2. While these applications remain largely supportive and exploratory, they are increasingly shaping how VET systems analyse labour market needs, co-ordinate stakeholder inputs and produce relevant content.

### ***Input processing: Data and information gathering and analysis***

AI is increasingly used to collect, structure and interpret large volumes of data and information to inform VET development. AI can reduce manual workload, accelerate the updating of qualifications in response to labour market change, and improve coherence within qualification frameworks and responsiveness to emerging skills demands. AI is also increasingly used to manage the complexity of regulatory frameworks that govern VET systems and to improve efficiency in regulatory monitoring to ensure accuracy and legal conformity.

- **Labour market analysis and forecasting with big data integration:** AI processes and analyses large volumes of job advertisements, competency data, occupational standards and foresight studies to identify emerging skills and anticipate future skills needs, and inform curriculum and qualification updates and skills catalogues. The below examples illustrate AI's potential to strengthen evidence-based decision making and accelerate updates, provided expert oversight ensures quality and contextual relevance (OECD, 2025<sup>[3]</sup>).
  - In Croatia, a research lab at Algebra University has developed custom AI systems that can analyse large datasets, such as national education and employment records, including education pathway data that can be linked to curriculum data and employment outcomes, to identify mismatches between training provision and labour market outcomes, for creating relevant training programmes.
  - England's SkillsCompass pilot uses natural language processing (NLP) and generative AI to define knowledge, skills and behaviours across more than 700 occupations based on real-time vacancy data, provided by [Textkernel](#) that also applies AI. England's AI-driven analysis underpins initiatives such as the AI Skills Insight Report and Digital Skills Framework refresh, integrating vacancy data, foresight studies and labour market intelligence to provide a holistic view of current and emerging skills needs over a two- to five-year horizon.
  - Estonia's OSKA system (run by the Estonian Qualifications Authority [EQA], providing key labour market insights, since 2016) employs machine-learning (AI) dashboards to provide interactive forecasts of workforce and competence needs, supporting curriculum designers to align VET programmes with projected demand. The EQA collaborates with Headai, an AI company, to apply Cognitive AI, Big Data, and Natural Language Processing to analyse job advertisements and curriculum data, producing real-time skills maps and predictive analytics to identify skills gaps and better align curricula with labour market needs (Headai, 2021<sup>[15]</sup>).
  - Germany's Federal Institute for Vocational Education and Training (BIBB) applies big data analytics for skills forecasting and skills demand analysis to monitor changes in labour market demand and inform VET policy and curriculum development. In collaboration with research partners such as the Institute for Employment Research (IAB) and the Institute of Economic Structures Research (GWS), BIBB combines administrative data, labour market statistics and large-scale analyses of job advertisements to identify emerging occupational trends, shifts in skill requirements and potential skills shortages. These analyses feed into long-term qualification and occupational projections (e.g. the BIBB-IAB "QuBe" projections) and are complemented by more granular tools, such as the Occupations and Skills Radar, which synthesises multiple data sources to provide timely, relevant insights on skills demand for policymakers, social partners and sector bodies.

- In Mexico, AI is applied throughout the design and updating of upper secondary VET programmes. In particular, AI supports the development of “relevance and prospective studies (i.e. identifying emerging skills trends)” for technical degrees. AI-generated analysis is used as a reference to explore tendencies, identify emerging competencies, and double-check information provided by the faculty, with all information validated by the experts (OECD, 2025<sup>[3]</sup>). In addition, data-driven platforms such as “shapingskills.mx” use NLP to analyse job descriptions and align qualifications with labour market demand (Caratozzolo et al., 2025<sup>[16]</sup>). Curriculum design co-ordinators in General Directorate of Industrial and Technological Education (DEGETI) experimented with AI tools (e.g. Perplexity) during the creation of the AI technical career (AI and Embedded Software Systems) and cross-reference competencies and job descriptions where Mexican references were lacking.
- **Mapping competencies, curricula and qualifications:** AI compares and clusters competencies across qualifications and standards to detect overlaps, inconsistencies and gaps, supporting curriculum alignment with labour market needs and defined competencies. AI effectively supports large-scale text classification and mapping tasks, though human oversight remains essential for quality assurance and contextual interpretation. For example (OECD, 2025<sup>[3]</sup>):
  - Croatia used AI-based text classifiers, trained on over 30 000 short texts from European and international databases, using machine learning models such as fine-tuned *Bidirectional Encoder Representations from Transformers* (OECD, 2026<sup>[11]</sup>). These models were further trained on national skills and competency data to classify over 15 000 competencies as “green” or “digital”, accelerating updates to [skills catalogues](#). Croatia is also testing AI to harmonise overlapping competencies in its national qualifications registry and to improve alignment with employer feedback (OECD, 2026<sup>[11]</sup>).
  - England’s SkillsCompass uses NLP to support comparison of VET qualifications by automating extraction and semantic analysis of learning outcomes, standardising terminology and mapping curricula to occupational profiles.
  - In Estonia, the EQA piloted AI tools to automate the comparison of occupational standards and VET school curricula, including semantic matching of learning outcomes with industry skill requirements and national qualification levels.
  - In Korea, national agencies related to VET have begun exploring AI-driven mapping of competencies within the National Competency Standards. AI is used to analyse large datasets of occupational profiles and training modules, identifying redundancies and gaps across sectors, to support updates.
  - In Mexico, AI is used to compare competencies across qualifications and double-check information and input provided by faculty.
  - In the Netherlands, AI is being tested to map learning outcomes across VET qualifications and detect inconsistencies within sectoral frameworks. Pilot projects focus on integrating AI with existing databases of occupational standards and job vacancy data to support the development of forward-looking curricula.
- **Regulatory and legislative monitoring:** AI assists in monitoring complex and evolving legislative frameworks, summarising regulatory requirements and tracking updates to ensure compliance of VET curricula and qualifications that address skills needs, with national laws and sector-specific regulations. AI tools can automate the extraction, structuring and summarisation of legal texts, reducing manual workload and improving accuracy. For example, (OECD, 2025<sup>[3]</sup>):
  - In Estonia, the IT sector monitors 30-40 legal acts and their updates, including the Information Society Services Act, Personal Data Protection Act, Cybersecurity Act, and the Occupational Qualifications Act as well as EU AI Act. AI-assisted tools are being piloted to monitor these acts, identify amendments and assess implications for occupational standards and training



requirements. This approach helps maintain alignment between VET provision and a rapidly evolving legislative environment.

- Germany uses AI to compare regulatory documents and draft training regulations, ensuring compliance with federal standards.
- In Switzerland, discussions are underway on using AI to review examination regulations under the Federal Act on Vocational and Professional Education and Training, aiming to streamline approval processes while safeguarding legal compliance.

### ***Streamlining process of stakeholder consultation and decision making***

AI can support collaborative processes and co-ordination among VET stakeholders, and streamline consultation processes, reducing time and cost in consultation for VET development and improving the quality of input from employers and other stakeholders in VET development and strengthening evidence used in decision making.

- **Facilitating stakeholder engagement:** AI can analyse transcripts from employer and expert focus groups and generate synthetic data to simulate VET programme designs (OECD, 2025<sup>[3]</sup>).
  - In Croatia, Algebra University lab applies custom AI systems to process and analyse consultation data and generate synthetic scenarios for simulating and testing new training programmes, helping experts refine decisions.
  - In Estonia, co-ordinators of occupational qualification councils have begun using AI to support working groups by drafting initial descriptions of competencies and standards, which are then refined through stakeholder consultation. This approach improves clarity and speeds up consensus-building.
  - In Nova Scotia (Canada), AI tools such as ChatGPT and Copilot are used during stakeholder workshops to prompt and spark discussion and fill gaps during the discussion in real-time, as a “back pocket” tool while facilitating a workshop for developing occupational standards with industry experts. These tools act as research assistants, helping experts focus on high-stake validation and decision making rather than administrative or repetitive tasks.
- **Accelerating VET development cycles:** AI tools assist co-ordinators in drafting curricula, qualifications and occupational standards and speeding up discussion during workshops by supporting more informed and prepared discussion, as described above (e.g. Estonia, Nova Scotia and Switzerland), shortening workshop duration and reducing costs (OECD, 2025<sup>[3]</sup>).
  - In Australia, Jobs and Skills Councils (JSCs) develop and maintain nationally accredited VET qualifications. JSCs are working to reflect the impacts of AI in their workforce planning analysis, and incorporate AI learning outcomes into the design and review of qualifications and training products. The Future Skills Organisation is the JSC for the finance, technology and business sectors and is undertaking exploratory research to create potential efficiencies in using AI in training package development processes enabling faster time to market and stronger industry alignment.
  - In Switzerland, professional organisations delegate technical and pedagogical tasks to expert bodies such as Swiss Federal University for Vocational Education and Training (SFUVET) and specialised consultancies in VET design, or cantonal education departments with technical capacity, to reduce technical and administrative burdens and ensure methodological rigour. These bodies are exploring AI to accelerate documentation and increase efficiency in stakeholder consultation process. Discussions are underway on using AI to reduce the duration and cost of workshops organised for employers to identify skills needs and learning outcomes in the development of occupational profiles and training plans.



- **Supporting evidence-based decision making:** AI is increasingly used to strengthen evidence-based decision making in VET development. Semantic matching – enabling comparing and aligning concepts, terms or text based on their meaning, even when skills are described differently – and predictive analytics help integrate diverse data sources such as occupational standards, job vacancy data and foresight studies, into actionable insights. These tools do not replace expert judgement but provide an analytical foundation for strategic planning. For example (OECD, 2025<sup>[3]</sup>):
  - In England, the SkillsCompass supports decisions on updating qualifications and signalling new competencies to awarding bodies and training providers.
  - In Estonia, labour market data with machine learning-based forecasting dashboards enable policymakers and curriculum designers to align VET programmes with projected demand, ensuring responsiveness to technological and structural changes in the economy.
  - In Germany, AI-driven analytics are integrated into skills demand studies conducted by BIBB. These analyses inform the revision of training regulations and help prioritise occupations for modernisation, particularly in sectors undergoing rapid digital transformation.

### ***Output tasks: Content generation and systemic improvement***

AI supports producing and refining the outputs of VET curricula, qualifications and occupational standards.

- **Drafting and revising qualification and curriculum descriptions and content** (OECD, 2025<sup>[3]</sup>):
  - Croatia's Academic and Research Network (CARNET) pilot used generative AI (e.g. ChatGPT, DeepSeek) to create non-obligatory AI curriculum (specific to VET) in two months instead of a year, combining expert input with AI suggesting competencies, activities and benchmarks.
  - In Estonia, AI was used to draft descriptions for occupational qualification standards and VET curricula. For instance, VET expert working groups drafted 13 new upper secondary VET curricula, improving clarity and speed.
  - In Germany, the BIBB-led KINO project (*KI in Neuordnungsverfahren*) tests AI's role in drafting training regulations using a secure, closed-source adaptation of ChatGPT. While AI performed relatively well in administrative tasks such as document comparison, its performance in generating regulatory content was limited, reaffirming the central role of human experts and VET stakeholders in curriculum and qualification design (OECD, 2025<sup>[3]</sup>).
  - AI also plays a role in assessment design within qualification and curriculum development in New Zealand. The AI-Generated Assessments Project, led by ConCOVE Tūhura (Centre of Vocational Excellence for Construction & Infrastructure), uses AI for VET assessment design to produce high-quality, personalised assessments that address diverse learner and industry needs while meeting required standards. The project focusses on developing AI-generated assessments for the Trades Essentials micro-credential and on establishing an ethical framework to ensure safety, fairness and transparency in AI-assisted assessment generation (ConCOVE, 2025<sup>[17]</sup>).
  - In Nova Scotia (Canada), AI is being experimentally integrated into the development of occupational standards and VET curricula, particularly within the Red Seal and provincial trades systems. AI tools such as ChatGPT and Copilot are used to generate performance criteria, and review existing standards for updates. These tools accelerate the drafting process, before the final content is validated by subject matter experts.
- **Modernising frameworks and classification systems:** AI-driven tools help modernise occupational classifications, merge redundant profiles and align with other classifications and standards such as ESCO (OECD, 2025<sup>[3]</sup>).

