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Getting Skills Right

A Skills-First Labour Market

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BETTER POLICIES FOR BETTER LIVES

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Foreword

Labour markets across OECD countries are undergoing profound change. Digitalisation, demographic shifts, the green transition and evolving business models are reshaping job requirements and the nature of work. Employers report persistent talent shortages, even as formal educational attainment continues to rise. At the same time, many adults struggle to have their skills recognised when moving across sectors, regions or learning pathways. Together, these developments have prompted growing attention to skills-first approaches that place demonstrated skills, rather than credentials alone, at the centre of labour market and learning systems.

This report examines why skills-first approaches to hiring, talent management and skills development are becoming essential to improve labour market functioning and productivity. It explores the foundations required to support such approaches, including, among others, the development of a common skills language, the integration of modular and micro-credential learning into education and training systems, the adoption of skills-first human resource practices within firms, and the role of career guidance and recognition of prior learning in linking learning to jobs. By examining emerging practices and policy experiences across countries, this report aims to inform governments, employers, training providers and other stakeholders seeking to embark on, and continue, their skills-first journey. Placing skills at the centre of labour market and adult learning policies is not an end in itself. It is a means to support economic dynamism, resilience, and social mobility in a period of sustained transformation.

This report was drafted by Shizuka Kato, Michele Tuccio and Roland Tusz from the Directorate for Employment, Labour and Social Affairs. The work was led by Michele Tuccio (Senior Economist) and supervised by Glenda Quintini (Head of the Skills and Future Readiness Division). The authors would like to thank all respondents to the OECD Trends in Adult Learning Policy Questionnaire 2025, as well as the Employment, Labour and Social Affairs Committee, for their valuable feedback. They are also grateful to colleagues from the Centre for Skills-First Practices at the Singapore University of Social Sciences-Institute for Adult Learning (SUSS-IAL) for their collaboration in developing the Skills-First Readiness and Adoption Index. Finally, the authors gratefully acknowledge the administrative and editorial support provided by Saoirse Douglas and Natalie Corry.

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Executive summary

Across OECD economies, the currency of the labour market is shifting from traditional credentials alone towards a stronger focus on skills. Formal education and qualifications remain essential foundations for developing and signalling knowledge and skills, but they cannot always capture the full range of skills individuals possess or keep pace with rapidly changing skills demand. This has important implications for labour markets, as firms face talent shortages, while many workers report that their skills are underutilised. As adults increasingly acquire emerging skills through non-formal and informal learning, relying solely on degrees can narrow the talent pool. In a context where tasks evolve quickly and career paths are less linear, complementing qualifications and job titles with more granular information on skills can help identify the specific capabilities needed to increase productivity and drive innovation.

Skills-first approaches have gained traction, in the context of lifelong learning, as a way to better align the skills employers demand with those workers possess. These approaches place demonstrable skills at the centre of hiring, career progression, and training, with credentials reframed as a complementary structure that organises bundles of skills rather than serving as a proxy for competency. What began as experimentation within individual firms is now influencing workforce development systems, education and training policy, and career guidance services. The appeal of skills-first systems is not only practical but grounded in economic reasoning. Educational attainment can be an imperfect signal of productivity, particularly in fast changing environments. More granular information on skills can improve allocative efficiency by reducing information asymmetries between workers and employers. Skills-first approaches also carry distributional implications, as they can widen access to job opportunities for individuals without traditional credentials but with relevant competencies.

The shift towards skills-first labour markets requires a systemic transition rather than a single reform. It rests on two interdependent pillars. The first is skills development, understood as the continuous acquisition and updating of competencies throughout the life course. The second is skills recognition, meaning the capacity to signal, recognise, and value what individuals can do in ways that are fair and portable across contexts. These pillars depend on a broader enabling environment that includes data infrastructure, governance arrangements and cultural mindset to support and sustain skills-first approaches. No country has developed all components into a fully coherent system yet. Progress is uneven, with strengths and gaps distributed differently between skill development systems and skill recognition practices.

A common skills language forms a central component of skills-first approaches, which cannot be scaled without shared definitions of skills and consistent links to occupations, qualifications and learning outcomes. Countries have invested in skill taxonomies using a mix of expert judgement, stakeholder consultation and data-driven methods drawing on online job vacancies and leveraging artificial intelligence (AI). The United Kingdom's Standard Skills Classification illustrates this approach by combining skill and task statements from multiple sources and linking them to occupations and qualifications, with stakeholders involved throughout to strengthen accuracy. Yet, the fragmentation of skills languages remains pervasive across the OECD. Skills are often embedded unevenly in occupational standards, qualification frameworks and non-formal learning systems, limiting transparency and mobility. Where skills are not consistently

embedded in registries and user-facing platforms, learners struggle to navigate options, employers face higher recruitment costs and training providers lack clear signals of demand. Interoperability remains a central constraint.

Education and training remain largely organised around long programmes completed early in life. Skills-first approaches require re-orienting these systems so that qualifications represent clearly defined bundles of competencies and support learning throughout working lives. Modularisation enables incremental and personalised learning pathways, but only where credit transfer, qualification frameworks and data systems ensure portability and stackability. For instance, in Finland and Sweden, higher education institutions offer modules that can be accumulated towards degrees, supported by legal frameworks. Micro-credentials build on this foundation by providing flexible and timely responses to emerging skill needs. Their value depends on transparent outcomes, robust assessment and integration within recognised quality assurance frameworks. For example, in New Zealand, micro-credentials are accredited by the New Zealand Qualifications Authority, which reviews programme design and assessment practices. Systematic employer engagement remains essential to ensure relevance, while a shift towards a culture of lifelong learning requires policies that address persistent barriers related to motivation, time and cost through active outreach, flexible delivery, training leave and targeted financing instruments.

Within firms, talent recognition practices are beginning to shift, though progress remains uneven. Recruitment and career progression continue to rely heavily on qualifications and professional experience as proxies for skills. Employers face practical difficulties in assessing skills reliably and at scale, while organisational norms and unconscious biases reinforce established practices. Where skills-first approaches are adopted, they tend to begin with pilot roles and are supported by emerging technologies that enable skill profiling, assessment and workforce planning. Cross-country evidence suggests that removing qualification requirements alone is insufficient to broaden opportunities. Inclusive skills-first hiring requires deliberate measures to address bias and create alternative entry routes that allow candidates of all backgrounds to demonstrate competence. Public authorities can support wider adoption, with particular attention to SMEs. For example, Japan has set out career progression pathways for several occupations, specifying the skills and proficiency levels required at each stage, while the United States has developed a practical toolkit to help employers navigate and implement skills-first practices.

Connecting the worlds of learning and work is essential to making skills-first systems function. Career guidance can help individuals interpret labour market trends through a skills lens and translate them into informed learning choices. Skills passports are also gaining ground. France and Singapore, for example, offer skills passports that combine administrative data on employment and training with skills information, enabling individuals to share verified records with employers, career counsellors and training providers. During the transition to a skills-first economy, recognition of prior learning remains important, particularly for mobility and progression in regulated professions, as it translates demonstrated skills into credentials. Ultimately, the effectiveness of skills-first approaches depends on sustained collaboration among governments, employers, training providers and social partners. Germany’s National Continuing Education Strategy provides one example of institutionalised multi-stakeholder co-ordination by bringing together federal ministries, regional authorities, employers, trade unions and the public employment service to define shared priorities and align them with funding measures.

1 Positioning skills as the new currency of work

This chapter traces the emergence and evolution of skills-first practices. It documents the global trends accelerating the transition towards skills-first approaches, and outlines the economic rationale underpinning the shift, with particular attention to efficiency and equity. Building on this analysis, the chapter proposes a novel and comprehensive definition of the skills-first paradigm that extends beyond recruitment to encompass learning systems, skills recognition and enabling institutional conditions. Finally, it presents the Skills-First Readiness and Adoption Index, a new composite measure designed to assess the extent to which countries are prepared for, and actively implementing, skills-first approaches.

In Brief

Labour markets are shifting from credentials to skills

- Labour markets have traditionally been organised around formal qualifications, which are increasingly ill-suited to fast-changing economic conditions. Over the past decade, skills-first approaches have emerged, initially in firm-level hiring and later extending to broader human resource practices and lifelong learning. Firms are restructuring internal labour markets around skills, while education and training providers are expanding modular and flexible learning pathways.
- Skills-first approaches are gaining importance as employers face persistent hiring difficulties alongside widespread skills underutilisation. In 2025, more than eight in ten employers in several countries, including Japan and Germany, reported problems finding suitably skilled candidates, while more than one in three workers on average across participating countries indicated that their skills are not fully aligned with their jobs, with even higher shares in countries such as the United States and Canada. These challenges are expected to intensify as skill requirements evolve more rapidly.
- The shift towards skills-first approaches is also justified by economic theory. Educational attainment is an imperfect proxy for skills, weakening labour market signalling and contributing to mismatches. A focus on demonstrated skills provides more precise information on capabilities, improving allocative efficiency. They also have distributional benefits, by expanding access to opportunities for groups historically disadvantaged by credential-based systems.
- This chapter proposes a holistic definition of skills-first approaches that extends beyond recruitment. Skills-first systems prioritise demonstrated skills in hiring, training and career progression, with qualifications serving as complementary rather than gatekeeping signals. Skills-first systems rest on two core pillars – skills development and skills recognition – supported by a broader enabling environment including policies, infrastructure, and data systems.
- To assess progress, the chapter introduces the Skills-First Readiness and Adoption Index, aggregating 25 indicators across learning ecosystems, talent recognition and enabling conditions. While no country leads across all dimensions, several emerge as frontrunners overall, notably Australia, Sweden, France and the United Kingdom, which combine relatively strong skills-focussed learning systems with more advanced mechanisms for recognising skills and supportive institutional environments.

Introduction

The global labour market is undergoing a structural realignment shaped by technological change, demographic trends, evolving employment relations, and the transition to low-carbon economies. These transformations are reconfiguring the demand for labour, increasing the value placed on adaptability, and requiring workers to redeploy and update their skill sets more frequently. Existing workforce development systems, however, remain predominantly oriented around formal qualifications and credential hierarchies (Gog, Sung and Sigelman, 2025[1]). This institutional legacy – designed for times of structural

stability – constrains labour market responsiveness and limits the capacity to address emerging skill shortages in a timely manner.

Since the early 2010s, reform efforts have sought to integrate skills more explicitly into labour market and lifelong learning policy and practice, yet implementation has been uneven. Many economies have adopted hybrid systems that embed competency frameworks and recognition of prior learning mechanisms within qualification structures. While these initiatives have improved transparency in some sectors, their impact has been somewhat limited. Persistent skill mismatches on the one hand and talent shortages on the other continue to weaken labour productivity and job quality. According to recent international assessments, these inefficiencies affect a substantial share of the global workforce (OECD, 2024[2]), reinforcing the need to place skills – rather than credentials – at the centre of employment and adult learning policy design.

