

SUMMARY

ETF Skills Lab Network of Experts Webinar

INTEGRATING AI INTO TVET: IMPLICATIONS FOR SEMI-SKILLED OCCUPATIONS AND JOBS REDESIGN

26 February 2026, 10.00 – 12.00 CET

This webinar of the ETF Skills Lab Network of Experts explored how artificial intelligence (AI) can be integrated into technical and vocational education and training (TVET), with a specific focus on semi-skilled occupations and job redesign. Building on emerging evidence that AI is reshaping work primarily through changes in tasks and workflows rather than through the disappearance of entire occupations, the webinar examined how AI-enabled tools can augment practical work, expand cognitive and decision-making tasks, and support more inclusive pathways for skills development and progression. Against the backdrop of accelerating digital transformation and the risk of a widening AI divide, the discussion focused on how AI can be embedded in semi-skilled training in ways that are accessible, relevant and scalable for learners and providers.

Cristiana Burzio (ETF) opened the webinar by welcoming participants to the first Skills Lab Network session of 2026 and outlining the ambitious work plan for the year ahead. She recalled that the Network, launched in 2021, has now grown to around 800 members across ETF partner countries, EU Member States and beyond, becoming an increasingly global platform for exchange on skills anticipation and innovative methodologies. Introducing the theme of the session, she emphasised that while AI is widely discussed in relation to advanced technical jobs, far less attention has been paid to its implications for semi-skilled occupations. The purpose of the webinar, she explained, was therefore to explore how AI is reshaping tasks, roles and progression pathways in semi-skilled occupations, how job redesign can strengthen rather than replace these roles, and what this means for TVET systems and providers seeking to respond strategically to technological change.

The first speaker, **Ummuhan Bardak (ETF)** structured her presentation around the question of whether AI technologies can benefit medium-skilled jobs and democratise expertise. She situated AI within five decades of digitalisation, recalling how successive waves of technological change have automated some jobs after standardising and routinising tasks through digitisation, particularly in manufacturing and administrative occupations, contributing to job polarisation and growing income inequality. While earlier automation primarily affected routine manual and cognitive tasks, she explained that AI represents a qualitative shift because it can increasingly automate non-routine cognitive activities. At the same time, she stressed that AI is not a single uniform technology but a cluster of applications, ranging from learning algorithms and large language models to algorithmic management systems, whose impact also depends heavily on institutional and regulatory contexts. Drawing on [ETF analysis on Changing Skills for a Changing World](#) and recent [research](#) by Autor and Thompson (2025), she underlined that AI can either substitute or complement tasks within occupations, and that outcomes vary depending on whether “expert” or “inexpert” tasks are automated.

Bardak then examined emerging evidence on AI’s labour market effects. She noted concerns about AI displacing entry-level roles, citing recent reporting on declining junior hiring in sectors such as law, consultancy and technology. However, she also highlighted other research pointing that less skilled workers benefit more from AI tools than experienced workers. The biggest quality improvements of AI tools are often seen at the bottom, closing the productivity gaps between workers. Referring to David

Autor's working paper [Applying AI to Rebuild Middle-Class Jobs](#) and other work on pro-worker AI like [Can We Have Pro-Worker AI?](#) she emphasised that AI can extend the reach of expertise in vocational occupations—supporting, for example, nurse practitioners, electricians or technicians in performing higher-value tasks. She concluded that humans can chose a “human-complementary” pathway for AI technologies over its automation function only and the “democratisation of expertise” is possible but depends on deliberate policy choices and widespread AI literacy, echoing frameworks discussed by the OECD and European Commission on AI in education and training, which define [AI literacy](#) as the ability to understand, use, monitor and critically reflect on AI systems in real-world contexts.

During the Q&A session, participants raised questions about whether AI could reduce the divide between middle- and high-skilled occupations and about the methodology used to measure occupational exposure. Responding to the first point, Ummuhan Bardak explained that AI tools can enhance human capabilities and increase productivity through job augmentation, with evidence suggesting that novice and lower-skilled workers often benefit proportionally more than highly experienced professionals, as AI narrows quality gaps and enables them to perform higher-value tasks. However, she stressed that this “human-complementary” pathway is not automatic but depends on deliberate choices in how AI is deployed, alongside strong foundational knowledge and digital, data and AI literacy. Addressing the methodological question, she clarified that most exposure estimates rely on a task-based framework, comparing the tasks AI systems can perform with the task composition of specific occupations; exposure, she noted, does not automatically imply full automation, but rather indicates the degree to which job tasks may be transformed or augmented.