- In Croatia, AI is applied in the modernisation of the National Classification of Occupations (NKZ10). In 2024-2025, the working group for the Classification integrated advanced AI methods to improve the accuracy, coherence and interoperability of occupational classifications. Using the LangChain ecosystem, OpenAI models and the Chroma vector database, the group applied large language models (LLMs) to generate occupational descriptions, perform semantic grouping and map Croatian occupations to European standards (European Skills, Competences, Qualifications and Occupations, ESCO). This process enabled the merging of redundant or overlapping occupations, streamlined the classification system, and facilitated international comparability. The successful implementation of these AI methods resulted in significant time and resource savings, while reinforcing the need for human validation and expert review at each stage (OECD, 2026<sup>[11]</sup>).
- **Improving relevance, efficiency, accuracy, consistency, coherence and interoperability** (OECD, 2025<sup>[3]</sup>):
  - In Czechia, VET providers have begun leveraging AI primarily as a support tool for linguistic and content adaptation tasks such as translating professional content from source languages into Czech, ensuring technical terminology is accurately rendered for local contexts.
  - In England, AI pilots such as the duties (tasks) generator and linguistic matching of technical qualifications (TQ) submissions to knowledge, skills and behaviours (KSBs), as well as Standard Occupational Classification (SOC) code assignment, support alignment with national frameworks and language accessibility and inclusivity.
  - Estonia plans to use AI to automate the comparison of occupational standards and school curricula, particularly for micro-credentials, as well as learning outcomes with skills needs and qualifications, to reduce manual workload and accelerate approval.
  - Korea is experimenting with AI for format and structural quality checks of NCS documents.
  - In the Netherlands, the Organisation for the Co-operation between VET and the Labour Market (SBB) has developed “SBB Chat” to detect overlaps and automate operational tasks within secure environments, despite broader government restrictions on AI use.

### 3.3. For which types and subjects of VET programmes is AI used?

#### *AI is used to integrate green, digital and AI skills into VET*

AI and digitalisation are reshaping the skills needed in the labour market, driving changes in occupations, qualifications and VET curricula. To stay relevant, new qualifications and curricula must include AI and other digital skills, with greater flexibility to adapt to evolving competence needs. Nearly all of the 29 OECD countries that participated in an OECD study on this topic have national rules and guidelines on developing students’ digital competences, including in VET (Figure 3.2). Countries vary in how they integrate digital competences – whether through national or local curricula, as transversal skills or distinct subjects (OECD, 2023<sup>[18]</sup>).

**Table 3.1. Possible curriculum revision due to the integration of digital technologies and sustainability in VET and education-wide**

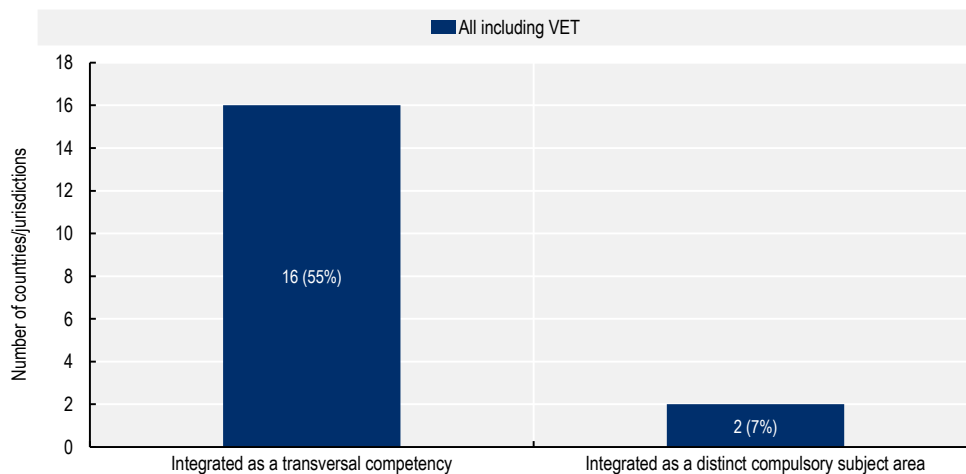
Examples of integration of digital technologies and sustainability in VET and education-wide

| Country | Examples of curriculum revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Finland | Finnish National Agency for Education (EDUFI) co-ordinated VET curriculum revisions nationally to integrate digital technologies and sustainability through modular, competence-based qualification requirements. The revision was implemented in close co-operation with education providers and social partners, enabling system-wide adaptation to digitalisation and the green transition. New and updated qualification units and micro-credentials explicitly address green and digital skills, while sustainability and digital |

| Country           | Examples of curriculum revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | competences are embedded across VET qualifications as sector-specific requirements (OECD, 2025 <sup>[19]</sup> ); (Korkala and Vasenius, 2024 <sup>[20]</sup> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Germany           | Germany regularly updates training regulations. Between 2020 and 2023, around 40 initial training programmes and 136 advanced VET regulations have been modernised or newly introduced, reflecting evolving skills needs linked to digitalisation and the green transition (Huisman and Hippach-Schneider, 2024 <sup>[21]</sup> ).                                                                                                                                                                                                                                                                                                                                                                                                             |
| Spain             | School of Computational Thinking and Artificial Intelligence (EPCIA) has been set up by the Spanish Ministry of Education and Vocational Training in collaboration with the regional educational administrations. The objective of the project is to explore the possibility to introduce artificial intelligence for learning in the classroom. The school offers open educational resources, teacher training programmes, and a monitoring tool tracking the creation of didactic proposals and their implementation in schools. The school, together with a university, also conducts research focussed on student learning and teaching practice for AI (OECD, 2023 <sup>[22]</sup> ).                                                     |
| Ireland           | The “Digital Learning Framework” for primary and secondary education outlines effective practices for integrating digital technologies into teaching and learning (OECD, 2023 <sup>[18]</sup> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 14 OECD countries | On average the share of online vacancies requiring AI skills increased from 0.30% in 2019 to 0.40% in 2022. Although only few occupations require the specialised skills necessary to develop and use AI systems, these occupations are critical to drive innovation. In 2019, this share ranged between 0.07% in New Zealand to 0.69% in the United States, while in 2022 it ranged between 0.14% in Belgium to 0.84% in the United States. On average the share of online vacancies requiring AI skills increased by 33%, in countries with initially relatively low shares of online vacancies requiring AI skills such as Spain and New Zealand, shares increased by 155% and 150% respectively (Borgonovi et al., 2023 <sup>[23]</sup> ). |

**Figure 3.2. Digital competences are integrated in the VET curriculum in many countries**

A snapshot of the rules and guidelines on integrating digital competences in the curriculum



Source: OECD (2023<sup>[18]</sup>), *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*, <https://doi.org/10.1787/c74f03de-en>.

In this context, countries are advancing AI use in VET development in programmes targeting green, digital and AI-related skills, reflecting growing demand for new competencies linked to digitalisation and the green transition. Across countries, AI is being explored to support skills anticipation and curriculum development and updates. Several examples illustrate these developments (OECD, 2025<sup>[3]</sup>):

- Croatia has used AI to support the development of a green and digital skills catalogue, while Algebra University applies AI systematically in curriculum design, labour market analysis, stakeholder consultation and synthetic data generation for digital and green skills training including micro-credentials and modular adult education, supported by in-house cloud infrastructure and custom-trained models.

- Estonia places strong emphasis on digital and green skills, with AI piloted for VET curriculum drafting, comparison and the development of non-regulatory competence profiles in the ICT sector (e.g. data analyst, data steward, data engineer).
- Finland is advancing the integration of green and digital skills into VET, with AI being explored for curriculum development and skills forecasting. While systematic AI use is still limited, pilot projects are underway to use AI for analysing labour market trends and aligning VET offerings with emerging green and digital occupations, particularly through micro-credentials (OECD, 2025<sup>[19]</sup>).
- In England, AI-driven insights have already led to the revision of several occupational standards, for example Digital Device Repair Technician (Level 3) and Mechatronics Maintenance Technician (Level 3).

### ***AI is used to develop micro-credentials and modular VET***

Many countries are in transition from rigid qualification standards to more flexible, competence-based frameworks (OECD, 2025<sup>[24]</sup>), reflected in the growing use of micro-credentials and modular VET. In parallel, countries are increasingly exploring AI use to support the development of micro-credentials and modular VET to enable more flexible and responsive learning pathways aligned with evolving labour market demand, including digitalisation and the green transition. Although integration remains uneven and largely experimental, several countries are piloting AI to structure modular curricula and support the design of micro-credentials (OECD, 2025<sup>[3]</sup>):

- Estonia is advancing to competence-based and modular VET systems, and piloting AI for developing, drafting and revising modules and micro-credential proposals, and comparing proposed modules or micro-credentials against existing occupational standards and qualification-framework level descriptors. Estonia's VET curricula are structured around modules derived from occupational standards and VET schools can adapt up to 30% of national curricula, allowing for local flexibility. Hundreds of micro-credentials have been submitted, triggering the need for more efficient approval processes.
- In Switzerland, the ICT sector is developing modular and competence-based qualifications and examinations (mainly higher VET), using custom GPT tools tailored for each profession. AI-generated content is systematically validated against the modular building block system ([Modulbaukasten platform](#)).
- In England, some further education colleges use AI tools such as TeachMatic, ChatGPT and Copilot for curriculum co-design, teaching resource creation, synthesising stakeholder feedback and enhancing modular content relevance, for bespoke packages and modular sessions.
- In Finland, the integration of emerging skills through modularisation and micro-credentials is a strategic priority, and VET providers are experimenting with AI to support modular curriculum design and the development of micro-credentials, particularly in technology and sustainability-related fields.

Overall, these cases show that AI is beginning to function as an enabling tool for modularisation and micro-credentials in VET, but they also highlight persistent barriers to scaling, including data quality, privacy concerns, limited technical capacity and the absence of clear governance frameworks.

### **3.4. What data and AI tools are used or piloted for VET development?**

The availability, scope and quality of data strongly shape how much insight could be gathered and generated to support VET curriculum and qualification development using AI. Countries with more granular information are better positioned to apply AI and advanced analytics to generate useful insights for VET development; where data are limited or fragmented, AI use tends to focus on narrower tasks or likely be

more biased. Increasingly, private companies and platforms such as Lightcast or OpenSyllabus offer big-data analytics or AI techniques to fill these gaps by analysing online job vacancy data and course/training descriptions, which could inform and support evidence-based curriculum planning and provision.

Before using AI in VET development, stakeholders mainly used labour market data (e.g. job postings, skills demand and sectoral trends), national and regional qualification frameworks and standards, administrative and performance data, existing curricula and competence matrices, as well as qualitative feedback from employers, teachers and learners (Table 3.2). International benchmarks and research were also used to contextualise national developments.

Since the emergence and use of AI, VET stakeholders increasingly draw on a wide range of data inputs to underpin AI-supported VET development. While the combination of these data sources enables richer analysis, their availability, interoperability and legal accessibility vary considerably across systems, influencing both the ambition and the maturity of AI applications.

**Table 3.2. Examples of data resources or information used for AI-supported VET development in selected countries**

| Country        | Examples                                                                                                   |
|----------------|------------------------------------------------------------------------------------------------------------|
| Costa Rica     | Qualification standards; data from professional field, trending technologies and informant interviews      |
| Croatia        | Labour market analysis, employer surveys, national frameworks, teacher and student feedback                |
| Czech Republic | National Register of Qualifications (NSK), curriculum content, expert input                                |
| England (UK)   | Labour market data and skills foresight, job vacancy data, feedback from employers and students            |
| Ireland        | Labour market data, QQI award specifications, student and tutor feedback                                   |
| Korea          | Labour market data, national competency standards                                                          |
| Latvia         | Labour market data, administrative data                                                                    |
| Lithuania      | Labour market data, national qualification standards, student performance data, teacher and employer input |
| Mexico         | National frameworks, regional guidelines, employer and teacher input, labour market data                   |
| Switzerland    | Competency matrices from professional organisations, national frameworks, student and teacher feedback     |

Source: OECD (2025<sup>[3]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

In practice, AI tools used or piloted range from widely available general-purpose applications to more advanced institutional solutions. Several countries including Mexico report using tools such as ChatGPT, Copilot, Gemini or similar systems to synthesise large volumes of publicly available information – such as job descriptions, qualification frameworks, employment databases or academic literature – and to support tasks like drafting, classification or document review. In Finland, for example, AI supports when EDUFI qualification experts analyse, classify and structure relevant administrative and sectoral data in collaboration with relevant stakeholders (e.g. eRequirements, EDUFI publications and data of the new competence needs in different occupations), although access to large, machine-readable datasets still remains limited. Estonia is moving towards making learning outcomes machine-readable, with the aim of enabling more systematic AI-supported alignment between VET curricula and labour market needs.