The emerging "skills-first" paradigm proposes a reorientation of how human capital is developed, validated, and utilised in the labour market. It positions demonstrated skills as the primary indicators of capability, with formal qualifications functioning as complementary rather than gatekeeping signals. Realising such an approach requires the development of robust methods for skill identification and assessment, interoperable systems for recognition and transfer, and sustained collaboration between employers, education and training providers, and public authorities to ensure the credibility and consistency of skill signals. It also entails examining employers' readiness to adopt skills-first workforce practices and the distributional implications for workers across socio-economic groups.

A brief history of skills-first practices

As there is no universally accepted definition of the "skills-first" paradigm, it is useful to define its contours by situating it within existing frameworks for identifying workers' abilities. Gog, Sung and Sigelman (2025[1]) distinguish two established models that pre-date the emergence of skills-first approaches. The first, qualification-centric systems – dominant until the early 21st century – treat (formal) educational attainment as the primary indicator of employability. The second, skills-based hybrid systems – which gained prominence in the 2000s – incorporate competency frameworks and recognition of prior learning but continue to rely on formal credentials as the main signal of capability. Both models have proven increasingly inadequate in responding to the rapidly changing nature of work. Over the past decade, and particularly in the aftermath of the COVID-19 pandemic, employers have reported persistent challenges in filling vacancies (OECD, 2025[3]). These shortages have been amplified by structural changes in labour demand associated with advances in AI (Acemoglu et al., 2022[4]) and the acceleration of the green transition (Popp et al., 2024[5]). The rapid emergence of entirely new occupations – such as those linked to generative AI – and changing skill needs within occupations have expanded the range of skills required in the economy. As education systems are slow to adjust and degrees take several years to complete, governments have invested in non-formal training to provide adults with emerging skills.

In response, a number of firms have begun to adjust their recruitment strategies by removing degree requirements in job vacancies or by matching workers to roles based on their skills rather than credentials. This trend has been most visible among large multinational enterprises with mature human resource functions. By relaxing or removing qualification requirements in a large number of positions, these firms have widened their potential talent pools and accessed previously under-utilised groups. For instance, the United States branch of IBM began adopting a skills-first approach to hiring more than a decade ago to address shortages of technology professionals. Whereas most positions once required a college degree, more than half of IBM's current postings in the United States no longer do, and approximately one-fifth of its American hires now do not hold a college qualification (OECD, 2024[6]). This shift has increased applications from under-represented groups by around 63%.

The emphasis on skills has gradually extended beyond recruitment into wider human resource and organisational practices. Companies are redesigning internal labour markets to support career progression

and lifelong learning based on skills visibility. A notable example is Unilever's U-Work internal talent marketplace, which enables employees to move flexibly between projects and tasks (Unilever and Wired Consulting, n.d.[7]). The company increasingly organises work around projects, deliverables, and required skills, rather than fixed job titles. To further support skills development, each employee develops a personalised "Future Fit Plan", a skills development framework linking individual learning pathways to organisational priorities and future skill needs.

In parallel with developments in the private sector, public administrations have also begun re-evaluating the link between hiring practices and formal educational credentials. In the United States, a growing number of states have moved to reform degree requirements in public employment. Since Maryland's announcement in early 2022, 25 states have introduced measures – through executive action or legislation – to eliminate unnecessary degree prerequisites from state government job postings (Heck et al., 2024[8]). Initial results indicate measurable improvements in recruitment outcomes. The Delaware Department of Human Resources, for example, reviewed qualification criteria in hundreds of public service positions. In the case of Family Service Specialist roles, bachelor's degree requirements were replaced with relevant work experience. Following this change, the number of applicants increased by 575% (National Governors Association and Lightcast, 2025[9]). Some states have extended these reforms beyond the removal of degree requirements to develop comprehensive, skills-based hiring frameworks (Peterson, Douglas and Noy, 2024[10]). Arizona, for instance, established a cross-functional team tasked with streamlining job analysis processes, creating standardised job templates and descriptions, and providing training on the principles of skills-first approaches for hiring managers and human resource staff (National Governors Association, 2025[11]).

Reflecting the fact that most applications of skills-first approaches have emerged organically among private or public sector employers, academic research has until recently focused exclusively on hiring practices. Drawing on 34 interviews with senior human resource leaders in multinational enterprises, Jooss et al. (2023[12]) show that adopting a skills-matching approach can enhance strategic agility. Moving from rigid job hierarchies towards more flexible, skill-oriented structures allows firms to deploy talent more effectively, particularly when emphasis is placed on skills with high strategic relevance and strong transferability across functions. Collings and McMackin (2025[13]) similarly argue that, although skills-first human resource management remains at an early stage, it constitutes a promising alternative for organisations facing volatile business conditions and heightened uncertainty.

Beyond the analysis of the (theoretical) links between skills-first hiring and agile talent management, a small body of academic research has sought to quantify the extent of this shift. Brown and Souto-Otero (2020[14]) analyse data from 21 million online job postings in the United Kingdom between 2012 and 2014 and find that employers prioritise "job readiness" over formal qualifications, with fewer than one in five vacancies specifying a minimum educational requirement. More recent evidence points to similar patterns in emerging occupational domains. Bone, González Ehlinger and Stephany (2025[15]) also exploit online job vacancy data in the United Kingdom to examine whether employers requiring novel skills (such as those linked to AI) adopt skills-first recruitment strategies to broaden their potential talent pool. They find that, between 2018 and 2023, demand for AI-related roles grew by 21% as a share of total postings, while mentions of university degree requirements for these roles declined by 15%.

In 2022, LinkedIn reported that 40% of recruiters used skills data to fill open roles on their platform, representing a 20% increase compared to the previous year (LinkedIn, 2022[16]). The platform also found that recruiters leveraging skills data were 60% more likely to achieve a successful hire than those relying primarily on traditional credentials. By 2023, LinkedIn estimated that approximately 19% of online job postings in the United States no longer required a university degree, up from 15% in 2021 (LinkedIn, 2023[17]). Comparable evidence is provided by the Burning Glass Institute, which examined 51 million job postings in the United States between 2017 and 2020 and documented a significant "degree reset" (Fuller et al., 2022[18]). During periods of constrained labour supply, employers reduced degree requirements for

46% of middle-skill roles and 31% of high-skill roles, with the most notable changes observed in IT and managerial occupations. This trend expanded during the COVID-19 pandemic, when the share of job postings for intensive-care and critical-care nurses requiring a degree declined from 35% in 2019 to 23% in 2020. Drawing on more recent online job vacancies data, the Institute reports an almost fourfold increase in the number of roles from which employers removed degree requirements in the United States between 2014 and 2023 (Sigelman, Fuller and Martin, 2024[19]).

From the education and training perspective, there has also been a marked evolution towards a more skills-oriented paradigm. This transformation is taking place along several interrelated dimensions. First, governments are reforming qualification and certification frameworks to place skills at the centre of education systems. Many countries are strengthening mechanisms for the recognition of prior learning (RPL) to make informal and non-formal learning more visible and portable across sectors (Meghnagi and Tuccio, 2022[20]; OECD, 2023[21]). National qualification frameworks and registries are increasingly being aligned with explicit skill descriptors, codifying qualifications in terms of the competencies and proficiency levels they certify (Voorhees, 2001[22]; OECD, 2024[23]). This shift improves the transparency and comparability of qualifications, facilitates international recognition, and allows employers to interpret the skill content of educational credentials more accurately.

Education and training providers are also diversifying learning pathways by introducing more flexible and modular forms of provision (Siddiqi, 2024[24]). Universities, vocational institutions, and private training providers are expanding their offer of short courses and micro-credentials that target specific, well-defined skills (Kato, Galán-Muros and Weko, 2020[25]). These programmes are designed to respond quickly to changing labour market needs and to allow learners to build skills incrementally over time. The growing interoperability of micro-credentials within national qualification systems also enables individuals to combine multiple short learning experiences into recognised qualifications, supporting lifelong learning and employability across the life course.

In addition, pedagogical models are increasingly integrating experiential and applied learning (Deming et al., 2023[26]). Curricula are shifting from theory-centred teaching towards learning approaches that emphasise practice, problem-solving, and real-world application. Apprenticeships, work-based learning, project-based assignments, and simulation-based training are becoming more prevalent across both vocational and higher education, and in adult learning. These approaches strengthen the connection between learning and work, helping learners develop both technical and transversal skills such as teamwork, adaptability, and critical thinking. Finally, the digital transformation is amplifying the reach and personalisation of skills-based learning (Holmes et al., 2018[27]; Laak and Aru, 2025[28]). The use of online learning platforms, open educational resources, and AI – supported learning analytics allows providers to tailor instruction to individual skill gaps and learning preferences. Digital badges and blockchain-enabled credentialing are also emerging as tools to document and share verified skills in real time, creating closer alignment between educational outcomes and labour market demand (Pritchard and Maury, 2025[29]).

Overall, these developments in the lifelong learning sphere mark a gradual but significant reorientation of education and training systems. The emphasis is shifting from the acquisition of formal credentials towards the development, validation, and continued updating of skills that are measurable, portable, and relevant to evolving economic and technological contexts.