The second speaker, **Sahara Sadik (Institute for Adult Learning - IAL, Singapore University of Social Sciences)** presented a forward-looking perspective on how AI can augment semi-skilled occupations and support new pathways towards inclusion and shared prosperity. Drawing on IAL's research - including [Digital Futures of Work](#) (Brown & Sadik, 2025) and [Augmenting Intelligence](#) (Tay, Sadik & Chan, 2025) - she framed the current moment as a “global epistemic disruption” in which AI challenges traditional cognitive hierarchies while also creating opportunities for “cognitive extension” rather than cognitive capture. The research on Digital Futures of Work examined AI adoption patterns across more than ten digital hubs, while Augmenting Intelligence explored how vocational roles can be reshaped through AI-enabled task redesign. While projections show significant exposure of knowledge workers to AI, she argued that semi-skilled occupations may derive the greatest benefit if AI tools are developed and used to integrate knowing, doing and connecting, enabling distributed decision-making and higher-value work.

Sadik emphasised that such transformation depends on deliberate institutional choices rather than technological determinism. She introduced the “Four I's for Action” - Imagination, Involvement, Invention and Innovation - as a practical framework for redesigning vocational roles and embedding AI literacy into TVET systems. Referring to findings from community-based experiments on professional renewal conducted by the [Adult Learning Collaboratory](#), she highlighted early evidence of augmentation while acknowledging resistance among some medium-skilled participants to engaging with more cognitively oriented tasks. Concluding that the AI transition remains at an early stage, she echoed the call for “relentless reimagining” advanced in [Human + Machine: Reimagining Work in the Age of AI](#), arguing that this moment offers a rare opportunity to reshape occupational hierarchies in more inclusive and equitable ways.

In the discussion that followed, participants raised questions about regional differences in AI adoption and the conditions required for semi-skilled workers to benefit from augmentation. Referring to examples from Singapore, Korea and Vietnam, Sahara Sadik explained that while AI uptake is relatively advanced in highly digitalised societies, strategic attention often remains centred on automating high-skilled work rather than redesigning semi-skilled roles to enhance value creation and autonomy. She noted that meaningful transformation requires moving beyond basic tool usage towards workflow redesign and distributed decision-making. Ummuhan Bardak added that digital and AI literacy, together with confidence and socio-emotional competences, are essential preconditions for enabling workers to engage with cognitive AI tools, highlighting that entrenched occupational hierarchies continue to influence both expectations about semi-skilled roles and workers' own perceptions of their capabilities.

The third speaker, **Alaa Darwish (Hisham Hijjawi Technical College, Palestine)** argued that AI is not replacing skilled technical workers but fundamentally redesigning their roles. Drawing on examples from automotive, electrical, industrial maintenance and Computer Numerical Control (CNC) occupations, he explained that technicians are moving from purely mechanical, tool-based tasks towards data-driven diagnostics and system-based responsibilities, requiring familiarity with software, predictive maintenance platforms and AI-assisted programming. Rather than de-skilling, he described a process of skill transformation in which occupations become hybrid, combining technical expertise with digital competences. In this context, the real risk is not automation itself but skill obsolescence, particularly where curricula fail to keep pace with rapid technological change.

Focusing on fragile and resource-constrained contexts, Darwish highlighted structural challenges affecting TVET systems, including weak digital infrastructure, funding shortages, limited availability of AI-qualified trainers and curriculum gaps that risk preparing graduates for “yesterday’s technology”. He called for a strategic shift from reactive to anticipatory education models, integrating AI fundamentals into technical programmes, strengthening work-based learning and public–private partnerships, and prioritising continuous trainer upskilling. Presenting practical steps taken at Hisham Hijjawi Technical College—such as integrating Electric Vehicles (EV) diagnostics, advancing CNC fabrication, embedding smart renewable energy systems and participating in EU-funded modernisation initiatives—he concluded that adaptation is not optional but essential, and that successful transformation depends on strategic partnerships and systemic modernisation rather than hardware investment alone.