More broadly, the type of AI tools adopted reflects different levels of organisational maturity, capacity and governance. Basic use often relies on *free or open-source tools applied at the individual stakeholder or classroom level* (Figure 3.3, A), while more advanced stages involve *customised or licensed solutions* embedded at institutional and sectoral level (Figure 3.3, B and C). Several examples show the development of *bespoke systems tailored to specific organisational or sectoral needs and requirements* (Figure 3.3, B), requiring greater investment of resources, infrastructure and governance capacity. Examples include: England's SkillsCompass, ICT sector in Switzerland, SBB Chat in the Netherlands by

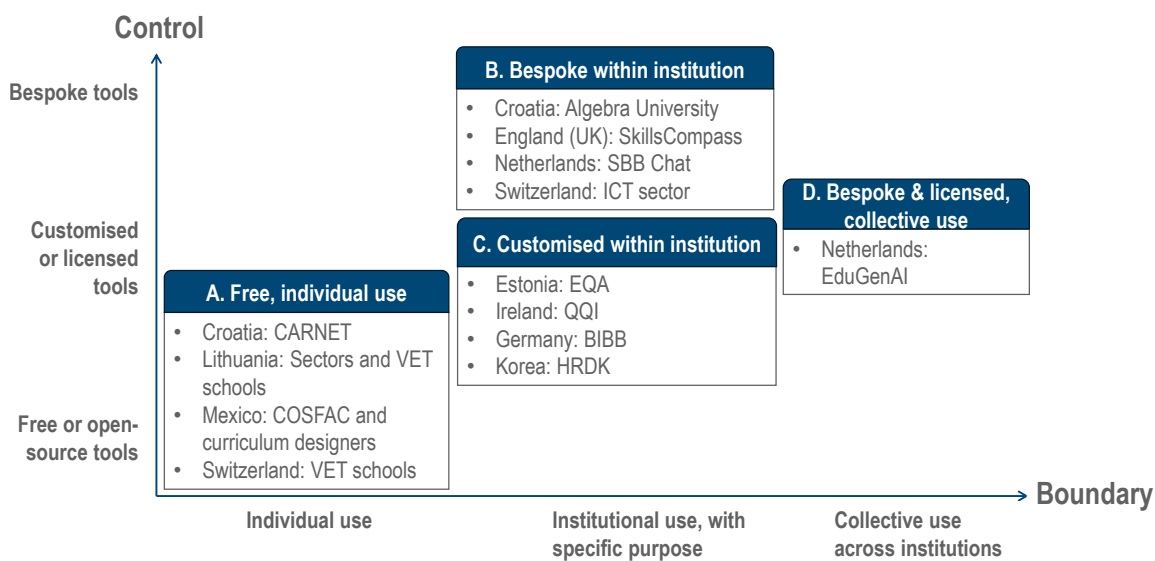
the Organisation for the Co-operation between VET and the Labour Market (SBB), and Algebra University in Croatia.

Faster and more cost-effective than bespoke could be *customising the existing AI platforms* (Figure 3.3, C) to meet specific needs and add modifications. For example, Korea's HRDK customised and trained OpenAI GPT models exclusively on NCS and HRDK data with unique architecture and features designed only for a specific task.

*Cross-institutional or system-level adoption of AI* remains rare (Figure 3.3, D), but emerging initiatives illustrate its potential where data availability, legal frameworks and stakeholder co-ordination are sufficiently developed. For example, in the Netherlands, recent initiatives such as EduGenAI and CompetentAI point towards a more systemic approach, aiming to provide a network of VET institutions with a shared, secure environment for using generative AI responsibly in curriculum design, skills analysis and educational development (OECD, 2026<sup>[11]</sup>). Rather than relying on individual or ad hoc uses of general-purpose AI tools, these initiatives focus on creating common infrastructures and governance frameworks, enabling institutions to access AI functionalities while addressing concerns related to data protection, transparency and consistency. By embedding AI within a controlled, cross-institutional setting, the Dutch approach illustrates how AI adoption can move beyond isolated pilots towards more co-ordinated use across the VET system, although these initiatives remain at an early stage and their long-term impact is yet to be assessed.

**Figure 3.3. What type of AI tools are used or piloted?**

Examples, by degree of control and boundary of AI systems used or piloted for VET development



Note: "Customised" refers to the use of a standard solution such as OpenAI GPT or similar, therefore based on an existing product or framework, then adapted to meet specific needs and add modifications (fine-tuning, additional features or integration with internal systems). For detailed examples, see OECD (2026<sup>[11]</sup>), Ten Country Case Studies on VET Development and AI Use, [www.oecd.org/content/dam/oecd/en/publications/support-materials/2026/06/developing-vocational-education-and-training-with-artificial-intelligence\\_e9f76b4e/Ten-country-case-studies-on-VET-development-and-AI-use](https://www.oecd.org/content/dam/oecd/en/publications/support-materials/2026/06/developing-vocational-education-and-training-with-artificial-intelligence_e9f76b4e/Ten-country-case-studies-on-VET-development-and-AI-use).

Source: Author's elaboration based on OECD (2025<sup>[3]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.



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# **4**

## **Leveraging AI for vocational education and training development: Barriers and potential risks**

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This chapter identifies barriers and potential risks associated with the use of artificial intelligence (AI) in vocational education and training (VET) curriculum and qualification development. Drawing on OECD survey evidence and country evidence, the chapter analyses the main barriers limiting effective, secure and inclusive AI use, including limited skills and capacity, unequal access to secure and fit-for-purpose tools, data constraints, lack of guidelines and support, and concerns about job displacement and devalued expertise. It also examines potential risks, such as weakening collaborative governance, undermining accountability and quality, and exposing VET systems to data protection and security challenges.

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# In Brief

## Barriers, potential risks and strategic directions in using AI to support VET curriculum and qualification development

### What barriers and potential risks are associated with AI use in VET development?

- While artificial intelligence (AI) holds potential to enhance the efficiency, responsiveness and evidence base of vocational education and training (VET) development, its use remains nascent, uneven and largely exploratory across OECD countries. Uptake is constrained by limited AI literacy, resource gaps, fragmented experimentation and the absence of sector-specific guidance.
- Concerns among AI users persist regarding data protection, intellectual property, security and the quality and reliability of AI-generated outputs. Effective use depends on access not only to tools but to high-quality, interoperable and machine-readable data; yet fragmented governance, legal restrictions and weak data infrastructures limit scalability and comparability. Stakeholders highlight risks of over-reliance, diminished professional judgement, weakened multi-stakeholder governance and blurred accountability if AI is not carefully embedded within established validation and decision making processes.

### How should countries address these barriers and risks?

- These challenges are not purely technical but organisational, pedagogical and cultural: successful integration requires clear purpose, proportionate regulation, robust data governance, transparent allocation of responsibilities and sustained human-centred approaches and oversight. Moving beyond isolated pilots towards system-level impact therefore depends on coherent national and sectoral strategies, targeted capacity building and support for access, clear guidelines, and interoperable data ecosystems and human-centred governance frameworks that balance innovation with quality, equity, trust and regulatory stability.

Artificial intelligence (AI) is emerging as a potentially transformative tool for vocational education and training (VET), with growing use in labour market analysis, curriculum design and evidence-based decision-making (Delia, 2025<sup>[1]</sup>; ILO, 2020<sup>[2]</sup>; UNESCO-IIEP, 2025<sup>[3]</sup>; UNESCO, 2025<sup>[4]</sup>). Across countries, AI is beginning to support faster updates of curricula and qualifications and improved alignment with evolving skill needs (OECD, 2025<sup>[5]</sup>). Yet its integration into VET curriculum and qualification development remains at an early and uneven stage. Current use is largely informal or experimental, often driven by individual initiatives rather than coherent system-level strategies. As a result, VET stakeholders face regulatory ambiguity, limited human and data capacity and unclear governance arrangements when determining whether and how AI could be used.

While the policy rationale for using AI in VET development centres on efficiency, relevance and timeliness, its adoption also introduces potential risks and trade-offs. These include concerns about VET accountability, quality assurance, stakeholder ownership of AI-generated outputs, and the possible weakening of collaborative, multi-stakeholder decision making that underpins VET systems. Addressing these challenges requires more than technical solutions: they are also organisational, ethical, pedagogical and cultural. Ensuring that AI strengthens rather than undermines quality, equity and public trust requires careful navigation and clear strategic direction. Drawing on OECD surveys and interviews conducted as part of this study (OECD, 2025<sup>[5]</sup>), this chapter examines main barriers and potential risks associated with

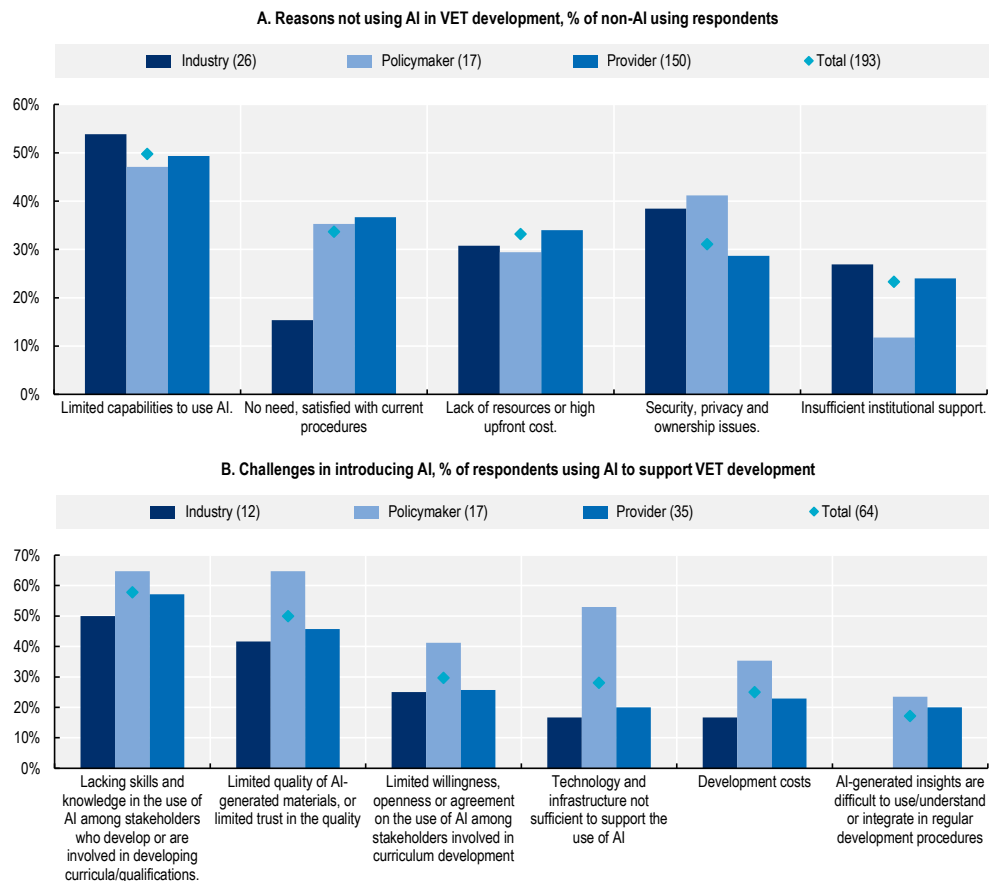
AI use in VET development, and outlines strategic directions that VET systems and stakeholders need to consider addressing these barriers and risks.

#### 4.1. Barriers to effective, secure and inclusive AI use in supporting VET development

Across countries, VET stakeholders report significant constraints limiting both uptake and effective use of AI in VET development. Non-users most frequently cite limited capabilities: more than half of surveyed industry partners and providers indicate lacking the necessary capabilities and expertise. While a third of them report that existing procedures are considered sufficient, equal share reported resource constraints or high upfront costs as reason for not using AI. Concerns around data security, privacy and ownership prevent VET stakeholders, particularly policymakers and industry partners, from using AI to support VET development (Figure 4.1, Panel A).

Even among stakeholders already experimenting with AI, implementation challenges remain. Reported obstacles include lacking AI-related skills (58% of respondents using AI to support VET development), uncertainty over the quality and reliability of AI-generated materials (50%), and limited openness or agreement (30%) among stakeholders involved in VET development. Technical and infrastructure limitations, development costs and the difficulty of interpreting or integrating AI-generated insights are present, yet relatively less prominent (Figure 4.1, Panel B). The subsections discuss these barriers.

**Figure 4.1. There are barriers that limit both the uptake and effective use of AI in VET development**



Source: OECD (2025<sup>[5]</sup>), Developing vocational qualifications and curricula with AI: Surveys and stakeholder interviews.