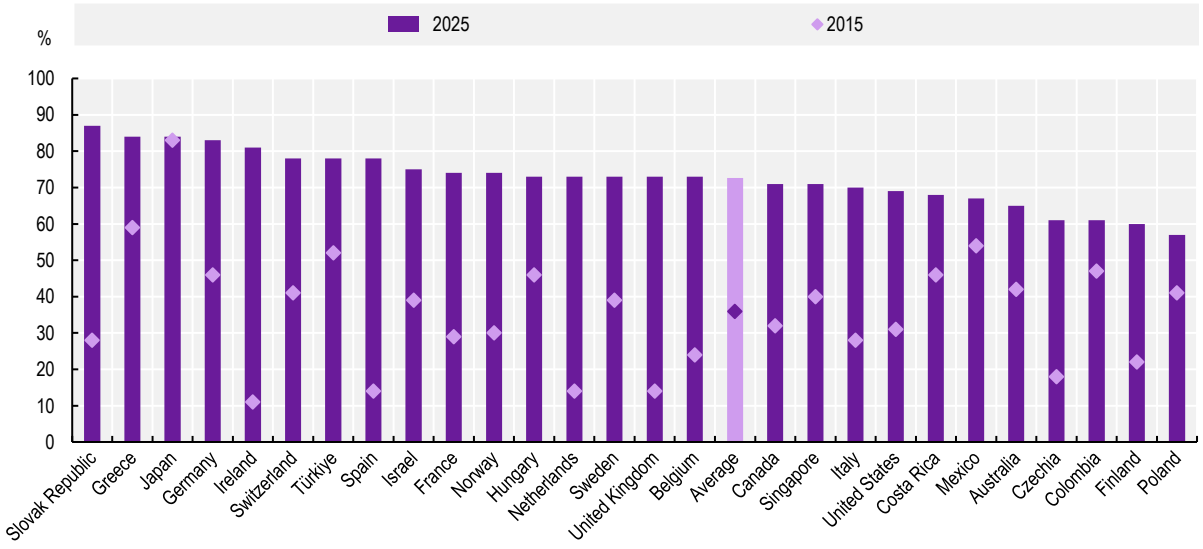
Global trends driving the transition towards skills-first approaches

Why are skills-first approaches becoming increasingly important in today's economies? Across OECD labour markets, employers are finding it harder to recruit workers with the right skills, while at the same time, many individuals are employed in roles that do not fully utilise their capabilities. This dual imbalance – simultaneous talent shortages and skills underutilisation – lies at the heart of the growing momentum behind skills-first strategies. As shown in Figure 1.1, the share of employers reporting difficulties in filling

vacancies due to a lack of skilled talent has risen markedly over the last decade in all OECD countries (except Japan where it remained relatively stable). In 2025, more than 8 employers out of 10 in the Slovak Republic, Greece, Japan, Germany and Ireland indicated problems finding suitably skilled candidates, up from already high levels in 2015. These widespread recruitment challenges suggest that traditional qualification-based hiring practices may no longer provide an accurate or timely measure of workers' actual capabilities. As job profiles evolve faster than curricula and credentialing frameworks, firms increasingly face a misalignment between what qualifications signal and what jobs require.

Figure 1.1. Employer-reported hiring difficulties over the last decade

Percentage of employers reporting difficulty filling jobs due to a lack of skilled talent, 2015 and 2025

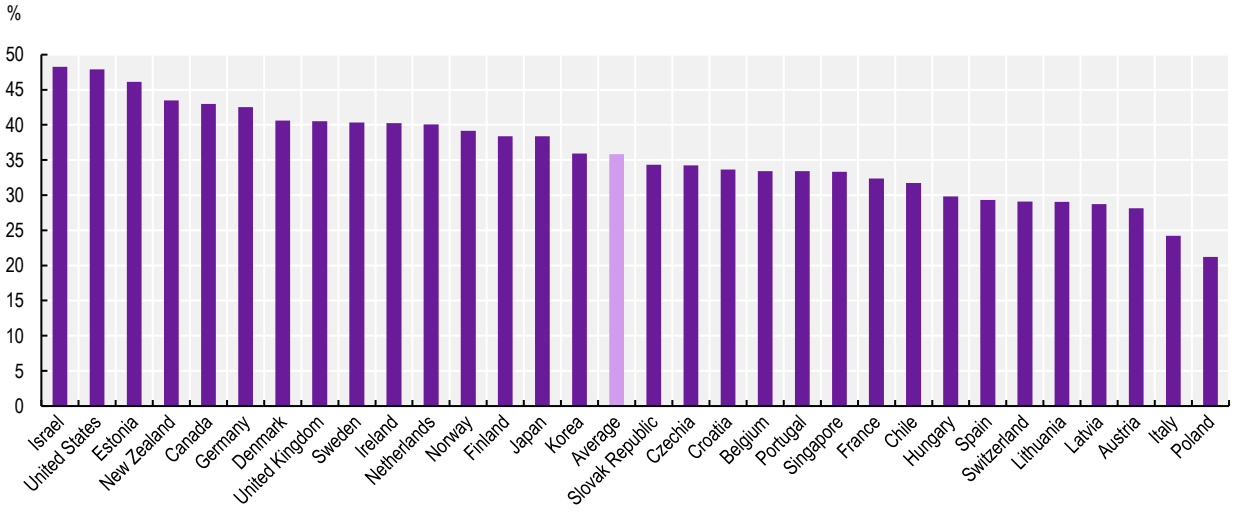


Note: For OECD countries, only those with values for both 2015 and 2025 are shown.
Source: ManpowerGroup (2015[30]; 2026[31]).

At the same time, large shares of workers report being either over-skilled or under-skilled relative to the requirements of their jobs (Figure 1.2). According to the 2023 Survey of Adult Skills, over 40% of workers in several countries – including the United States, Canada, and Germany – experience some form of skills mismatch.[1] On average across participating countries, more than one in three workers (36%) report that their skills are not fully aligned with their roles. This persistent mismatch reflects inefficiencies in how skills are developed, identified and deployed. It implies that while employers face shortages in specific skill domains, significant untapped potential exists among workers whose abilities are underused or misallocated. A skills-first approach aims to bridge this disconnect by shifting the focus from formal credentials to demonstrable competencies, thereby improving both job matching and productivity outcomes.

Figure 1.2. Prevalence of skills mismatch

Percentage of workers reporting their skills to be either higher or lower than what is required by their job, 2023

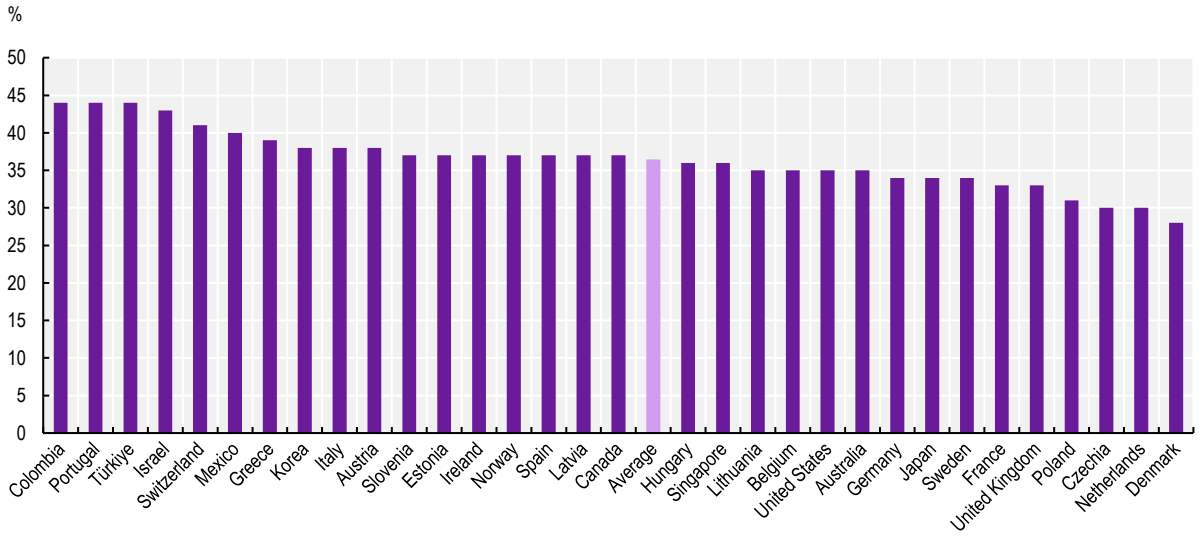


Note: The figure covers employed adults aged 25-65 who are not self-employed. Data are shown for economies that participated in Cycle 2 of PIAAC. Caution is required in interpreting results for Poland due to the high share of respondents with unusual response patterns – see note for Poland in the Reader's Companion (OECD, 2024[32]). For consistency, the country name is reported for Belgium and the United Kingdom, even if PIAAC is conducted only at the subnational level – namely in the Flemish region and in England, respectively.
Source: 2023 OECD Survey of Adult Skills (PIAAC).

While skills mismatches and hiring difficulties already pose serious challenges, the evidence suggests that the pace of change in skill requirements is set to accelerate further. As shown in Figure 1.3, employers across OECD countries anticipate substantial disruption to the skill composition of their workforces in the coming years. On average, they expect that around 30-40% of core skills required today will change by 2030. This implies that a majority of workers will need to acquire new or updated skills within a relatively short timeframe to remain productive and employable. While the scale of anticipated disruption varies across countries, the expectation of change is universal. In economies such as Colombia, Portugal, and Türkiye, more than 40% of current core skills are projected to evolve by 2030, reflecting both the speed of technological innovation and the transformation of work processes. Even in countries where the rate of change is slightly lower, such as Denmark, the Netherlands or the Czech Republic (Czechia), employers still expect nearly a third of core skills to shift. These figures underline the systemic nature of the challenge: the expected change in the relative importance of skills is not confined to a few advanced sectors but spans most occupations and industries.

Figure 1.3. Anticipated core skills disruption

Average share of core skills required for workforce that employers expect to change in the next five years, 2025



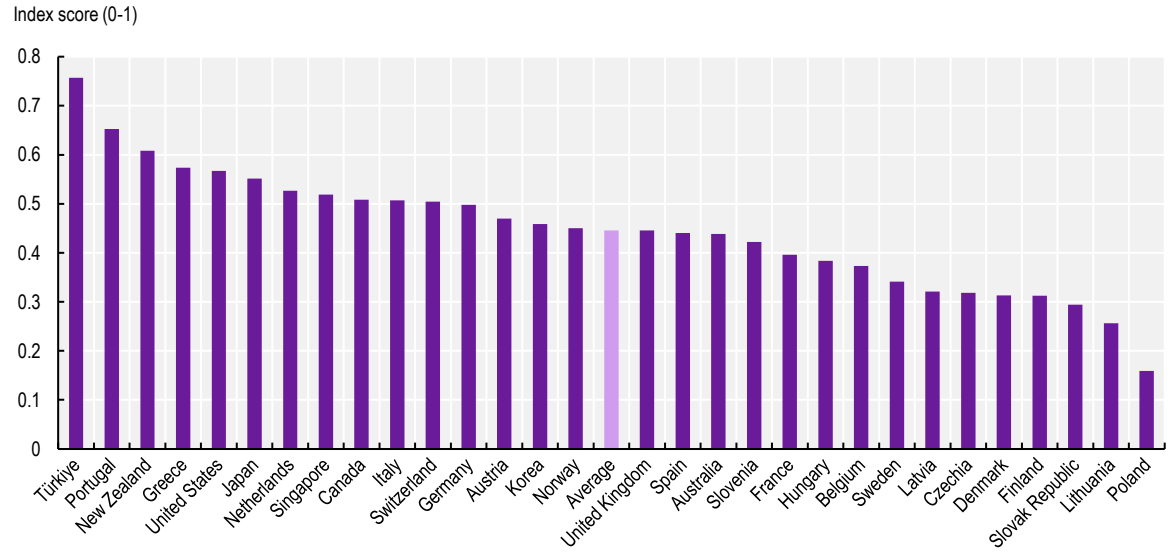
Note: OECD countries with available data and Singapore are shown.
Source: World Economic Forum (2025[33]), *The Future of Jobs Report 2025*, https://www.weforum.org/publications/the-future-of-jobs-report-2025/.