In the Q&A session, participants asked about employers’ perceptions of AI and the broader labour market implications in the Palestinian context, particularly in light of job losses and economic disruption. Responding to these points, Alaa Darwish explained that private sector companies increasingly view AI-integrated equipment and software as an opportunity but also report an urgent need for technicians with minimum digital literacy and the ability to work with AI-enabled diagnostic systems. He noted that many tools now provide AI-supported fault detection and step-by-step repair guidance, making it essential for graduates to understand how to use these systems effectively. Addressing questions about long-term labour market resilience, he outlined ongoing efforts to update curricula, train instructors locally and internationally, and strengthen partnerships with industry in order to reduce skill mismatches and prepare students for local employment and for emerging digital and platform-based opportunities.

The fourth speaker, **Deniz Hanar (ELT Teacher, Çankaya Borsa İstanbul Tourism Vocational and Technical Anatolian High School, Ankara)** presented a classroom-based case on how AI can be meaningfully integrated into TVET occupations by embedding it directly into authentic vocational tasks rather than treating it as a separate digital skill. Drawing on her experience in the Tourism and Hospitality pathway, she explained that occupations such as hotel receptionists, travel consultants and front-office staff are increasingly shaped by AI-driven systems including automated booking platforms, Customer Relationship Management (CRM) tools and chatbots, requiring learners to work within AI-augmented workflows rather than manual routines. In her classroom, AI is used as a practical learning partner in tasks such as handling customer complaints, drafting professional emails, simulating check-in and check-out procedures and responding to guest feedback, transforming traditional role-plays into dynamic workplace simulations that mirror real service environments.

Hanar emphasised that this approach is particularly powerful for semi-skilled learners with multilingual backgrounds and varying language proficiency levels, as AI functions as a scaffold that lowers participation barriers, reduces language anxiety and strengthens learner autonomy. She highlighted that AI integration is not only technical but pedagogical, with teachers acting as mediators who guide reflection, ensure quality control and address ethical issues such as data privacy and customer trust. Concluding that AI reshapes occupations mainly by changing tasks and workflows rather than eliminating jobs, she argued that embedding AI into everyday classroom practice enhances communication, problem-solving and employability skills, while preparing students for AI-augmented careers in the future tourism and service economy.

In the discussion, participants asked whether the AI-integrated approach described was a school-level initiative or part of a broader national strategy in Türkiye, and invited further reflection on the role of foreign language and transversal skills in AI-supported vocational training. Deniz Hanar explained that

the initiative emerged from an Erasmus+ project inspired by observations during a study visit to the Netherlands, where language barriers highlighted the need for AI-supported communication scaffolding. She described how her school, a leading tourism TVET institution with strong links to high-end hotels and international apprenticeship pathways, integrates AI to strengthen students' confidence, multilingual communication and workplace readiness. The discussion also included a brief exchange with Sahara Sadik, who endorsed the importance of building AI literacy and confidence from an early stage and emphasised the need for learners to actively shape and design AI-supported tools rather than passively adopt them. The session concluded with a shared reflection that AI is more likely to reshape and augment professions than replace them, provided that education systems proactively support adaptation and institutionalisation of new practices.

In her closing remarks, **Cristiana Burzio (ETF)** expressed her appreciation to the speakers, moderators and participants for the inspiring and high-quality exchange. Reflecting on her key takeaways, she recalled the discussion on how earlier waves of digitalisation contributed to job polarisation and the decline of medium-skilled roles, while noting that it remains too early to determine the overall impact of AI on labour markets. At the same time, she highlighted the potential of AI to support semi-skilled occupations and create new pathways for social mobility, and described the “Four I’s for Action”—Imagination, Involvement, Invention and Innovation—as a particularly compelling framework for shaping the future of work and education. She encouraged participants to continue the debate through the Network’s [LinkedIn group](#) and confirmed that all presentations, referenced materials and the webinar recording would be made available on the ETF [Open Space](#), together with an event summary. Finally, she encouraged members to contribute to next webinars, emphasising that the strength of the Network lies in the ideas and engagement of its community .

Resources

All presentations and materials presented at the event can be found at:

<https://openspace.etf.europa.eu/events/integrating-ai-tvet-implications-semi-skilled-occupations-and-jobs-redesign>

[Reimagining jobs, skills and education in the fourth industrial revolution](#)

[Skills empower workers in the AI revolution | CEDEFOP](#)

[Implications of AI for work, employment and social dialogue: Literature review | Eurofound](#)

[Work in the Digital Era: How Technology is Transforming Work and Occupations](#)

[ai-guide-to-jobredesign.pdf](#)

[Transdisciplinary competencies for the future: Bridging the gap between emotional intelligence, digital literacy, inner development goals and employability](#)

[Augmenting Intelligence: Shaping the Future of Work in South-East Asia](#)