### ***Lack of guidelines and support that address limited, uneven capabilities and access***

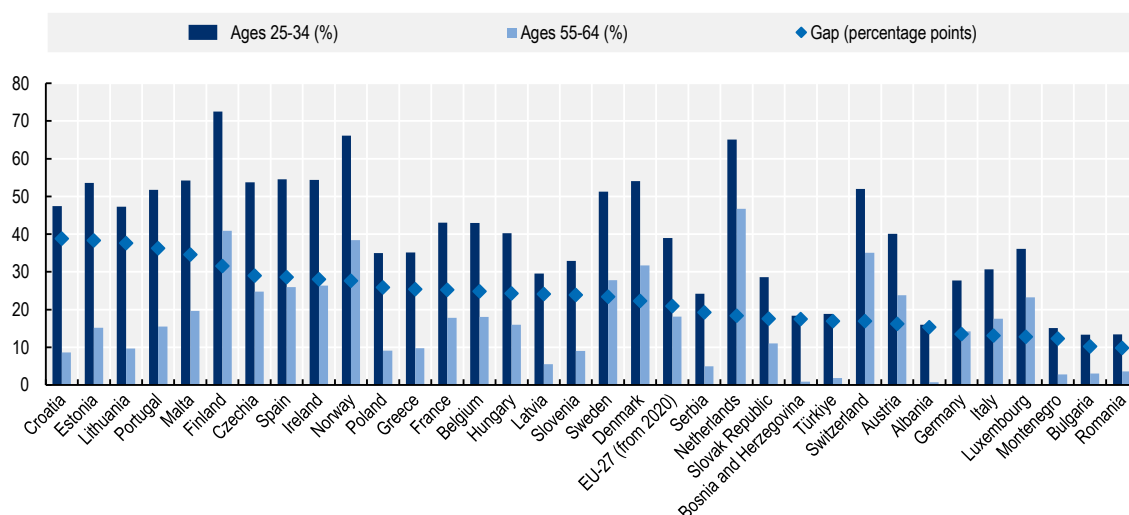
Despite widespread national AI strategies and emerging AI use cases (OECD, 2025<sup>[6]</sup>), specific guidance for VET curriculum and qualification development or VET sector-wide guidelines remain limited. Only a small minority of surveyed stakeholders (15%) report the existence of relevant guidelines (OECD, 2025<sup>[5]</sup>). Where guidance exists, it often focusses on classroom use or general public-sector, internal rules restricting sensitive data processing, rather than addressing the unique challenges of curriculum design, stakeholder consultation or validation processes. In some cases, it is poorly implemented or not widely known among staff – reported by an employers’ association in the Netherlands that contributes employer perspectives to qualification profiles, learning outcomes and skills needs in their industries and manages extensive employer and labour-market data, including job descriptions, competence profiles and salary benchmark data.

In several countries, such as in Germany, Ireland and Mexico, limited AI, digital and data literacy – affecting curriculum developers, VET teachers and even IT and technical staff in VET agencies and institutions – constrains effective integration (Figure 4.1, Panel A). Generational gaps (OECD, 2025<sup>[7]</sup>) may be particularly pronounced in VET, where expert committees often include experienced professionals with limited exposure to AI tools and many VET teachers are over the age of 50. Croatia, Estonia and Lithuania stand out in terms of generational gaps in digital skills (Figure 4.2). In Mexico, many trainers and curriculum developers rely on self-learning and experimentation, calling for structured capacity-building programmes. Moreover, stakeholders report that low familiarity can increase mistrust in automated outputs and slow adoption. Conversely, overconfidence without adequate competence risks over-reliance and diminished critical reflection and professional judgement.

Capacity constraints and lacking support and guidance also create equity concerns. Well-resourced institutions may experiment with advanced tools, while smaller or under-resourced providers lack access to training and secure systems, widening the digital divide within VET (OECD, 2025<sup>[5]</sup>).

**Figure 4.2. Generational gaps in digital skills are wide in some countries**

Share of Individuals with above basic overall digital skills, 2023



Note: All five component indicators are at above basic level: information and data literacy, communication and collaboration, digital content creation, problem-solving, and safety skills.

Source: Eurostat (2026<sup>[8]</sup>), Individuals’ level of digital skills (from 2021 onwards) (isoc\_sk\_dskl\_i21), [https://ec.europa.eu/eurostat/databrowser/view/ISOC\\_SK\\_DSKL\\_I21/default/table](https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I21/default/table).

### ***Lack of access to effective, secure and tailored AI systems and quality data to inform AI-assisted VET development***

Access to AI also has multiple layers: from basic use of generic tools to access to specific models trained on high-quality, domain-relevant data. Effective AI use depends not only on access to tools, but on reliable, structured and interoperable datasets. The quality and reliability of AI outputs is closely tied to the quality, interoperability and representativeness of training data. Yet, many VET systems often lack high-quality, harmonised, accessible and machine-readable datasets. AI models trained solely on open, historical datasets may fail to anticipate emerging skill needs, resulting in outdated or misaligned qualifications and curricula. Poorly structured and inconsistent data can generate misleading outputs, particularly when AI is used to forecast labour market demand or identify future skills (OECD, 2025<sup>[5]</sup>).

The difference in AI use among VET stakeholders (Figure 3.1, Chapter 3) may reflect differing capacities, incentives and resource availability. While firms and public VET agencies are increasingly integrating AI into VET development processes as well as other tasks including administrative ones, VET institutions may face barriers – e.g. fragmented data ecosystems, limited digital and analytical capacity, and unclear governance or ethical frameworks. Larger organisations in manufacturing and finance sectors tend to adopt AI more readily (Lane, Williams and Broecke, 2023<sup>[9]</sup>) and AI adoption correlates with greater autonomy, more complex tasks and higher level of education (Arntz et al., 2025<sup>[10]</sup>), suggesting similar patterns for VET institutions.

- In Mexico, fragmented databases limit AI's capacity to map learning outcomes to occupational standards, while data gaps in sectors such as cultural and creative sectors – such as performing arts, visual arts, cultural heritage and crafts – introduce bias and implementation gaps. Limited availability of reliable, AI-processable quantitative data leads stakeholders to rely more heavily on qualitative inputs, even when using AI. Preparing dialogue templates and prompts for open-access AI tools to analyse qualitative material is time-consuming compared to using AI systems tailored to targeted datasets, making dataset development more resource-intensive. Stakeholders also noted that data privacy concerns, uncertain security in publicly available tools, high costs of secure paid solutions and the absence of clear organisational guidance on standard tools further hinder effective and wider adoption (OECD, 2025<sup>[5]</sup>).
- By contrast, countries such as Germany use AI more frequently for quantitative labour-market analysis, supported by relatively well-developed databases. Still, German stakeholders face fragmented data access arising from decentralised governance, strict data protection laws and sector-specific (not cross-sector) data systems, limiting AI's potential beyond discrete applications such as labour-market forecasting and large-scale text analysis, including BIBB's monitoring of qualification trends. The absence of a comprehensive, interoperable and longitudinal database prevents cross-sector or cross-region analysis and constrains deeper use in curriculum and qualification development. No AI model has yet been specifically trained on VET data for these purposes, and frequent AI model updates may weaken reliability, consistency and comparability over time (OECD, 2025<sup>[5]</sup>).
- Croatia's barriers include data accessibility and intellectual property constraints. Micro-credential and adult VET content developed by colleges and universities are treated as institution-owned assets and commercial outputs, particularly where they support fee-based or continuing education provision. This restricts open access to, and reuse of VET content and data sharing. While these training programmes are accredited and verified by national agencies, the full content is not publicly shared; only general information such as learning objectives and duration is disclosed. Institutions retain ownership of the detailed programme design, which creates competitive advantages and limits open access. In addition, this exclusivity means that even if AI tools are used to develop content, questions remain about whether AI-generated materials can be claimed as institutional intellectual property. The absence of clear guidelines on AI-created content further complicates

this issue. This limits interoperability and hinders collaborative efforts to build AI-driven tools that rely on large, diverse and relevant datasets for curriculum alignment (OECD, 2025<sup>[5]</sup>).

Costs further shape access, as mentioned by Mexican stakeholders. Advanced or secure AI solutions can be prohibitively expensive for VET institutions with limited resources. In Estonia, while a government agreement with OpenAI under the AI Leap initiative facilitates access, broader use of professional-grade AI tools may require additional funding or national co-ordination. Without equitable access arrangements, better-resourced institutions are more likely to benefit, potentially widening the digital divide (OECD, 2025<sup>[5]</sup>).

### ***Concerns about job displacement and devalued expertise***

Stakeholders in some countries express anxiety that AI could displace professional roles (e.g. curriculum developers, education consultants and educators) or diminish the value of expert judgement in VET development. While no country reported replacing human decision making in qualification development, concerns persist that automation could gradually weaken the stakeholder-driven and collaborative processes central to VET governance (OECD, 2025<sup>[5]</sup>).

Evidence from other public-sector domains suggests substantial automation potential in routine tasks. The Alan Turing Institute estimates that the AI could automate 84% of repetitive public service transactions in the United Kingdom, saving the equivalent of 1 200 person-years of work annually (OECD, 2025<sup>[6]</sup>). Public service workforce displacement could also occur if governments seek to replace rather than augment civil servants' capabilities (OECD, 2025<sup>[6]</sup>).

## **4.2. Potential risks associated with AI use in VET development**

As shown in Figure 4.1 (Panel B), even stakeholders already experimenting with AI report implementation challenges linked to perceived risks associated with AI use. While the capability issue and limited openness or agreement among stakeholders (30%) and others (technical and infrastructure limitations, development costs and use of AI-generated insights) are rather manageable over time, concerns about the quality and reliability of AI-generated outputs persist. Interviews confirm survey findings: stakeholders emphasise risks of over-reliance or premature use lowering quality, alongside data protection, security and privacy concerns (Figure 4.1, Panel A). Interviews also revealed more VET-specific issues: weakening collaborative, multi-stakeholder decision making in VET development, if not carefully embedded; undermining transparent and accountable VET development processes as well as overall VET accountability and reputation, if roles and responsibilities are not clearly defined and managed. The following subsections discuss these risks (OECD, 2025<sup>[5]</sup>).

### ***AI use potentially weakening collaborative, multi-stakeholder decision making in VET development, if not carefully embedded***

Shared responsibility among public authorities, VET providers, teachers and trainers, employers and social partners is a longstanding or sought feature of many VET systems. Curriculum and qualification development typically relies on consultative processes to ensure relevance, legitimacy and acceptance by those responsible for implementation. As AI begins to enter these processes, questions arise as to how it interacts with established governance arrangements and stakeholder roles (OECD, 2025<sup>[5]</sup>).

Evidence from countries suggests that early AI uses often occurs through isolated experimentations or pilots by individual teachers, institutions or departments, operating alongside rather than within existing collaborative structures – without broader co-ordination. In England and Estonia, for example, stakeholders noted that AI-supported tools initiated by public authorities and AI-generated outputs, though efficient,



could marginalise VET teachers and industry partners, resulting in a “shadow curriculum”: formally approved and registered curricula may diverge from what is actually delivered, if AI outputs are insufficiently reviewed or validated. If relevant VET stakeholders are not actively involved in AI-supported curriculum design and validation, their sense of ownership and engagement may diminish, potentially undermining the quality and acceptance of new and revised qualifications and curricula. Similar sensitivities arise in Switzerland and Germany, where consensus-based traditions emphasise collaborative decision-making and stakeholder engagement, and in Nova Scotia (Canada) where stakeholders stressed maintaining the primacy of industry expertise (OECD, 2025<sup>[5]</sup>).

These experiences highlight that the issue is not AI use per se, but how it is embedded within the existing processes. When AI is perceived as supporting dialogue and evidence-informed discussion, stakeholder engagement may be reinforced. When it is perceived as substituting for consultation or professional judgement, ownership and involvement may decline. Maintaining clear roles for VET stakeholders throughout AI-supported processes therefore remain important for preserving trust and legitimacy in VET development.

***AI use potentially undermining transparent and accountable VET development processes and overall VET accountability and reputation, if roles and responsibilities are not clearly defined and managed***

Across countries, VET stakeholders emphasise that the introduction of AI into VET development raises fundamental questions about accountability, transparency and responsibility. While legal restrictions on AI use remain minimal in many countries, inaccurate, biased or poorly validated AI-generated outputs can have significant consequences in systems where VET qualifications carry strong signalling value for employers and learners.