To identify which countries face the greatest pressures to transition towards a skills-first economy, the OECD/SUSS-IAL (2025[34]) have developed the Labour Market Pressure for Skills-First Approaches Index. This composite, multi-dimensional index measures structural characteristics of national labour markets that intensify the need to adopt skills-first approaches. Factors such as persistent talent shortages, biased hiring practices, limited workforce diversity, skills mismatches, and the rapid evolution of skill requirements all contribute to greater pressure for reform – see Box 1.1 for a description of the data and methodology of the Index.

Urgency to adopt skills-first approaches varies substantially across countries (Figure 1.4). Türkiye, Portugal, and New Zealand face the highest levels of labour market pressure, indicating significant room for skills-first policies to address talent shortages and structural mismatches. Conversely, countries such as Poland, Lithuania, and the Slovak Republic show lower composite scores, suggesting comparatively less acute short-term pressure – though these economies may still benefit from adopting skills-first practices to strengthen resilience and inclusiveness over time. Overall, the index underscores that while all economies face some degree of pressure to shift towards a skills-first orientation, the nature of that pressure differs. In some contexts, it stems primarily from tight labour markets and unmet skill demand; in others, from the need to enhance mobility, diversity, or adaptability within the workforce. These findings point to the importance of tailoring national strategies to local labour market conditions, ensuring that skills-first reforms are targeted, feasible, and aligned with broader economic transformation goals.

Figure 1.4. Labour market pressure to move towards skills-first approaches

Labour Market Pressure for Skills-First Approaches Index (scale 0-1), 2025



Note: Refer to OECD/SUSS-IAL (2025[34]) for a detailed description of the methodology to construct the composite index. OECD countries with available data and Singapore are shown.
Source: OECD/SUSS-IAL Skills-First Readiness and Adoption Index, available at: https://www.oecd.org/en/data/dashboards/skills-first-readiness-and-adoption-index.html.

Box 1.1. The construction of the Labour Market Pressure for Skills-First Approaches Index

The Labour Market Pressure for Skills-First Approaches Index developed by OECD/SUSS-IAL (2025[34]) aggregates nine variables across four dimensions (Table 1.1). After normalising and aggregating these indicators using equal weights, the resulting index highlights where the pressures – and potential benefits – of adopting skills-first strategies are greatest. A higher index score reflects stronger structural incentives to transition, whereas lower scores suggest less immediate pressure, though not necessarily less relevance for long-term competitiveness. See OECD/SUSS-IAL (2025[34]) for a precise description of how the composite index is constructed.

Table 1.1. Variables included in the Labour Market Pressure for Skills-First Approaches Index

Dimension	Indicator	Source
Talent shortages	Labour market tightness	OECD Employment Outlook 2025
	Employer-reported hiring difficulties	ManpowerGroup's 2025 Talent Shortage Survey
Lack of workplace diversity	Gender disparities in skills allocation across occupations	PIAAC
	Age concentration in occupations	PIAAC
Worker mobility pressure	Prevalence of skills mismatch	PIAAC
	Job dissatisfaction	PIAAC
	Voluntary job exits due to skills mismatch	PIAAC
Urgency for reskilling and upskilling	Anticipated core skills disruption	WEF Future of Jobs Report 2025
	Frequency of learning new things at work	PIAAC

Source: OECD/SUSS-IAL (2025[34]), "Skills-First Readiness and Adoption Index: Methodological Note", https://www.oecd.org/content/dam/oecd/en/data/dashboards/skills-first-readiness-and-adoption-index/OECD%20SUSS-IAL%20(2025)%20Skills-First%20Readiness%20and%20Adoption%20Index%20Methodological%20Note.pdf.

The economic rationale for prioritising skills

The shift towards skills-first approaches is not only a response to visible labour market pressures, but it is also grounded in its potential returns. Yet, the economic rationale of skills-first approaches remains underexplored. This section offers an initial examination of the links of skills-first approaches to established strands of the economic literature, including human capital and matching models. However, further analytical and empirical work is needed to assess more rigorously the magnitude of the efficiency and distributional effects associated with a transition towards skills-first systems.

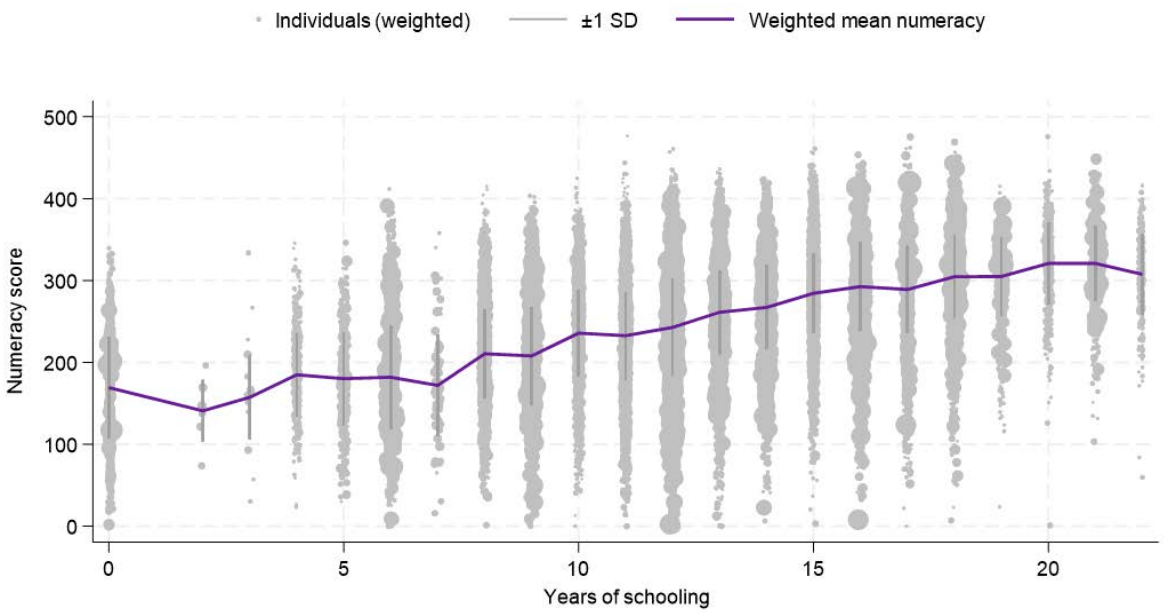
The economic rationale for prioritising skills rests on a refinement of how human capital is conceptualised and measured. Classical human capital theory (Mincer, 1958[35]; Becker, 1962[36]) establishes a link between individuals' accumulated knowledge and abilities and their productivity, which in turn determines earnings and economic growth. In empirical applications, however, human capital has traditionally been proxied by educational attainment or years of schooling, due to the limited availability of direct skill measures. While these proxies are correlated with skill proficiency, they are imperfect and increasingly insufficient in explaining productivity differences across workers, firms, and countries. From a theoretical point of view, skills represent the true operational currency of the labour market. They capture the cognitive, technical, and interpersonal competencies that enable individuals to perform tasks effectively.[2] Formal education remains a key channel for skill acquisition, but it is not the only one. Skills are also developed and updated through informal learning, work and life experience, on-the-job training, and individual capacity for adaptation. Because traditional credentials do not fully reflect these broader processes of human capital formation, they risk both underestimating and misrepresenting the productive potential of individuals.

Growing empirical evidence reinforces this point. Cross-country assessments such as the Survey of Adult Skills (PIAAC) reveal large differences in skills proficiency among people with the same level of education. Figure 1.5, for example, illustrates this pattern for numeracy. Although years of schooling are positively associated with numeracy proficiency, the dispersion around the trend line is substantial: individuals with the same number of school years often differ markedly in their actual skills. Indeed, only about a fifth of the differences in numeracy scores can be attributed to differences in years of schooling ($R^2 = 0.20$). This does not imply that numeracy scores alone determine productivity at the country level, nor that higher measured proficiency automatically translates into higher output. Aggregate productivity depends not only on the stock of skills, but also on their utilisation and institutional settings (OECD, 2026[37]). Rather, the evidence indicates that education-based indicators capture only a limited share of the heterogeneity in underlying competencies, supporting the case for complementing them with more granular information on skills and knowledge.

The distinction between qualifications and skills affects how well labour markets function. A skills-first labour market can reduce information frictions and improve matching efficiency, raising productivity at both the firm and economy-wide level. In fact, traditional hiring systems rely heavily on credentials as a proxy for capability, but degrees provide only a coarse signal of what workers can actually do. This coarse signalling weakens job matching and contributes to structural unemployment, even when significant numbers of vacancies remain unfilled. A skills-first approach offers a more precise mechanism for aligning labour supply and demand, thereby creating measurable economic gains.

Search frictions are a defining feature of modern labour markets. In standard search-and-matching frameworks – such as the Mortensen-Pissarides model (Mortensen and Pissarides, 1994[38]) – employment outcomes depend on the efficiency with which unemployed workers and vacancies are paired. Matching efficiency reflects how effectively the labour market brings together suitable workers and available jobs, given the information available to both sides. High matching efficiency implies rapid and accurate pairings. Low efficiency reflects delays, misallocations and costly hiring processes.

Figure 1.5. Numeracy proficiency by years of schooling



Note: The figure covers all adults aged 16 to 65 currently not studying for formal qualifications. It aggregates the 31 economies participating in Cycle 2 of PIAAC, namely Austria, Belgium (Flemish region), Canada, Chile, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, the Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom (England), the United States.
Source: 2023 OECD Survey of Adult Skills (PIAAC).

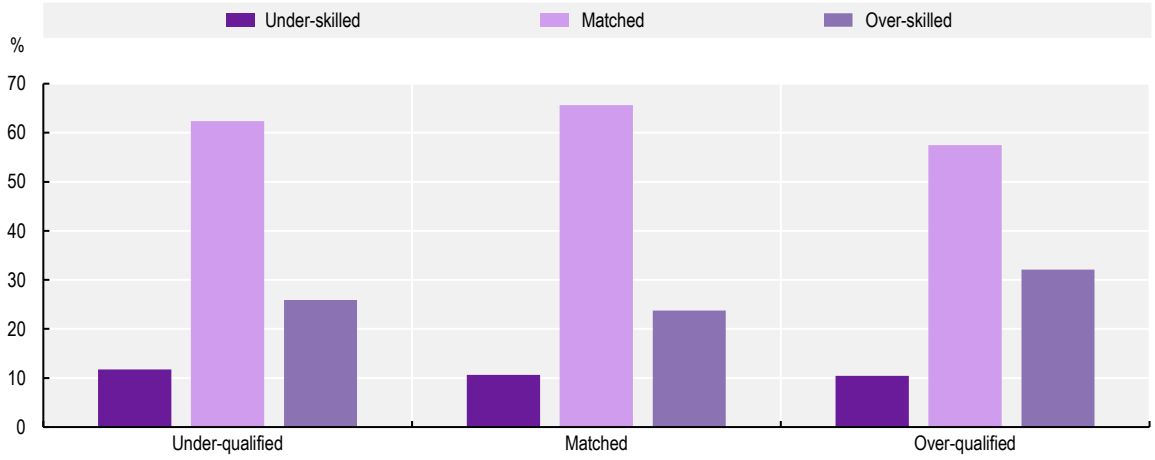
Under traditional, credential-based systems, employers observe educational attainment but have only limited information about a candidate's actual skills, proficiency level, or potential fit. Workers, in turn, often lack full visibility into the skill requirements of available jobs. These asymmetries create skills mismatches, persistent vacancies, and inefficient job mobility. As a result, matching efficiency is reduced, and overall labour market performance is weakened. Indeed, Figure 1.6 shows that qualifications often do not map neatly onto actual skill requirements in jobs. Many adults classified as under-qualified based on their credentials are in fact well-matched or even over-skilled for the tasks they perform, suggesting that their formal qualifications underestimate their real capabilities.[3] Among those whose qualifications formally match their job level, a sizeable share – around one-third – still exhibit a skill mismatch. Even among the over-qualified, a non-trivial minority lack the skills needed for their roles. These patterns reveal that credentials alone cannot reliably signal productive capacity.[4]

The economic costs of skill mismatch are substantial. When workers possess more skills than their job requires (over-skilling) or fewer (under-skilling), productivity losses occur through misallocation of talent, lower engagement, and weaker firm performance. Empirical studies consistently show that mismatched workers earn lower wages and contribute less to firm productivity (Badillo-Amador and Vila, 2013[39]; Fanti, Guarascio and Tubiana, 2021[40]). At the macro level, high mismatch rates are associated with weaker aggregate productivity growth and slower diffusion of new technologies (McGowan and Andrews, 2017[41]; Sekmokas et al., 2020[42]).

A skills-first system has the potential to strengthen the matching function by enabling employers to observe a richer and more granular set of information – such as demonstrated skills, validated assessments, and detailed skill profiles – rather than relying solely on degrees. When matching decisions are made on the basis of the overlap between a job's skill requirements and a candidate's observed skill bundle, quality of

matches can improve. From an efficiency standpoint, this enables better matching between people and jobs, more accurate identification of skill gaps, and more effective workforce planning as technologies and organisational needs evolve. Workers can more easily transition between occupations that share similar skill needs, and employers can identify non-traditional but productive candidates who might be excluded under credential-based screening.[5]

Figure 1.6. Skills mismatch by qualification mismatch



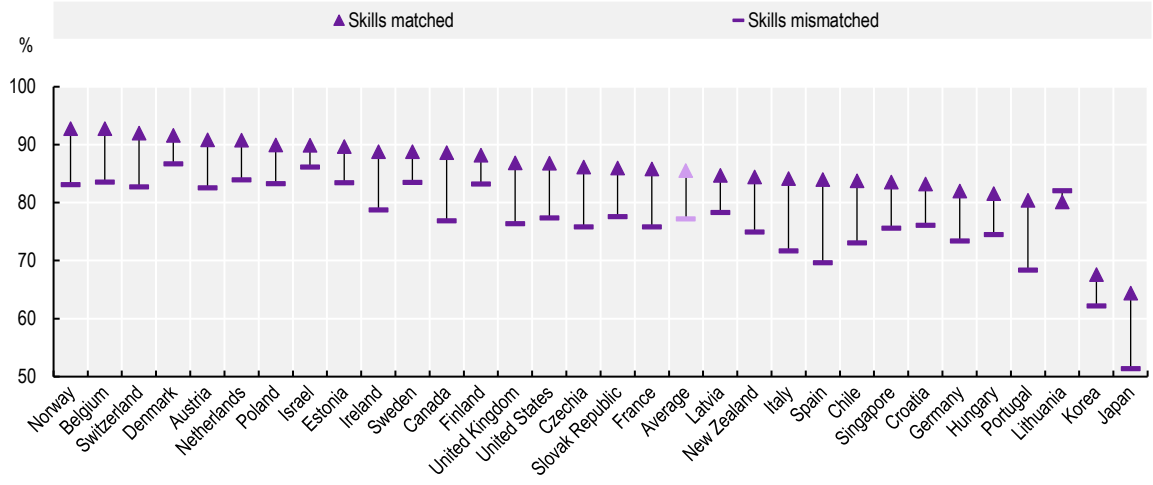
Note: The figure covers all adults aged 16 to 65 currently not studying for formal qualifications. It aggregates the 31 economies participating in Cycle 2 of PIAAC, namely Austria, Belgium (Flemish region), Canada, Chile, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, the Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom (England), the United States.
Source: 2023 OECD Survey of Adult Skills (PIAAC).

Evidence from employers supports this theoretical rationale. Novel surveys and large-scale analytics demonstrate that organisations adopting skills-first practices outperform those relying primarily on credential-based screening. A Deloitte survey of more than 1 000 workers and over 200 business and HR executives across 10 countries found that organisations embracing skills-based practices[6] are 63% more likely to achieve stronger performance outcomes – including meeting financial targets, innovating, and delivering high customer satisfaction – than those relying primarily on traditional credentials (Jones et al., 2022[43]). Similarly, a 2025 TestGorilla survey of over 1 000 employers in the United Kingdom and the United States reports that hiring holistically – i.e. considering the "whole candidate", including their skills, personality, and cultural alignment in recruitment decisions – improves the performance of the organisation, with 50% saying that it also increases retention (TestGorilla, 2025[44]). Big-data evidence from the United States further confirms this pattern: when employers drop degree requirements, non-degreed candidates hired into those roles exhibit substantially higher two-year retention rates – around 10 percentage points (p.p.) higher – than their degree-holding peers (Sigelman, Fuller and Martin, 2024[19]).

Beyond productivity gains and gains from lower turnover, skills-first approaches also contribute to better job quality and worker well-being by ensuring a closer alignment between individuals' skills and the roles they perform. When workers fully deploy their skills, they tend to experience greater autonomy, stronger intrinsic motivation, and higher levels of job satisfaction (OECD, 2026[37]). Evidence from the Survey of Adult Skills illustrates this pattern across OECD countries: as shown in Figure 1.7, the predicted probability of being satisfied at work is systematically higher for workers whose skills are well matched to their jobs. In many countries, the gap exceeds 10 p.p., and in some – such as Italy, Spain and Portugal – the difference is considerably larger. These patterns remain robust even after controlling for demographic

characteristics, education, occupation, industry, and wages, underscoring the central role that skills alignment plays in shaping job satisfaction.

Figure 1.7. Job satisfaction and skills mismatch



Note: The figure covers working adults aged 16 to 65 who are not self-employed and are not currently studying for a formal qualification. It displays the predicted probability of being satisfied at work (job satisfaction equal to 4 and 5 in a 1-5 scale), based on a weighted regression model. Coefficients are adjusted for gender, age, age squared, immigration background, whether one lives with a partner or has children, educational attainment, literacy proficiency, occupation, industry, firm size, permanent contract, and hourly wages. All coefficients are statistically significant (at the 1% significance level). Data are shown for economies that participated in Cycle 2 of PIAAC. For consistency, the country name is reported for Belgium and the United Kingdom, even if the Survey of Adult Skills is conducted only at the subnational level – namely in the Flemish region and in England, respectively.
Source: 2023 OECD Survey of Adult Skills (PIAAC).

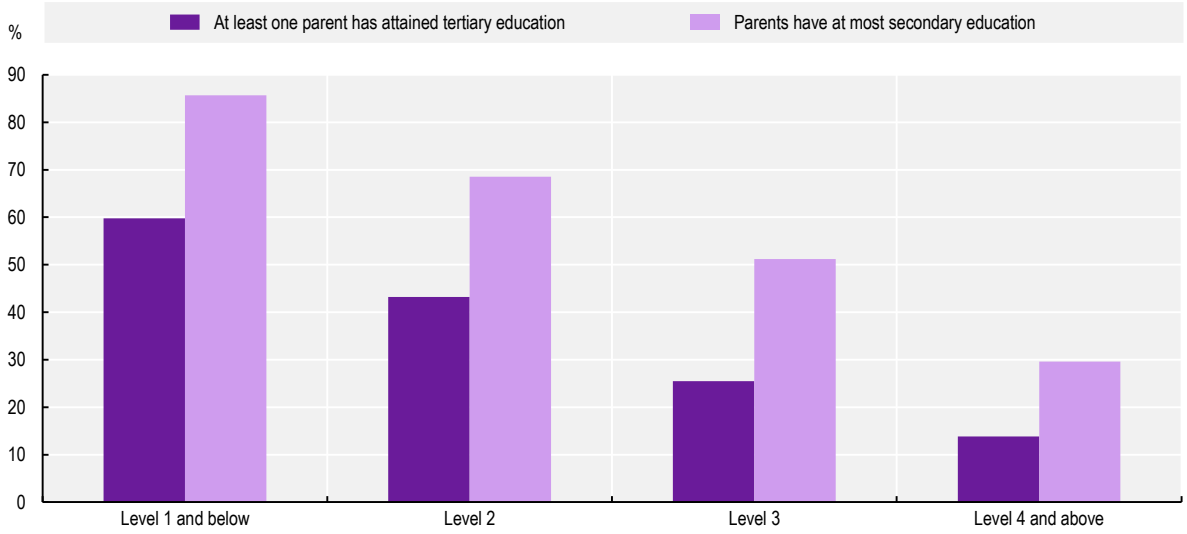
Skills-first approaches also carry significant distributional implications. Credential-based systems tend to disadvantage groups with historically limited access to formal education, including individuals from low-income backgrounds. These groups frequently develop skills through work experience, informal learning, or community and family roles, and some migrants may hold qualifications that are not recognised in the host country but have relevant skills. Yet such skills often remain undervalued because they are not captured by traditional qualifications.

Figure 1.8 illustrates this structural disadvantage by showing the share of adults without tertiary degrees across different levels of numeracy proficiency and parental educational attainment. A well-established pattern emerges. Adults whose parents lack tertiary education are themselves substantially more likely to have no tertiary qualification. However, the figure also highlights a more novel and policy-relevant insight: even among individuals with high numeracy proficiency (Level 4 and above), those from non-graduate families remain disproportionately likely to have no tertiary degree compared with their peers from graduate families. In relative terms, the parental education gap is widest at the top of the skills distribution. This suggests that formal credentials are not consistently aligned with individuals' actual skill levels and that socio-economic background continues to shape labour market trajectories – even for the highly skilled.