In Nova Scotia (Canada), VET stakeholders highlighted reputational risks if flawed and irresponsibly used AI-generated outputs undermine confidence in VET curricula and qualifications even if technical errors were corrected later. In Croatia, VET experts expressed uncertainty about the suitability of commercially developed and driven AI models for public-sector VET functions, particularly VET qualification and curriculum development where transparency and data protection requirements are high. In Germany, stakeholders emphasised that training regulations and qualifications carry strong legal and reputational weight, and warned that AI-generated drafts, even when technically sound, could weaken accountability if it becomes unclear who is responsible for content, validation and final decisions (OECD, 2025<sup>[5]</sup>).

These examples point to a shared emphasis on maintaining clear lines of responsibility. Stakeholders across countries underlined that accountability for decisions and outcomes should remain with human actors and institutions, even where AI tools are used extensively. Interviewed stakeholders noted that transparency about AI’s role, alongside explicit validation processes and clear allocation of responsibility (e.g. for correction) are central to sustaining public trust in VET as AI adoption evolves. Over-reliance on AI without oversight could introduce unpredictable changes in qualification frameworks, undermining stability and predictability for employers and learners (OECD, 2025<sup>[5]</sup>).

***AI use potentially lowering VET quality through over-reliance or premature use***

VET development is lengthy, resource-intensive and complex for good reason: it delicately balance labour market relevance, pedagogical coherence and contextual nuance. Although widespread over-reliance on or premature use of AI-generated outputs has not been observed in VET development, stakeholders warn of diminished critical reflection if drafting and analysis become overly automated.

AI cannot replace expert judgement. AI tools trained on biased or incomplete data may embed errors, outdated content or inappropriate terminology into instructional recommendations if not critically reviewed (OECD, 2025<sup>[11]</sup>). In Germany, VET stakeholders caution against the premature circulation of AI-generated

drafts of training regulations, noting their sensitivity could result in misinterpretation or reputational damage if disclosed prior to formal approval – which could lead to legal and economic consequences. In Mexico, VET stakeholders report that roughly half of AI-generated content currently requires substantial revision to ensure appropriate terminology and contextual relevance for VET, particularly where AI tools are trained primarily on higher education contexts and more cognitive learning than job-specific, practical and operational material. Estonia similarly emphasises that AI may assist technical validation and comparison of standards for speed and efficiency, but cautions that AI must not replace human judgment in evaluating the relevance and quality of learning outcomes, as it often lacks pedagogical depth or fails to reflect the nuanced needs of learners and educators, without proper oversight (OECD, 2025<sup>[5]</sup>).

Lowering quality linked to AI use also raises accountability concerns. When AI-generated outputs are flawed or data breaches occur, responsibility may be unclear, complicating corrective action and exposing institutions and the wider VET sector to reputational risk. AI-generated content may also inadvertently breach legal norms or use terminology inconsistent with regulatory standards. Without rigorous human oversight, over-reliance on AI may result in the risk of errors, outdated material and legal or terminological inconsistencies.

### ***AI use potentially exposing sensitive, unpublished or commercially valuable VET data to misuse, without adequate safeguards***

AI use in VET development potentially exposes sensitive, unpublished or commercially valuable data and content to misuse where safeguards are insufficient or unclear. In addition, reliance on skewed, incomplete or biased data in AI systems can cause harmful or misleading outputs, undermining decision making (OECD, 2025<sup>[6]</sup>). Without robust data governance, security measures and clear accountability, AI use may result in data breaches, loss of control over confidential content or the inappropriate reuse of sensitive information.

Across countries, data insecurity is cited not only as a risk associated with AI use, but also as a barrier to effective use in supporting VET development. In Germany, even with its strict data protection frameworks, VET stakeholders express concerns about AI use in handling of sensitive and confidential data, draft training regulations and other non-public materials, noting that inappropriate AI use could compromise confidentiality and disrupt established governance processes. Similar concerns are reported in Mexico, where COSFAC points to risks related to data privacy and the misuse of unpublished curriculum and qualification materials (OECD, 2025<sup>[5]</sup>).

These risks are heightened where AI tools rely on poorly governed data inputs or publicly available platforms that do not meet strict security and privacy standards. Stakeholders across countries emphasise the vulnerability of personal data collected through focus groups, consultation processes and stakeholder interviews, as well as commercially sensitive employer information used in skills analysis. In Croatia and Mexico, concerns centre on the processing of such data through generic AI tools, which may lead to loss of control over confidential content or unintended data disclosure. In the Netherlands, employer organisations stress the need for manual verification and strict controls when using AI-based web-scraping of job vacancies to extract skills information for qualification development, particularly where firm-level or high-value information is concerned; while effective for identifying emerging skills needs, these tools can generate data quality issues, including misattribution, if safeguards are weak (OECD, 2025<sup>[5]</sup>).

These experiences underline that without robust data governance, secure infrastructures and clear responsibility for data handling, AI use risks undermining data security and protection, as well as quality and trust of VET development processes.

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# 5

## Policy considerations

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There are barriers and risks associated with the use of artificial intelligence (AI) in vocational education and training (VET) curriculum and qualification development, as identified in the previous chapter (Chapter 4). Building on this analysis, this chapter concludes by outlining five guiding principles for the use of AI in VET development and providing policy considerations on how these barriers and risks are being or could be addressed, as well as ways to operationalise those five principles.

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# In Brief

## Principles and policy considerations for effective and secure use of AI to support VET curriculum and qualification development

### How should countries address barriers and risks associated with the AI in VET development?

- While the use of artificial intelligence (AI) in curriculum and qualification development in vocational education and training (VET) presents significant opportunities, there are barriers and risks associated with it, including data protection, intellectual property, security and the quality and reliability of AI-generated outputs. Access to AI tools and high-quality, interoperable and machine-readable data remains uneven across VET stakeholders, while fragmented governance arrangements, legal restrictions and weak data infrastructures limit scalability, comparability and system-level impact. VET stakeholders also highlight risks of over-reliance on AI, weakening professional judgement, multi-stakeholder governance and accountability when AI is not carefully embedded within established validation and decision making processes (see Chapter 4).
- Given that VET development has unique institutional characteristics to be considered when applying AI through negotiated, regulated and multi stakeholder processes, with strong signalling effects for learners and employers, existing general AI principles are insufficient. This points to a clear need for VET-specific guidelines to ensure AI strengthens rather than undermines collective decision-making, trust and quality. In response, this study distils five guiding principles: human-centred use, equity and diversity, accountability, transparency, and strong data quality, security and protection.
- Because challenges associated with AI use in VET development are not only technical but also organisational, pedagogical and cultural, these principles require concrete, actionable policy measures to be operationalised. Effective, secure and inclusive AI integration depends on a clear purpose, proportionate regulation, robust data governance, transparent allocation of responsibilities, and sustained human-centred process design and oversight. Moving beyond isolated pilots or individual-based use towards system-level impact therefore requires coherent national and sectoral strategies, targeted capacity-building and access support, clear guidelines, and interoperable data ecosystems that balance innovation with quality, equity, trust and regulatory stability.

### 5.1. The uniqueness of VET development and the need of VET-specific AI principles

As in other policy areas, the effective and secure use of artificial intelligence (AI) to support the development of curriculum and qualification in vocational education and training (VET) (thereafter, VET development) depends on a range of enabling conditions, including clear strategic direction, appropriate policy and regulatory frameworks, effective governance arrangements, investment in data and infrastructure, and sufficient stakeholder capacity and support. At the same time, VET development has unique institutional characteristics to be considered when applying AI, given that VET curricula and qualifications are developed through negotiated, regulated and multi-stakeholder processes, often

embedded in legal frameworks and quality-assurance arrangements and involving public authorities, social partners, sector bodies and providers. Decisions taken in these processes carry strong signalling effects for learners and employers and have direct implications for labour-market outcomes and public trust in VET. There is a clear need for VET-specific guidance on the effective, secure and inclusive use of AI in VET development processes, as existing international AI principles – while providing an important foundation – do not fully account for the institutional realities of VET systems.

In this context, this chapter presents guiding principles and policy considerations that are tailored to unique features of VET. These are grounded in practical realities of countries participating in the OECD Surveys and Interviews conducted as part of this study (OECD, 2025<sup>[1]</sup>) and are informed by many existing OECD and EU principles, frameworks and guidance (Varsik and Vosberg, 2024<sup>[2]</sup>; OECD, 2019<sup>[3]</sup>; OECD, 2026<sup>[4]</sup>; European Parliament and Council of the European Union, 2016<sup>[5]</sup>; European Parliament and Council of the European Union, 2024<sup>[6]</sup>; G7, 2024<sup>[7]</sup>; OECD-Education International, 2023<sup>[8]</sup>).

Building on the OECD Surveys and Interviews conducted as part of this study (OECD, 2025<sup>[1]</sup>) and existing OECD and EU principles, frameworks and guidance, the five principles (OECD, 2026<sup>[9]</sup>) are distilled to support VET stakeholders on the effective, secure and inclusive use of AI in VET development. They are in line with the existing AI principles, frameworks and guidance, while providing VET-specific insight. They clarify how AI should support collective expert judgement and decision making rather than replace it.

1. **Human-centred use** emphasises that AI should function as a support tool for VET development, assisting with analytical or technical tasks while final judgement, validation and responsibility remain firmly with human experts and stakeholders.
2. **Diversity** and inclusiveness focusses on ensuring that AI use does not advantage only well-resourced stakeholders, but instead supports broad and inclusive participation in VET development, including SMEs, smaller providers and stakeholders with lower digital or AI capacity.
3. **Accountability** clarifies that responsibility for decisions, processes and outcomes in VET development must remain clearly assigned to VET stakeholders, even when AI is used, preventing ambiguity about who owns and approves curricula and qualifications.
4. **Transparency** requires that stakeholders understand when and how AI is used in VET development, for what purpose, on which data and with what limitations, helping to maintain trust, supports continuous improvement, and avoid over-reliance on AI-generated outputs.
5. **Data quality, security and protection** highlights the need for high quality, relevant and well-governed data, alongside strong safeguards for sensitive educational and labour market information, ensuring that AI use complies with legal requirements and preserves trust in VET systems.

The policy considerations below translate these principles into strategic and operational directions for policymakers and VET stakeholders, addressing how enabling frameworks, concrete governance arrangements, capacity-building measures and data infrastructures can be designed to embed these principles in practice. In this way, the principles provide a stable, universal values-based compass for effective, secure and inclusive AI use in VET development, while the policy considerations outline the concrete pathways and actionable directions through which they can be implemented, balanced and adapted over time, taking into account national contexts, regulatory environments and system capacities.

## 5.2. Policy considerations

The following policy considerations translates the analytical findings and evidence presented in Chapters 2-4 to guide VET stakeholders and operationalise the above five principles to support VET stakeholders on the effective, secure and inclusive use of AI in VET development.

## ***Establish national, education and VET-sector AI strategies with clear purpose and support***

VET does not operate in isolation. Many OECD countries have initiated high-level AI strategies that shape the broader policy environment for AI in education and training. However, the evidence to date suggests that these strategies have not yet consistently “trickled down” into VET development: AI use in this area remains at an early stage and is often informal and exploratory, driven by individual practitioners or institutions rather than coherent system-level strategies. Where AI use is not anchored in clear pedagogical and strategic objectives (including needs assessment, capacity building and links to quality assurance), it tends to remain small-scale, uneven and disconnected from core development workflows – potentially limiting scalability, sustained impact or stakeholder buy-in.

Cross-country evidence on the gap between strategy and implementation shows this broader pattern. In the early stage of AI adoption in 2022, nearly all OECD countries (29 out of 30 countries or 97%) reported having a public-sector AI strategy, agenda or plan, but approaches to ensuring ethical management and use of algorithm varied: 16 countries (53%) relied on binding legal or regulatory requirements, 12 (40%) used softer instruments such as guidelines, standards or principles, and two (7%) – Latvia and Lithuania – reported no specific instruments (OECD, 2023<sup>[10]</sup>). By 2026, evidence from the OECD AI Observatory Index, which tracks effective implementation across 28 indicators and 138 countries, shows substantial variation in translating AI strategies into practice. Only a small group of countries score near the upper end of the scale – including Canada, Finland, Korea, Luxembourg, Norway, the United States, the United Kingdom and Switzerland (index value 0.55 or above in 2024). Most countries cluster at significantly lower levels, underscoring gaps in implementation capacity (OECD, 2026<sup>[11]</sup>).

In education and VET sector, national initiatives often focus on AI as a subject of learning or as a classroom-facing pedagogical tool than on transforming VET development processes, although these approaches can be complementary when strategically aligned. Country experience nevertheless illustrates that clear purpose, layered governance and targeted infrastructure and investment could help move beyond ad hoc experimentation.