These findings underscore the extent to which reliance on degrees alone can obscure talent and perpetuate inequalities. Skills-first systems help mitigate these barriers by recognising skills irrespective of where or how they were acquired. By valuing practical learning, micro-credentials, and task-specific proficiency assessments, they expand labour market opportunities for individuals who may be highly capable but under-represented in traditional qualification pathways. Evidence from LinkedIn (2023[17]) illustrates the scale of this effect: broadening hiring criteria to include workers with relevant skills rather

than formal degrees increased the potential talent pool nearly tenfold. The gains are particularly pronounced for groups facing structural barriers. In occupations where women are under-represented, adopting a skills-first approach expands the share of women in the potential talent pool by 24% more than men. Similarly, the pool of candidates without bachelor's degrees grows, on average, 9% more than for those holding degrees.

Figure 1.8. Share of no degree holders by skills proficiency and parents' educational level



Note: The figure covers all adults aged 25 to 65 currently not studying for formal qualifications. It aggregates the 31 economies participating in Cycle 2 of PIAAC, namely Austria, Belgium (Flemish region), Canada, Chile, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, the Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom (England), the United States. Proficiency levels refer to numeracy.
Source: 2023 OECD Survey of Adult Skills (PIAAC).

The implications for social mobility are substantial. Hiring practices centred primarily on formal degrees reinforce a strong link between socio-economic background and access to high-productivity, high-wage occupations. Because parental educational attainment remains a powerful predictor of an individual's likelihood of obtaining a degree, credential-based systems risk entrenching intergenerational inequalities. Skills-first approaches weaken this transmission mechanism by creating alternative, skills-validated pathways into well-paid roles. In doing so, they not only reduce structural barriers but also contribute to more inclusive, merit-based labour markets that better recognise and utilise the full spectrum of available talent.

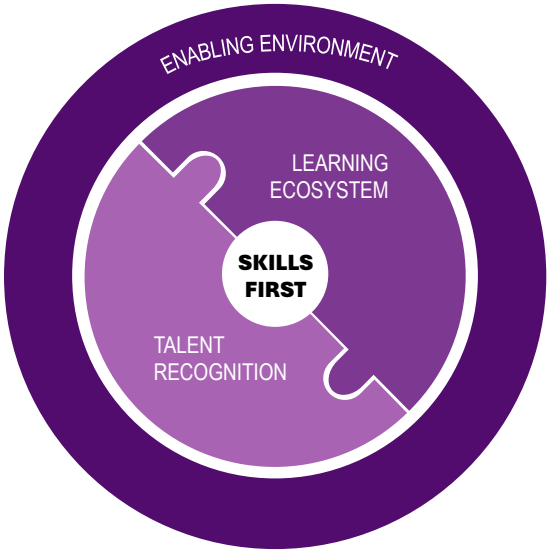
A novel definition of the skills-first paradigm

Much of the existing literature and media commentary continues to portray the skills-first paradigm primarily as a matter of recruitment and internal firm practices. Yet, as the previous sections demonstrate, even where the term "skills-first" is not explicitly used, education and training systems are also evolving towards a more skills-centred orientation. A comprehensive and conceptually robust definition of skills-first approaches must extend beyond the traditional employer-centric perspective that focuses on skills solely at the point of hiring. It should situate skills-first approaches within a broader context that links firm-level demand signals with the systemic processes through which skills are developed, validated, and recognised in education, training, and labour market institutions. Within this expanded framework, skills are understood

not as static attributes to be measured once, but as dynamic capabilities that are continuously shaped, refined, and rewarded through interdependent systems of learning and work.

Drawing on OECD/SUSS-IAL (2025[34]), this report proposes a novel, holistic definition of skills-first approaches. Namely, skills-first approaches prioritise demonstrated skills over formal qualifications and experience in hiring, talent management, and training, positioning skills as the core currency for articulating, developing, and recognising capabilities across the labour market. In these approaches, qualifications serve not as gatekeepers but as supplementary signals, supporting rather than substituting for recognisable skills and proficiency. At the core of skills-first approaches are, therefore, two interlinked components: developing skills ("learning ecosystem") and valuing skills ("talent recognition") (Figure 1.9). The interaction of these two components establishes a feedback loop in which skills are both developed and rewarded through coherent, mutually reinforcing systems, thereby advancing a more inclusive, efficient, and innovation-ready workforce.

Figure 1.9. A conceptual framework for the skills-first paradigm



Source: OECD/SUSS-IAL (2025[34]), "Skills-First Readiness and Adoption Index: Methodological Note", https://www.oecd.org/content/dam/oecd/en/data/dashboards/skills-first-readiness-and-adoption-index/OECD%20SUSS-IAL%20(2025)%20Skills-First%20Readiness%20and%20Adoption%20Index%20Methodological%20Note.pdf.

Skills development takes place within the broader learning ecosystem. Governments and training providers are increasingly investing in flexible, modular, and targeted learning opportunities that equip individuals with specific, in-demand skills. As the concept of skills-first has emerged in response to widening skill gaps, these programmes are often designed in close alignment with labour market needs. Individuals are actively pursuing upskilling and reskilling opportunities, while employers are supporting employee participation in skills-focused learning and embedding skills development into broader talent strategies. Career guidance professionals are also shifting their focus, helping individuals identify relevant skills and connect with appropriate learning pathways. Together, these efforts contribute to a more agile and responsive learning system that places importance on the acquisition and use of skills over the completion of traditional credentials.

Talent recognition focuses on how skills are signalled, recognised, and valued in the labour market. This means shifting from recruitment and progression systems that rely heavily on formal qualifications and experiences to ones that acknowledge and reward demonstrated skills, regardless of how or where they

were acquired. Skills signalling is a critical component, ensuring that individuals can clearly communicate their capabilities and that employers can articulate their skill needs. Recognition of prior learning plays a complementary role, enabling individuals to have their non-formal and informal learning validated. This is particularly helpful in contexts transitioning from qualification-based to skills-first systems, where such mechanisms help bridge the gap and ensure that skills are both visible and valued. When skills are clearly identified and fairly rewarded, labour market matching improves, delivering benefits not only for individuals and employers but also for the wider economy.

However, to fully develop a skills-first economy, the right learning and talent recognition systems are not enough: a much broader enabling environment – encompassing infrastructure, policies, data systems, and cultural mindset – is also needed to support and sustain skills-first approaches. In particular, a common skills language is essential, as fragmented skills frameworks can hinder communication and co-ordination among key stakeholders. When existing tools such as national qualification registers and occupational standards are aligned with a shared skills framework, it becomes easier to develop, signal, and recognise skills throughout the system. Reliable labour market information, particularly on current and emerging skills demand, helps all actors make informed decisions and supports efforts to close skills gaps. Public policies that remove barriers to adult learning, such as financial constraints and lack of time, can increase participation and engagement, especially among underrepresented groups. Organisational resistance to change remains a challenge in many contexts, so fostering a business mindset that embraces innovation and lifelong learning is crucial for the success of skills-first reforms.

Together, the three domains of learning skills, recognising skills, and building an enabling environment form a coherent skills-first readiness and adoption framework that unites key stakeholders and aligns fragmented initiatives. By responding to immediate labour market pressures while building long-term system capacity, skills-first approaches can help address existing labour market challenges and foster a workforce that is not only better matched to today's needs, but also resilient and adaptable for the future.

The Skills-First Readiness and Adoption Index

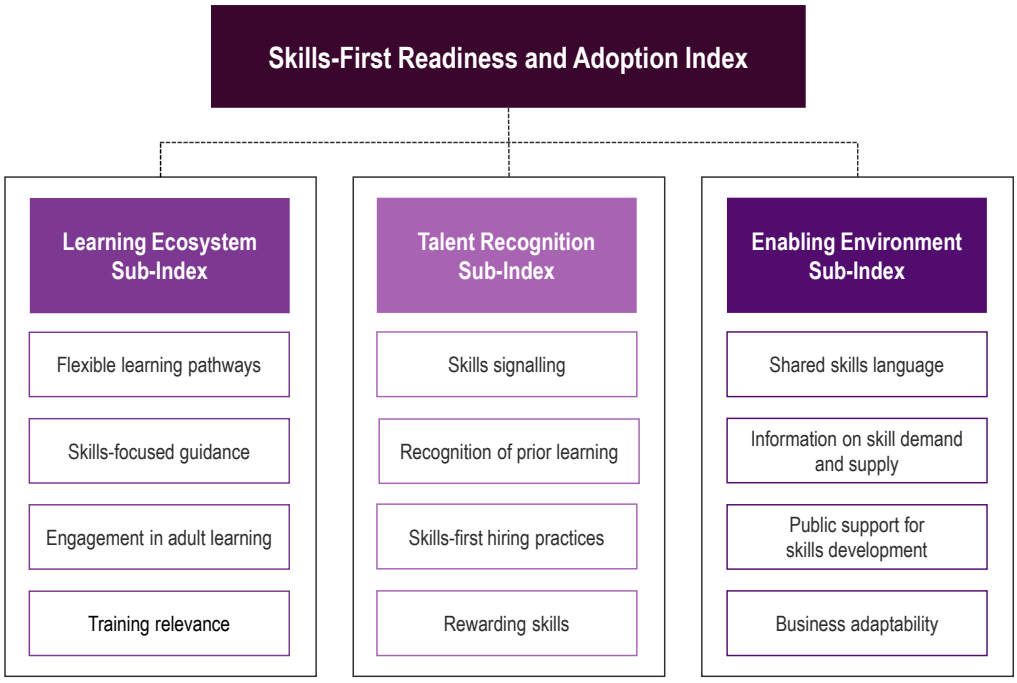
As highlighted in the previous section, skills-first approaches encompass a broad and interconnected set of practices spanning education and training systems, labour market institutions, and firm-level talent management. Given this multidimensionality, no single indicator can adequately capture the extent to which countries are moving towards a skills-first paradigm. To address this challenge, OECD/SUSS-IAL (2025[34]) developed the Skills-First Readiness and Adoption Index. This composite measure synthesises a wide range of indicators into a single, interpretable metric. By aggregating information across multiple domains, the index makes it possible to identify broad trends and structural patterns that may be difficult to detect using disaggregated data alone. In doing so, it provides a structured foundation for policy analysis, stakeholder engagement, and international benchmarking.

Mirroring the conceptual framework laid out in the previous section, the Skills-First Readiness and Adoption Index is organised around three complementary sub-indices (Figure 1.10). The Skills-First Learning Ecosystem sub-index assesses the extent to which skills-first principles are embedded in the design and delivery of education and training. The Skills-First Talent Recognition sub-index examines whether skills are formally recognised, signalled, and rewarded in labour markets and organisational practices. Finally, the Enabling Environment for Skills-First Approaches sub-index evaluates whether countries have the institutional, regulatory, and data infrastructures necessary to support and sustain a shift towards skills-first systems.

Each sub-index is further structured into four dimensions, yielding a total of 12 dimensions and 25 indicators. Together, these indicators are designed to capture the full lifecycle of skills: from development and continuous learning to recognition and utilisation, and finally to the systemic conditions that enable both. They reflect not only policy choices, but also the roles played by key stakeholders in the

skills ecosystem – including governments, employers, education and training providers, and individuals themselves. In all components of the index, higher scores are associated with stronger readiness for, and more advanced adoption of, skills-first approaches (see Box 1.2 for details on the statistical methodology used to construct the composite index).

Figure 1.10. Dimensions of the Skills-First Readiness and Adoption Index



Source: OECD/SUSS-IAL (2025[34]), "Skills-First Readiness and Adoption Index: Methodological Note", https://www.oecd.org/content/dam/oecd/en/data/dashboards/skills-first-readiness-and-adoption-index/OECD%20SUSS-IAL%20(2025)%20Skills-First%20Readiness%20and%20Adoption%20Index%20Methodological%20Note.pdf.

Box 1.2. The construction of the Skills-First Readiness and Adoption Index

As detailed in OECD/SUSS-IAL (2025[34]), the Skills-First Readiness and Adoption Index is constructed by aggregating 25 indicators into 12 dimensions, which are then combined into three sub-indices and, ultimately, into a single composite measure. The full list of indicators and their corresponding dimensions is presented in Table 1.2. At each stage of aggregation, equal weights are applied. Indicators are first aggregated into dimensions using equal weights; dimensions are then aggregated into sub-indices using equal weights; and, finally, the three sub-indices are combined into the overall index, again assigning equal weights. This weighting scheme reflects the absence of strong empirical or theoretical grounds for privileging any single indicator, dimension, or sub-index over others, and ensures transparency and replicability. Because the indicators are measured in different units, all values are normalised prior to aggregation. For each indicator, country values are rescaled to a 0-1 interval using a min – max normalisation based on the observed distribution across countries. A value of 0 corresponds to the lowest observed score among countries with available data, while a value of 1 corresponds to the highest.

For a limited number of countries, data are missing for some indicators. Imputing missing values in such cases would require strong assumptions and introduce statistical noise, particularly where

correlated proxy variables are either unavailable or conceptually distinct. Rather than applying imputation techniques that may artificially inflate inter-indicator correlations, the index adopts a "complete case analysis" approach at the dimension level. When data for one or more indicators within a given dimension are unavailable, the dimension score is calculated using only the indicators for which data exist. This approach preserves the empirical integrity of the index and avoids potential bias arising from model-driven estimations that lack sufficient theoretical or empirical justification. Further discussion and methodological guidance on the treatment of missing data in composite indicators can be found in OECD/European Union/EC-JRC (2008[45]).

Table 1.2. Variables included in the Skills-First Readiness and Adoption Index

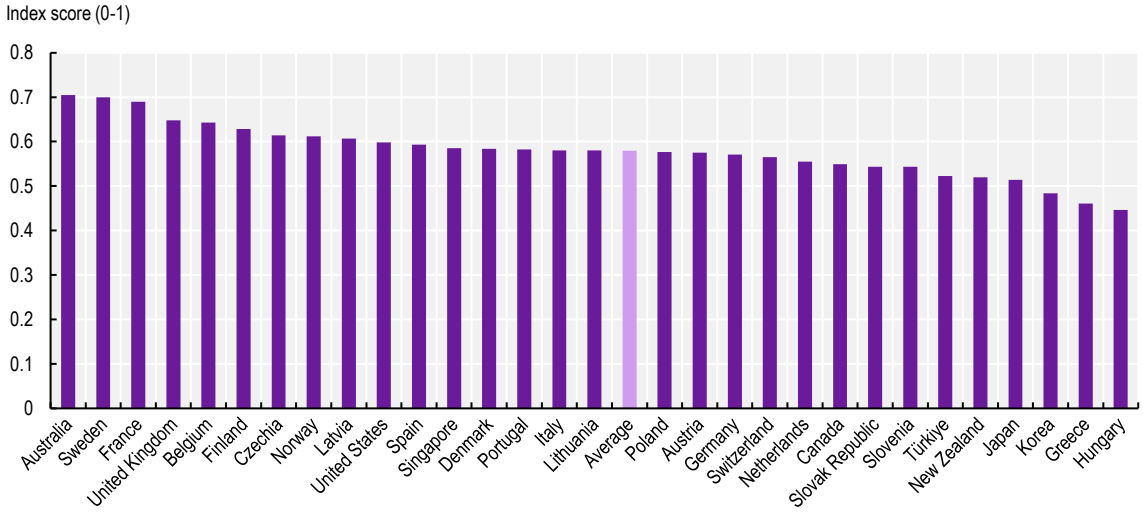
Sub-Index	Dimension	Indicator	Source
Skills-First Learning Ecosystem	Flexible learning pathways	National policies promoting modularisation	OECD Trends in Adult Learning Policy (TALP) Questionnaire 2025
		National policies promoting micro-credentials	OECD TALP Questionnaire
		Availability of suitable training opportunities	PIAAC
	Skills-focused guidance	Availability of guidance and incentives to train in high-demand skills	OECD TALP Questionnaire
		Career guidance focused on skills (rather than qualifications)	OECD TALP Questionnaire
	Engagement in adult learning	Adult participation in non-formal learning	PIAAC
		Employer-sponsored training	PIAAC
	Training relevance	Alignment of training with employer skill needs	EU Continuing Vocational Training Survey 2020
		Perceived usefulness of training	PIAAC
Skills-First Talent Recognition	Skills signalling	Existence of government-led skills signalling initiatives	Desk research
		Skills signalling by individuals	LinkedIn
	Recognition of prior learning	Existence of established national recognition of prior learning systems	OECD TALP Questionnaire
	Skills-first hiring practices	Prevalence of field-of-study-mismatch among workers with adequate skills	PIAAC
		Prevalence of workers with adequate skills, but who are under-qualified	PIAAC
		Employer openness to skills-based hiring	WEF Future of Jobs Report 2025
		Employers' focus beyond degrees	WEF Future of Jobs Report 2025
	Rewarding skills	Comparative returns to skills vs. qualifications	PIAAC
Enabling Environment for Skills-First Approaches	Availability of shared skills language	National occupational standards linked to skills	Desk research
		National qualification registries linked to skills	Desk research
	Availability of information on skill demand and supply	Accessibility of skills assessment and anticipation (SAA) data	OECD TALP Questionnaire
		SAAs explicitly focusing on skills	OECD TALP Questionnaire
	Public support for skills development	Nationwide entitlements for education and training leave	OECD TALP Questionnaire
		Government expenditure on education	UNESCO-OECD-Eurostat (UOE)
	Business adaptability	Employer openness to organisational change	WEF Future of Jobs Report 2025
		Workplace innovations	PIAAC

Note: Information on public policies draws primarily from the OECD Trends in Adult Learning Policy (TALP) questionnaire, distributed to representatives from OECD Member countries and Singapore by the OECD Secretariat in early 2025, and supplemented by desk research conducted over the same period.
Source: OECD/SUSS-IAL (2025[34]), "Skills-First Readiness and Adoption Index: Methodological Note", https://www.oecd.org/content/dam/oecd/en/data/dashboards/skills-first-readiness-and-adoption-index/OECD%20SUSS-IAL%20(2025)%20Skills-First%20Readiness%20and%20Adoption%20Index%20Methodological%20Note.pdf.

Figure 1.11 presents the results of the Skills-First Readiness and Adoption Index, highlighting cross-country variation in the extent to which skills-first practices are embedded in education systems, labour markets and institutional frameworks. Several countries emerge as frontrunners, notably Australia, Sweden and France, which record the highest overall index scores. These countries combine relatively strong skills-focused learning ecosystems with more advanced mechanisms for recognising skills and supportive enabling environments. At the other end of the distribution, countries such as Hungary, Greece and Korea score lower on the index, indicating that skills-first approaches are still at an earlier stage of development and adoption.

Figure 1.11. Overall readiness and adoption of skills-first practices

Skills-First Readiness and Adoption Index (scale 0-1), 2025



Note: Refer to OECD/SUSS-IAL (2025[34]) for a detailed description of the methodology to construct the composite index. OECD countries with available data and Singapore are shown.
Source: OECD/SUSS-IAL Skills-First Readiness and Adoption Index, available at: https://www.oecd.org/en/data/dashboards/skills-first-readiness-and-adoption-index.html.

Despite these differences, the overall picture is encouraging. By construction, the index ranges from 0 to 1, yet the average score across countries is 0.58, suggesting that most OECD countries have already put in place a meaningful set of foundations for skills-first approaches. Moreover, the gap between the highest- and lowest-scoring countries is relatively narrow – just 0.26 – indicating that no country is starting from scratch. Rather, all countries reviewed display areas of relative strength, even if these strengths are distributed differently across the three sub-indices and their underlying dimensions. At the same time, results also underscore that there is considerable scope for further progress. No country attains the maximum score of 1, signalling that even the most advanced systems have yet to fully operationalise skills-first principles across learning, recognition and enabling environments. This reflects the inherently systemic and ongoing nature of the transition towards skills-first approaches: advancing further will require sustained policy attention, continued co-ordination among stakeholders, and ongoing adaptation as skill needs evolve.

While the overall index provides a useful summary of progress, it inevitably masks important differences in countries' underlying strengths and weaknesses. Countries may achieve similar aggregate scores through very different combinations of policy settings, institutional arrangements and stakeholder practices. For this reason, it is essential to complement the composite results with a more granular examination of

the individual components that constitute skills-first approaches. The remainder of the report therefore explores the core features of skills-first approaches in greater depth, bringing examples from numerous good practices around the OECD. Chapter 2 focuses on the Enabling Environment, with particular attention paid to the development of a common skills language as a foundational instrument for advancing skills-first approaches. Chapters 3 and 4 examine, respectively, the Skills-First Learning Ecosystem and Skills-First Talent Recognition. Finally, Chapter 5 discusses cross-cutting elements that connect learning and recognition – such as career guidance, skills signalling, and the recognition of prior learning – and reflects on the inherently multi-stakeholder nature of skills-first approaches.

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Notes

[1] A skills mismatch occurs when a worker has either higher or lower skills than required for their job. The variable is constructed exploiting the question "Overall, which of the following statements best describes your skills in relation to what is required to do your job?" included in the 2023 Survey of Adult Skills (PIAAC) – see OECD (2024[2]) for a more detailed description on how to measure skills mismatches in PIAAC.