- In England (United Kingdom), experimentation with AI-enabled tools for VET development, such as SkillsCompass and duties generator, has taken place within layered policy frameworks. At the strategic level, the UK [National AI Strategy](#) (2021) sets the overarching vision and principles for AI across government, complemented more recently by the [AI Opportunities Action Plan](#) (2025), which emphasises accelerated adoption and economic impact. Within the VET system, digital and data strategies, developed by the Institute for Apprenticeships and Technical Education (now Skills England), provided the operational basis for AI-related innovation, reliable and structured data, data protection and transparency in AI use. In addition, the Department for Science, Innovation and Technology (DSIT) has funded GBP 3 million to pilot “[content store](#)” of official assessments, curriculum guidance and teaching materials to train AI models aimed at reducing teacher workload (DfE, 2025<sup>[12]</sup>), alongside a GBP 1 million innovation competition (DfE, 2025<sup>[13]</sup>). The Department for Education also provided research insights on use cases for generative AI in education, drawing lessons from the development and testing of a proof-of-concept AI tool, regarding generating education-specific content with generative AI (DfE, 2024<sup>[14]</sup>).
- Estonia’s [AI Leap Initiative](#) aims to integrate AI into general and vocational education, starting in 2025-2026, including teacher training and curriculum innovation, while other countries have established broader governance frameworks.
- Greece established a High-Level Advisory Committee on AI in 2023 to develop a national policy on AI opportunities and risks, with initial applications in VET and participation in EU-funded AI projects (OECD, 2025<sup>[1]</sup>).



- Lithuania's Ministry of Education, Science and Sport, in co-operation with social partners, developed national AI guidelines for education (2026). While not VET-specific, the guidelines are relevant for VET schools, given the integration of general education curricula within many VET programmes. They provide an overarching framework for education institutions to define their own rules for AI use and to develop appropriate pedagogical and methodological approaches. Their preparation involved a broad coalition of stakeholders signalling growing system-level engagement with AI governance. The guidelines are accompanied by enabling measures introduced in parallel, enabling access to advanced AI tools and nationwide training (SMSM, 2026<sup>[15]</sup>).
- The Netherlands positions itself as a leader in human-centric and trustworthy AI through initiatives such as the AiNed programme (a multi-year initiative to accelerate AI adoption, strengthen research capacity, and develop digital skills across sectors). under the National Growth Fund, and the [Netherlands AI Coalition](#) (NL AIC), which brings together over 400 stakeholders from industry, academia, civil organisations and government to foster innovation and ethical AI practices (OECD, 2025<sup>[16]</sup>). These strategies create enabling conditions for AI literacy, ethical competence and more co-ordinated experimentation and development in VET.
- A high-level mapping shows that many countries have adopted national AI strategies or policies, some of which are (to be) followed by more concrete implementation. These include: Ireland's [National AI Strategy](#) outlining the country's vision to become a leader in using AI to benefit the economy and society; National AI Strategy or National Strategy on/for AI (Costa Rica; the [Czech Republic](#) (hereafter 'Czechia'), Norway; Germany; France; Iceland; Japan); Policy for AI Development in Poland; National Policy on AI (Chile; Colombia); Strategic Vision for AI (Luxembourg); Pan-Canadian AI Strategy (Canada) (OECD.AI, 2025<sup>[17]</sup>).

In countries without clear national or sectoral AI strategies, AI use in VET development tends to be more fragmented. In Croatia, for example, stakeholders report isolated experimentation with generative AI to draft learning outcomes or structure curricula, but without a coherent national AI strategy or sustained institutional support but often with commercial interests (OECD, 2025<sup>[11]</sup>). Similar patterns are observed where smaller providers operate under resource constraints, reinforcing uneven adoption and limiting system-level learning (OECD, 2025<sup>[11]</sup>). This experience underscores a broader policy gap: recognising AI's potential is insufficient without co-ordinated governance addressing privacy, transparency and stakeholder engagement, and support structures that guide AI use towards concrete challenges such as improving curriculum relevance, efficiency, accuracy, quality and labour market alignment.

Overall, the effectiveness of AI in VET development depends less on the tools themselves than on the clarity of purpose guiding their deployment and subsequent support. Establishing national, education and VET-sector AI strategies with explicit objectives and assessed needs, defined use cases and aligned support mechanisms is therefore essential to move beyond fragmented experimentation and ensure that AI becomes a coherent driver of system-level improvement rather than a collection of disconnected trials.

### ***Manage risks by ensuring human-centred approach to AI use and AI-generated outputs***

The benefits of AI hinge on managing risks (OECD, 2025<sup>[18]</sup>). AI is compelling yet challenging because of its opacity, algorithmic bias, hallucination. After all, AI still is not perfect (Maslej et al., 2025<sup>[19]</sup>). The most central and strategic direction to many risks associated with AI use is a human-centred approach to any processes involving AI use, relying on human judgement to manage its risks, especially core human skills such as critical thinking, reasoning and creative thinking, as safeguards against misuse and potential risks (OECD, 2026<sup>[4]</sup>). Many interviewed and surveyed stakeholders considered this human-centred approach as a solution to any potential risks of AI use and the evolving technology. It is acknowledged that the real danger lies when people fully trust what AI does, lower their guard and stop questioning.

VET curriculum and qualification design requires not only technical accuracy, but also contextual understanding, pedagogical coherence and alignment with labour market practices. Stakeholders across

countries cautioned that AI outputs, if used without sufficient expert review, may fall short on these dimensions. In response, several countries are reinforcing human oversight mechanisms to address risk associated with AI use and concerns about the quality of AI-generated content. For example, Estonia has introduced pilot testing: new AI tools are tested on a small scale before wider application, allowing for quality control and refinement, and subject-matter experts review all the AI-generated content to ensure reliability and build trust in outcomes. Across survey responses, there was broad agreement that AI should function as a support tool rather than a substitute for professional judgement, with human validation remaining central to quality assurance.

The principle of human-centred, *human validity and human-in-the-loop* is indispensable in the use of AI for developing VET for ensuring quality of AI-generated outputs, trustworthiness and responsibility. Expert judgment, contextual understanding and professional insight are still needed to guide AI-generated outputs. The risk is that AI may streamline tasks in the VET development at the expense of critical thinking of VET stakeholders. Effective use of AI in VET therefore hinges on maintaining human control – VET teachers' and trainers' experiential knowledge and industry partners' hands-on experience must guide and interpret AI outputs rather than be overshadowed by them.

All countries participating in this study underline the central role of VET expert review and validation in ensuring the accuracy and compliance of AI-generated outputs. AI is viewed as a *decision-support tool* rather than a replacement for human judgement. In all countries that reported AI use in VET development, the final validation, their alignment with national frameworks and standards, and adaptation to pedagogical standards are the responsibility of experienced educators and curriculum designers. In Mexico, AI is integrated into various stages of curriculum development, but peer review and cross-validation by VET experts remain essential for ensuring quality and relevance.

### ***Balance diverse perspectives and interests in using AI to improve VET development including local and institutional perspectives, while ensuring equal access to AI use***

VET policymakers should balance diverse perspectives, interests and capacity in using AI to improve VET development. As the development of VET curricula and qualifications is a multi-stakeholder process involving multiple phases, tasks and institutions, stakeholders from government, industry and education are affected differently by their own AI-related policies and practices. Level of understanding, openness, skills towards AI differs across individuals, institutions and sectors, as do the interests they represent, the benefits they may gain and the risks they bear. For example, in Croatia, while AI is used in qualification and skills mapping by the Directorate for Labour Market and Employment and in the context of Application of Digital Technologies Based on AI in Education (BrAI<sub>n</sub>), the national VET agency and VET providers remain more reluctant to use AI in VET development. Some stakeholders including those in Germany and Switzerland see no particular need for AI use in this domain. As discussed in Chapter 3, the levels of AI use differ across VET stakeholders, and AI investments also vary across industries (McKinsey&Company, 2025<sup>[20]</sup>), which may affect the openness and capacity to adopt AI in VET development. Similarly, AI-supported tools may be more effective in fields with codified knowledge, standardised tasks and well-documented occupational standards, whereas programmes relying on tacit knowledge, practical judgement or interpersonal skills may be less suited to such applications.

Respecting this diversity also includes balancing the “*innovation, changes and speed*” associated with AI use, with “*regulations, stability and predictability*” on which VET systems depend. While AI has the potential to drive innovation in VET development by bringing speed, efficiency and real-time labour market insight, VET systems require predictability and regulatory stability. Overly cautious or ambiguous regulatory signals may slow AI adoption or limit opportunities for efficient and creative solutions, while rapid uptake without safeguards may undermine quality. In addition, this divergence may risk a widening gap between innovative, market-oriented providers and those operating under stricter regulatory oversight.

This tension is evident in countries with dual-market qualification systems, such as England and Korea, where government-regulated, publicly funded qualifications coexist with a growing segment of privately funded qualifications offered by commercial awarding organisations or private providers driven by employer demand. In such systems, government-regulated qualifications tend to prioritise risk mitigation, learner protection and public confidence, which may discourage providers to experiment with AI. In England, for example, the “compliant innovation” stance of the Office of Qualifications and Examinations Regulation – which recognises the potential for AI to support quality and innovation, yet prioritise fairness, validity and public confidence, and emphasise the risks of inappropriate or premature adoption of AI in high-stakes processes (Ofqual, 2024<sup>[21]</sup>) – is interpreted by some awarding organisations and VET providers as a “lack of public support” for providers’ AI adoption, although this relates primarily to assessment and grading rather than VET development more broadly. In Korea, private VET qualification and course providers are adopting AI more rapidly than public systems, which may pose challenges for quality assurance. Similar trade-offs arise around data governance: in Germany, strong data protection and security remain priorities, yet strict restrictions may hinder the effective application of AI in VET qualification and curriculum development (OECD, 2025<sup>[1]</sup>).

Without clear and enabling frameworks for experimentation and innovation using AI, VET systems may under-utilise AI’s potential to support more responsive curricula, closer alignment with labour market needs and faster development of VET qualifications and courses for emerging occupations. Realising these benefits requires a balance between safeguarding quality and enabling innovation, combining clear and proportionate regulation and risk-based regulatory flexibility (OECD, 2025<sup>[22]</sup>) as well as active support for experimentation, capacity-building, and the development of sector-specific guidelines for AI use.

### ***Co-create guidelines and build capacity for systemic and strategic AI use in VET development***

Balancing the trade-offs between efficiency gains and the risks of AI requires recognising VET’s distinctive features: heterogeneous programmes, occupations and providers, and consensus-based or collaborative governance involving diverse stakeholders. Hesitancy or reluctance – observed in countries with strong social-partner traditions such as Germany and Switzerland – often reflects concerns about disrupting established processes or devaluing professional expertise. Addressing this resistance depends not only on technological availability but also on co-created guidelines, transparent communication, and sustained capacity building that embed AI responsibly and securely within established VET development processes.

In addition, transparent labelling of AI-generated content, clear agreements or guidelines on data use and confidentiality, formalised tool selection and deployment, and explicit human validation strengthened by targeted training can help build trust and mainline quality and ensure safe and effective use of AI in curriculum development and certification processes. In the Netherlands, some interviewed stakeholders called for transparent labelling of AI-generated content and the databases that can be used in AI systems to support VET development, as well as open communication about AI’s role and limitations.

#### *Develop co-created guidelines and safeguards*

Inspired by international initiatives, countries are increasingly institutionalising AI governance and developing tailored guidelines to balance innovation with legal and ethical safeguards, ideally involving stakeholders’ perspectives and allowing flexibility for VET stakeholders and rapid adaptation to technological change (see also Box 5.1):

- Netherlands: The Organisation for the Co-operation between VET and the Labour Market (SBB) has established a Digital Ethics Commission to review and approve AI tools and projects, require risk assessments, and ensure compliance with legal, ethical and organisational values (Box 5.1).

VET provider representatives also emphasise working with EdTech providers “on our terms” to safeguard autonomy and public values practiced in VET (OECD, 2025<sup>[1]</sup>).

- Finland: The Ministry of Education and Culture has issued guidance on AI use, transparency and human validation, shaping how VET providers experiment with AI in curriculum development (Finnish Ministry of Education and Culture, 2024<sup>[23]</sup>). AI guidelines (e.g. [AI Guide for Teachers](#)) emphasise teacher readiness, ethical use and strengthening AI-related competences to ensure safe and equitable adoption in education and training (OKM, 2024<sup>[24]</sup>).
- Mexico: COSFAC highlights the need for structured institutional guidance and both general and technical guidelines for AI use in curriculum development, including legal clarity and data protection before unpublished materials can be used with AI tools. Acknowledging the need, COSFAC is working to establish ethical guidelines and boundaries in using AI and data responsibly and securely (OECD, 2025<sup>[1]</sup>).
- Croatia: The [BrAln](#) project (Application of Digital Technologies Based on Artificial Intelligence in Education) aims to foster a comprehensive understanding of AI among students, preparing them for future challenges and opportunities in a digitally-driven world, while ensuring that ethical considerations remain at the forefront of technological integration in education. The project also includes the development of digital educational content, training for educational staff, and research on the impact of digital technologies on students. A Committee for the Ethical Application of Digital Technologies and AI in Education has been established to monitor the integration of AI into the curriculum, ensuring that ethical considerations are addressed throughout the project's implementation. This committee collaborates with entities such as the Laboratory for Ethical Aspects of Advanced Digital Technology at the University of Rijeka's Center for Artificial Intelligence and Cybersecurity, which focusses on the ethical implications of AI and advanced digital technologies. Additionally, the Croatian Artificial Intelligence Association (CroAI) is involved in the BrAln project, providing advisory support on curriculum development (OECD, 2025<sup>[1]</sup>).
- Nova Scotia (Canada): Nova Scotia Apprenticeship Agency is developing internal AI policies and best practice guidelines centred on transparency, quality assurance and stakeholder engagement (OECD, 2025<sup>[1]</sup>).

### Box 5.1. Examples of relevant AI guidelines

#### Recommendation of the OECD Council on Artificial Intelligence (OECD AI Principles)

The OECD AI Principles – the first intergovernmental standard on AI – call to build human capacity for AI while promoting the stewardship of trustworthy AI. Adopted by the OECD Council at Ministerial level in May 2019, the Recommendation aims to foster innovation and trust by ensuring that AI development and use respect human rights and democratic values. It sets out five complementary values-based principles – inclusive growth and well-being; human-centred values and fairness; transparency and explainability; robustness, security and safety; and accountability – with five policy recommendations related to research and innovation, digital ecosystems, enabling policy environments, human capacity and labour market transitions, and international co-operation. It also encourages the development of metrics and evidence to monitor progress in implementation (OECD, 2019<sup>[3]</sup>).

#### Guidelines for effective, equitable and trustworthy use of generative AI in education (GenAI Guidelines)

The “Opportunities, guidelines and guardrails for effective, equitable and trustworthy use of generative AI in education” (OECD-Education International, 2023<sup>[8]</sup>) provide practical recommendations for the adoption of GenAI across education systems. The guidelines emphasise that AI should support the professional judgement and pedagogical role of teachers, while strengthening learning outcomes and inclusion. They recommend establishing clear governance frameworks for the use of GenAI, including

transparency about how systems work, protection of student and teacher data, and mechanisms to identify and mitigate bias or inaccuracies. The guidelines also stress the importance of building educators' and learners' digital and AI literacy, ensuring equitable access to AI tools, and involving stakeholders in the design and implementation of AI solutions. Overall, they call for a balanced approach that harnesses the potential of generative AI to enhance teaching, learning and assessment while maintaining strong safeguards for ethics, accountability and educational integrity.

### European Data Protection Board (EDPB)

Within the European Union, *the Artificial Intelligence Act* (European Parliament and Council of the European Union, 2024<sup>[6]</sup>) provides a binding regulatory reference for AI systems, including those used in education and training, where they are classified as high-risk. It establishes requirements related to human oversight, responsibility allocation, risk management and documentation, reinforcing accountability and transparency. In parallel, the *General Data Protection Regulation* (GDPR) (European Parliament and Council of the European Union, 2016<sup>[5]</sup>) establishes sets the legal baseline for the lawful and secure processing of personal and sensitive data in AI-supported processes. *Guidance issued by the European Data Protection Board (EDPB)* – most recently [Opinion 28/2024](#) – further clarifies the application of GDPR to AI, emphasising lawful, fair, transparent and purpose-specific data use, alongside obligations related to information provision, record-keeping, risk and impact assessments, privacy-preserving techniques, and robust security and governance arrangements. Complementing these instruments, the European Commission's non-binding [Guidelines on prohibited AI practices](#) clarify which AI uses are deemed unacceptable in light of fundamental rights and European values, including certain practices relevant to educational contexts, and provide an additional reference when assessing permissible AI uses and appropriate safeguards. These regulatory and interpretative instruments provide a comprehensive reference framework for assessing permissible AI uses and appropriate safeguards in VET development.

### The Netherlands

The Organisation for the Co-operation between VET and the Labour Market (SBB) has established a Digital Ethics Commission within the organisation, comprising representatives from all departments, including privacy and data protection officers, tasked with evaluating and guiding the ethical and safe use of AI within the organisation. This Commission evaluates all AI use cases that could structurally impact organisational processes, ensuring that AI applications are ethical, lawful and safe. The Commission developed internal guidelines and digital ethical principles (not publicly available), inspired by international standards and guidelines such as OECD AI Principles and European Data Protection Board's recommendations, and mapped them to SBB's core values such as transparency and lawfulness. All significant AI projects must be reviewed by the Commission before deployment, with risks documented and mitigated.

The guidelines distinguish between “rules of play” for everyday AI use (e.g. no personal or confidential data, no use of high-risk external platforms) and broader ethical principles for project-level applications. The Commission's work is seen as both a safeguard and an educational resource, fostering a culture of innovation. While SBB's AI platform is only accessible to internal staff, the organisation recognises the importance of extending ethical oversight to partners and advocates for similar governance structures in other institutions, especially as AI use becomes more widespread.

Source: OECD (2025<sup>[25]</sup>), Recommendation of the Council on Artificial Innovation, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>; OECD-Education International (2023<sup>[8]</sup>), Opportunities, Guidelines and Guardrails on Effective and Equitable Use of AI in Education, [www.oecd.org/content/dam/oecd/en/about/projects/edu/smart-data-and-digital-technology-in-education/Opportunities.%20guidelines%20and%20guardrails%20for%20effective%20and%20equitable%20use%20of%20AI%20in%20education.pdf](http://www.oecd.org/content/dam/oecd/en/about/projects/edu/smart-data-and-digital-technology-in-education/Opportunities.%20guidelines%20and%20guardrails%20for%20effective%20and%20equitable%20use%20of%20AI%20in%20education.pdf).

*Strengthen targeted, role-specific capacity building with structural support and continuous learning*

AI literacy alone is insufficient; VET stakeholders require contextualised, task-specific skills and critical judgement to apply AI in qualification and curriculum development. While countries can rely on general AI awareness training (e.g. Germany) or teacher professional training (Switzerland), with limited sector-specific programmes tailored to VET development functions, more countries are beginning to address the challenge of limited AI literacy among VET stakeholders involved in VET development through targeted initiatives for the safe and effective use of AI.

- The Netherlands' Organisation for the Co-operation between VET and the Labour Market (SBB) provide targeted training and support for staff in using AI responsibly in qualification development, such as through summer schools for staff. For example, an external company provided prompt-engineering training, with participants using the SBB Chat platform (a secure GPT-4 platform developed for drafting qualifications and automating technical checks) as a secure, hands-on environment to practise and apply the techniques during the training. The training was tailored to the specific daily tasks of each department, allowing staff to practice writing prompts relevant to their work, such as drafting legal requirements for qualifications and job and skill descriptions. Initially optional, the training became mandatory after strong uptake and positive feedback, embedding AI competence as a standard skill for all departments. The goal is to improve SBB staff skills in using AI tools effectively within their roles (OECD, 2025<sup>[1]</sup>).
- In England (United Kingdom), the Department for Education established community of practice to share learning, address concerns and build common understanding, complemented by AI awareness-raising through trailblazer groups and route panels – employer-led groups overseeing occupational standards and technical qualifications across major sectors. Dedicated AI leads were appointed across the 15 route panels to raise awareness and guide AI adoption. Beyond the VET system, AI training and upskilling opportunities are offered more broadly across government and the workforce, structured around AI user personas (leaders, professionals, workers and citizens) adapted from the Alan Turing Institute's BridgeAI framework (InnovateUK-BridgeAI, 2024<sup>[26]</sup>) to tailor learning to different roles (OECD, 2025<sup>[1]</sup>).
- Estonia offers training and awareness-raising opportunities such as seminars and workshops to introduce AI use cases in qualification and curriculum development, aiming to build capacity among educators, developers and experts (OECD, 2025<sup>[1]</sup>).
- Lithuania and Croatia: EU Erasmus+ teacher-training initiatives have strengthened AI literacy and digital skills among VET teachers, with trained participants disseminating knowledge nationally and acting as change agents (OECD, 2025<sup>[1]</sup>).
- In Switzerland, when it comes to VET teacher training, VET teacher training colleges train future VET teachers how to use AI, including use for adjusting the national curricula and preparing school-level curricula and their lessons. For example, St. Gallen University of Teacher Education ([PHSG](#)) teach AI to future VET teachers using a platform, aprendo (<https://aprendo.ch/>). This platform was developed by the University in 2020 for digital continuing education programme and is open to all VET teachers and principals across Switzerland. It also uses AI for module development and offers practice-oriented modules on effective use of AI, ICT application skills, digital professionalism and digital leadership. For example, it provides relevant modules to VET curriculum adjustment and implementation, such as AI & Digital Ethics, AI guidelines and standards for schools, AI tools for teaching, Researching with AI (OECD, 2025<sup>[1]</sup>).
- Regarding older adults' AI literacy, OECD provides relevant, practical recommendations regarding digital skills for seniors for this persistent gap: such as simplifying complex concepts and providing age-appropriate content and materials (OECD, 2025<sup>[27]</sup>).



Effective AI integration requires sustained institutional support, not one-off training. Stakeholders frequently report enthusiasm but limited confidence in applying AI strategically to VET development. Continuous updating of skills, clarity about risks and unintended consequences, and reinforcement of critical thinking are essential.

- Switzerland illustrates systemic support structures: pedagogical ICT supporters (PICTS) guide teacher training and the strategic development of digital transformation in schools, while technical ICT supporters (TICTS) maintain technical support and infrastructure in schools. Such roles – encouraged by national initiatives such as “Digitale Schweiz” – help embed AI within broader digital transformation strategies. PICTS become increasingly common, especially in cantons that prioritise digital transformation, such as St. Gallen. They are often found in teacher training institutions and public VET schools. However, access to advanced tools and structured programmes remains uneven across countries and institutions, underscoring the need for collaborative platforms and equitable capacity-building strategies to ensure that AI adoption in VET development is strategic, inclusive and responsibly governed (OECD, 2025<sup>[1]</sup>).
- The Netherlands promotes collaborative platforms for secure AI use among VET providers to bridge institutional gap in equitable and effective AI adoption (OECD, 2026<sup>[28]</sup>).

### Box 5.2. Capacity building models that could be drawn for AI literacy and digital skills for VET development

#### Improving the skills and competences of VET teachers and trainers in the age of AI (Tackle AI)

[Tackle AI](#) is an Erasmus+ funded project in five countries to provide initial training and continued professional development for VET teachers and trainers in AI. It seeks to support them in extending and adapting open curriculum models for incorporating AI in VET. The project has also developed a Massive Open Online Course in AI in education, free and open to all teachers and trainers in VET in Europe.

The policy recommendations that this project came up with include: (i) update VET curricula to include AI (ii) incorporate competences for AI into all initial training programmes for VET teachers and trainers (iii) encourage and support the development, searchability and sharing of open educational resources for AI in VET (iv) encourage and support the development of online programmes of Continuing Professional Development for AI in VET, (v) support collaboration between industries, VET schools and training centres.

A discussion from the project is the emergence of the “augmented operator” – a worker who integrates AI-assisted decision making with a systemic understanding of production processes – driven by the rise of AI in technological work processes. This shift requires VET curricula to go beyond basic ICT skills and incorporate interdisciplinary, work-process-oriented training. Augmented operators must be equipped to manage smart technological chains, big data, networking, and information security while considering economic, ergonomic, and environmental implications. Traditional competence-based VET models may struggle with this holistic approach, necessitating stronger work-based learning, integration of academic knowledge, and collaboration between VET and higher education providers. As a result, qualifications for augmented operators may be positioned at Level 5-8 of qualifications frameworks, bridging vocational and higher education.

#### Data Literacy Initiative (DaLI) model for Higher Education and Research

The DaLI model at TH Köln can provide a structured foundation for developing AI literacy and digital skills in education by organising competencies across seven interconnected areas that mirror the full lifecycle of data and AI use: Establish Data Culture, Provide Data, Manage Data, Analyse Data,



Evaluate Data, Interpret Data, and Publish Data. Each competence area is further broken down into specific dimensions and progression levels, enabling a systematic approach to curriculum design, teaching, and assessment. This tiered design supports VET institutions in building capacity gradually – from fostering shared organisational understanding of data and AI principles, through practical data handling and analysis skills, to the critical evaluation, interpretation, and communication of insights. As such, the model can serve as a blueprint for designing targeted learning pathways and upskilling strategies tailored to different roles involved in VET development (Echtenbruck et al., 2025<sup>[29]</sup>).

### **Guide on system-level AI adoption based on AI maturity**

The European Commission's Joint Research Centre (JRC) has developed a governance- and competence-based framework to guide system-level AI adoption in public sector organisations, including education and training. Rather than prescribing specific technologies, it defines the institutional conditions needed for sustainable and effective AI integration at scale (e.g. a bespoke AI system embedded in a VET system or a shared platform across institutions). The model emphasises that AI maturity depends as much on governance and organisational capacity as on technology, identifying three core competence areas – technical, managerial, and legal-ethical – supported by clear strategic direction, accountability structures, human oversight, risk management, data management and continuous monitoring. Applied to VET, a JRC-aligned approach would involve controlled data access, integration with qualification frameworks, and clearly defined roles for curriculum experts, social partners and public authorities, with AI supporting tasks like skills analysis or curriculum comparison while final decisions remain under human control. Overall, the framework provides a reference point for moving from fragmented experimentation to co-ordinated, trustworthy system-level AI adoption (Medaglia, R., P. Mikalef and L. Tangi, 2024<sup>[30]</sup>).

### **AI maturity model and strategic framework and toolkit, by Joint Information Systems Committee**

Jisc is a registered charity and the key digital, data and technology partner for tertiary and further education (FE) and research across the United Kingdom, supporting all FE colleges and universities. The Jisc AI maturity model in England provides a system-level enabling framework for AI adoption in tertiary education, including FE and skills providers, without mandating a single national AI system. It offers a shared reference structure that helps institutions move from ad hoc experimentation to more embedded and governed AI use by defining common maturity stages, establishing shared principles and language, and linking technology choices to organisational culture, skills, governance and data readiness. While implementation decisions remain decentralised, the framework supports cross-institutional learning and strategic alignment. Unlike a centrally embedded AI platform, Jisc does not impose specific tools for curriculum or qualification development; instead, it provides guidance, toolkits and governance support, enabling co-ordinated but locally configured AI adoption within a common strategic framework.

Source: Attwell et al. (2021<sup>[31]</sup>), Artificial Intelligence & Vocational Education and Training, [https://taccleai.eu/wp-content/uploads/2021/12/TacpleAI\\_Recommendations\\_UK\\_compressed.pdf](https://taccleai.eu/wp-content/uploads/2021/12/TacpleAI_Recommendations_UK_compressed.pdf); Echtenbruck et al. (2025<sup>[29]</sup>), A Data Literacy Competence Model for Higher Education and Research, <https://arxiv.org/abs/2504.15690>; Jisc (2024<sup>[32]</sup>), New toolkit for colleges and universities sets pathway for effective adoption of AI, [www.jisc.ac.uk/news/all/new-toolkit-for-colleges-and-universities-sets-pathway-for-effective-adoption-of-ai](http://www.jisc.ac.uk/news/all/new-toolkit-for-colleges-and-universities-sets-pathway-for-effective-adoption-of-ai); Webb (2024<sup>[33]</sup>), Our AI in Education Maturity Model – an update for 2024, <https://nationalcentreforai.jiscinvolve.org/wp/2024/03/08/our-ai-in-education-maturity-model-an-update-for-2024>; Jisc (2024<sup>[34]</sup>), New toolkit for colleges and universities sets pathway for effective adoption of AI, [www.jisc.ac.uk/news/all/new-toolkit-for-colleges-and-universities-sets-pathway-for-effective-adoption-of-ai](http://www.jisc.ac.uk/news/all/new-toolkit-for-colleges-and-universities-sets-pathway-for-effective-adoption-of-ai).

### ***Improve data availability, quality, interoperability and usability for effective and secure AI use***

Many countries already maintain rich and structured databases on VET curricula, qualifications and occupational standards. If made machine-readable and interoperable, these resources could substantially strengthen AI-supported curriculum design and qualification development, while improving alignment with labour market needs. The better structured and standardised the data, the more scalable and reliable AI applications become. Machine-readable learning outcomes, for example, enable AI to map qualifications to occupational standards, track revisions across curriculum versions, and process large volumes of textual data using natural language processing to support a common language for describing skills – facilitating both local-national coherence and cross-border recognition and mobility.

However, realising this potential depends on addressing well-known AI risks (limited transparency of models, algorithmic bias), as well as VET-specific data issues such as heterogeneous qualification formats, complex educational language, uneven data quality, contextual sensitivity, and limited integration of AI outputs into formal qualification design processes (Cedefop & UNESCO-UNEVOC, 2025<sup>[35]</sup>). Fragmented databases and inconsistent model use further reinforce the need for robust data governance frameworks and sustained human oversight.

OECD evidence shows that structured and ethically sound data acquisition frameworks are central to building effective and trustworthy AI systems (OECD, 2025<sup>[36]</sup>). Across 38 jurisdictions, organisations with structured, ethical and legally compliant data governance protocols achieve 15-22% better model performance while reducing bias and regulatory risks. Approaches such as federated learning, synthetic data and cross-institutional data sharing enable AI training without compromising privacy or proprietary constraints. Clear data stewardship and standardised metadata also speed up deployment – by up to 18% – and strengthen stakeholder trust, offering important lessons for AI use in VET development (OECD, 2025<sup>[36]</sup>). Based on this evidence, effective frameworks rest on three interlinked pillars for effective AI data collection, trustworthy and high-performing AI applications – integration of these pillars enhances predictive accuracy, mitigates systemic bias, and supports transparency in AI development (OECD, 2025<sup>[36]</sup>):

- Ethical and legal compliance, encompassing privacy, consent, intellectual property;
- Technical robustness, ensuring data quality, diversity, representativeness for reliable training outcomes);
- Institutional co-ordination, fostering interoperable frameworks across public, private and research actors).

Given the sensitivity of educational and labour market data used in VET development, countries are combining improved data access with stronger safeguards such as data protection protocols to strengthen data protection and secure AI infrastructures. Some countries are investing in secure, privacy-compliant AI solutions and formalising the selection and evaluation of AI tools.

- Germany: The Competence Compass from *Institut für Arbeitsmarkt- und Berufsforschung* (IAB), funded by the Federal Ministry of Labour and Social Affairs (BMAS) under NextGenerationEU, develops structured datasets from job advertisements to extract standardised information on skills, tasks and qualifications from unstructured texts, using natural language processing and improving data quality and usability for AI-supported analysis. This enables granular tracking of skill trends – including AI-related skills – and supports evidence-based workforce planning and curriculum alignment (Stops et al., 2025<sup>[37]</sup>).
- Croatia: Algebra University runs AI models on-premises, creates synthetic datasets for testing and improving curriculum-related AI models without exposing sensitive and private information, and tailor outputs to institutional needs. It uses large language models for drafting and reviewing content and advanced visualisation tools (e.g. Power BI, Tableau) for decision support, while

keeping data within secure internal systems. The BrAI initiative also stresses ethical oversight and expert involvement in curriculum-related AI use.

- Netherlands: The Organisation for the Co-operation between VET and the Labour Market (SBB) and FME restrict the sharing of sensitive data with external AI platforms. Their internal policies prevent exposure of confidential information to external AI platforms or cloud environments – e.g. sensitive company and salary data remain within secure internal systems to avoid data leaks and misuse. For industry and associations, this is not only for data protection, but also not to lose commercial advantage and control over valuable data. Stakeholders warn against uploading student data or confidential materials into public AI tools without clear licensing and privacy safeguards.
- In Nova Scotia (Canada), public curriculum and occupational standards are considered suitable for AI processing, while exam development and commercial curricula require additional safeguards, reflecting a differentiated, risk-based approach.
- Estonia: Efforts focus on improving interoperability and reducing fragmentation across databases. Estonia collaborates with private initiatives such as [LAI SER](#) to enhance labour market data integration and leverages AI to streamline data systems. AI data and system security issue is not VET's own; national level strategy and measures ensure the secure and effective use of AI in VET. For example, the secure data exchange platform, X-tee, enables public and private organisations to share and access data automatically and securely, supporting privacy-compliant AI use (Box 5.3).

### Box 5.3. What enables and ensures secure use of AI in VET?

#### Estonia's X-tee

X-tee acts as a foundational digital infrastructure in Estonia, securely connecting databases and information systems across sectors (e.g. government, health, education, finance). It allows different IT systems to communicate, regardless of their technology or architecture. There is no central database; instead, X-tee connects existing databases, allowing data to remain with its owner. All data exchanges are encrypted, logged, and monitored. Only authorised parties can access the data, and all actions are traceable. The platform supports thousands of organisations and millions of transactions per day. It also automates data sharing, reducing paperwork and manual processes. Data requests and responses are handled via secure, standardised interfaces. Every transaction is encrypted and logged for transparency and accountability.

It ensures data integrity and privacy, complying with GDPR and Estonian standards, enabling new digital services and cross-sector collaboration (e.g. e-health, e-tax or e-school).

X-tee's technology has been adopted by several other countries (e.g. Finland, Iceland, Faroe Islands, and more), supporting cross-border digital services.

Source: Estonia Information System Authority (2024<sup>[38]</sup>), Data exchange layer X-tee, [www.ria.ee/en/state-information-system/data-exchange-platforms/data-exchange-layer-x-tee](http://www.ria.ee/en/state-information-system/data-exchange-platforms/data-exchange-layer-x-tee).

## 5.3 Next steps

AI offers a timely opportunity to strengthen the responsiveness, efficiency and evidence base of VET curriculum and qualification development. As this report has shown, AI can support long-standing challenges in VET systems by improving the synthesis of labour market information, accelerating drafting

and revision processes, and complementing multi-stakeholder consultation. Used responsibly, AI can help VET systems adapt more quickly to technological change, digitalisation and the green transition, while preserving, or improving, the rigour, relevance and legitimacy that underpin trust in VET curricula and qualifications.

At the same time, the report highlights that AI use in VET development remains at an early and uneven stage, characterised by fragmented experimentation, limited institutional capacity and unaddressed governance questions. Risks related to data protection, quality assurance, accountability and the possible weakening of collaborative decision-making are real and must be actively managed. These challenges are not purely technical: they reflect institutional arrangements, organisational practices and professional cultures within VET systems. Ensuring that AI strengthens rather than undermines these foundations requires clear purpose, human-centred design, transparency and strong safeguards.

Looking ahead, moving from isolated pilots towards more strategic and systemic use of AI across VET system will require coherent policy direction, VET-specific guidelines, continued capacity and evidence building, and investment in high-quality, interoperable data infrastructures. By grounding AI use in shared, but VET-specific, principles and steering the use through appropriate policy measures as suggested in the form of policy considerations in this report, countries can harness AI's potential while maintaining quality, trust, equity and accountability. In doing so, AI can become an excellent supportive instrument – rather than a disruptive force – in building more agile, inclusive and future-ready VET systems.

The overarching objective of the OECD's work in this area is to build an evidence-based, system-wide understanding of how AI can support the full VET cycle – from curriculum and qualification design to teaching and learning, assessment and the monitoring of learner outcomes. Building on this work, further work will be needed to examine how AI can augment VET delivery, assessment and the monitoring of learner outcomes across the full VET cycle – an opportunity to address VET's unique challenges in these policy areas from a holistic perspective. This points to several priority avenues for future research and policy dialogue.

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# Developing Vocational Education and Training with Artificial Intelligence

The report *Developing Vocational Education and Training with Artificial Intelligence* examines how artificial intelligence (AI) is beginning to transform the development of curricula, qualifications and occupational standards in vocational education and training (VET). Commonly lengthy and resource-intensive, the development processes face increasing pressure to respond to fast changing labour market needs driven by digitalisation, green transitions and structural shifts – as well as AI itself. The report analyses current and emerging applications and pilots of AI in VET development, from labour market analysis and competency mapping, to automated drafting and compliance checks. It identifies opportunities to enhance relevance, agility and efficiency in VET, while emphasising potential risks, governance needs and the continuing importance of a human-centred approach. The report provides policy considerations for effective and secure integration of AI into VET development, ensuring that VET curricula and qualifications remain relevant, trusted and future-ready. It draws on survey results across 25 countries and case studies from Croatia, England (United Kingdom), Estonia, Germany, Ireland, Korea, Lithuania, Mexico, Netherlands and Switzerland.



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