[2] At the same time, available measures of skills are themselves partial and subject to measurement constraints. No single assessment captures the full range of cognitive, technical and interpersonal competencies, nor the domain-specific knowledge that underpins effective performance in many occupations. In this report, the term skills is used in a broad sense to encompass knowledge, cognitive

abilities, technical competencies and transversal attributes. This conceptual breadth exceeds what is typically observed in large scale assessments. For example, the Survey of Adult Skills measures selected information-processing skills, but does not capture occupation-specific technical knowledge or the full spectrum of applied competencies that contribute to productivity.

[3] A qualification mismatch occurs when a worker has either higher or lower educational level than that required for their job. The variable is constructed exploiting the question “Talking about your current job: if applying today, what would be the usual level of education, if any, that someone would need to get this type of job?” included in the 2023 Survey of Adult Skills (PIAAC) – see OECD (2024[2]) for a more detailed description on how to measure mismatches in PIAAC.

[4] These findings could also partly reflect credential inflation. In several countries, occupations that previously did not require a degree have introduced formal qualification thresholds, even where the underlying task content has changed only marginally. In such cases, workers may be labelled under-qualified despite possessing the relevant skills, while others hired under earlier, less restrictive requirements may appear over-qualified relative to current norms. A skills-focussed perspective can help disentangle genuine skill gaps from credential-based screening practices.

[5] However, these gains are not automatic. For skills to function as more precise signals in practice, substantial investment is required in reliable assessment methods, common skills taxonomies and trusted validation mechanisms. Without credible and scalable ways to measure and communicate competencies, a shift away from credential-based screening risks replacing one imperfect proxy with another.

[6] According to Cantrell et al. (2022[43]), the skills-based organisations ratio reflects the combined weighted ratios of the HR executive survey item “Our organization’s business and HR executives are aligned on the importance of skills in making decisions about work” and the worker survey items “My employer treats workers as whole, unique individuals who can each offer unique contributions and a portfolio of skills to the organization”, “My organization supports me in pursuing opportunities to create value through activities that are outside of the direct scope of my job” and “My organization makes it easy to apply my skills where they are most needed”.

2 Building a common skills language

This chapter examines the role of a common skills language as a foundational component of skills-first labour markets. It explains how well-designed skill taxonomies enable skills to be clearly defined and consistently classified across occupations, qualifications and training systems, thereby reducing information frictions for workers, employers and policymakers. Drawing on international experience, the chapter reviews different strategies to developing and updating skill taxonomies and assesses how they are embedded within occupational standards, qualification registries, and labour market information systems. It also highlights persistent challenges related to interoperability.

In Brief

A common skills language is foundational to train and hire based on skills

- A common skills language is key for skills-first labour markets because it allows workers, employers and training providers to communicate clearly about skills, thereby improving hiring, guidance and policy decisions. Skill taxonomies form the core of this language, providing structured definitions of skills and systematic links to occupations and qualifications.
- Countries pursue different strategies to develop skill taxonomies, from simply adapting existing frameworks to creating new ones from scratch. In practice, these strategies are often combined and may include stakeholder consultations, structured surveys, expert judgement and data-driven approaches leveraging online job postings and AI. For example, Australia is developing its National Skills Taxonomy by combining extensive stakeholder consultation, expert-led conceptual work, and data- and AI-driven features to build a new, interoperable skills architecture intended to underpin a national shift toward skills-first policies.
- Embedding skills into qualification registries and occupational standards strengthens transparency and allows for greater job mobility. Yet, progress on interoperability remains uneven, particularly in higher education, in federal systems, and in the development of user-friendly platforms that make explicit links between skills, learning and jobs. Such fragmentation limits the effectiveness of skills taxonomies, creating frictions for learners, employers and training providers and weakening the scalability of a common skills language.
- Firms can use a common skills language internally to redesign roles, support reskilling and enable more flexible internal labour markets, but recruitment and progression practices must align with skills-first principles to realise these benefits.
- Skills assessment and anticipation (SAA) exercises are most effective when they focus explicitly on skills rather than occupations alone, using a shared skills language to detect emerging needs, guide training provision and support smoother labour market transitions. Singapore's Skills Demand for the Future Economy report is an example of how SAA exercises can be designed explicitly around skills. Drawing upon large-scale job-posting data to track changes in job requirements, the report identifies priority skills and skill clusters across growing sectors, such as the digital, green and care economies.

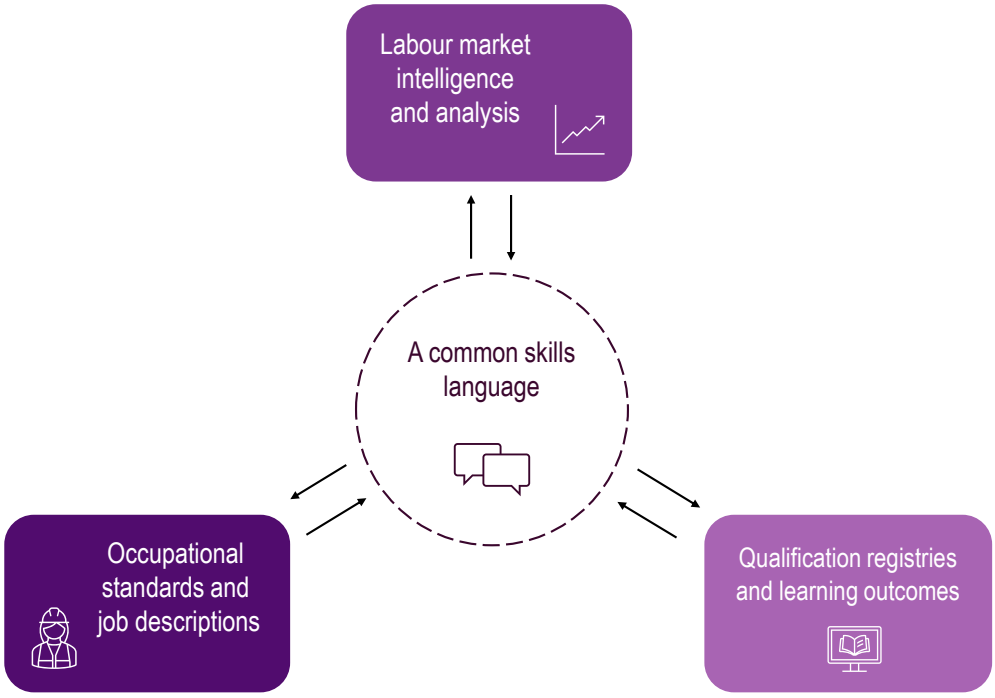
Introduction

The transition towards skills-first labour markets requires a common operational framework for defining and classifying skills. Actors must be able to communicate using a shared skills language: a common set of skill concepts and definitions that are interpreted consistently across workers, employers, training providers and public authorities. This shared language should serve not only as a medium for human communication, but also as a dictionary of skills and related concepts that can be understood by electronic systems, enabling search, matching and mapping across platforms and datasets. Without a common reference framework, skills remain difficult to signal, recognise and compare. Workers face challenges when describing their capabilities in ways that employers can interpret reliably; employers continue to rely on indirect proxies such as job titles, years of experience or credentials to infer what a person can do; and

education and training providers face persistent barriers when attempting to make learning outcomes legible and comparable across programmes and institutions.

A central challenge is that skills information is currently generated and used in fragmented ways. Different actors may describe similar skills using different terms or use identical labels to refer to distinct underlying competencies. These inconsistencies generate disconnected understandings that impede alignment between hiring, training and guidance in a rapidly changing labour market. Fragmentation also limits interoperability between occupational frameworks, qualification registries and labour market intelligence sources (Figure 2.1). Where skills cannot be expressed as standardised, discrete concepts that travel across these systems, information about what work requires and what learning delivers remains difficult to connect. Policy interventions addressing emerging skills needs then become less targeted and more difficult to implement at scale.

Figure 2.1. Achieving a common skills language



Source: Authors' elaboration.

Mitigating these frictions requires more than compiling a list of skills. A shared skills language must be sufficiently well-defined and structured to be usable across diverse contexts, while remaining flexible enough to evolve as jobs and tasks change. This creates practical design and implementation trade-offs: deciding the appropriate level of granularity, avoiding duplication and ambiguity in concepts, aligning with existing occupational and qualification frameworks, and establishing governance arrangements for continuous updating. Finally, the effectiveness of a common language depends on its uptake: the language must be embedded into institutional and organisational practices – such as curricula, learning outcomes, job descriptions, talent management systems, and guidance tools – if it is to shift behaviour away from credential- and title-based systems toward skills-first approaches.

Building a language of skills

The operationalisation of skills-first approaches requires some sort of skills language: that is, a lexicon of clearly defined skill concepts. While, in practice, organisations can decide to create or adopt whatever skills language they want, using a skills language that is shared among local labour market actors – employers, workers, training providers, governments and researchers – allows them to refer to mutually comprehensible terms in describing job requirements, learning content and individuals' capabilities. The development of this language requires a workable definition of what constitutes a skill, a standardised inventory of discrete skill concepts, and an organising structure that makes the lexicon navigable and usable across employment, education and policy domains.

Defining skills

Skills represent the core analytical unit within a skills language, though the variety of human activities and abilities that can be labelled as "skills" makes it challenging to establish a precise and universally accepted definition. Conceptual disagreement persists across academic and policy communities. One influential reference point is the knowledge, skills and abilities (KSAs) model advanced by Stevens and Campion (1994[1]) and subsequently incorporated into numerous applied systems, including the Occupational Information Network (O*NET) developed under the United States Department of Labor. Within this framework, abilities refer to innate or acquired qualities that enable an individual to perform specific tasks, knowledge denotes the understanding and information accumulated through learning or experience, and skills capture the practical application of knowledge and abilities in the effective execution of tasks. A comparable tripartite structure appears in the 2018 Council of the European Union Recommendation on Key Competences for Lifelong Learning, which distinguishes attitudes as dispositions shaping responses to situations, knowledge as established concepts and theories underpinning understanding, and skills as the capacity to carry out processes and apply knowledge to achieve defined outcomes (Council of the European Union, 2018[2]).

At the national level, definitions continue to vary in scope and emphasis. For example, Jobs and Skills Australia describes a skill as a valued and purpose-driven human ability that is acquired or refined through learning and practice, shaped by knowledge, experience and personal attributes, and influenced by context and environmental demands (Jobs and Skills Australia, 2025[3]). By contrast, the United Kingdom Standard Skills Classification adopts a broader formulation, defining a skill as "a capability enabling the competent performance of a task", thereby framing skills as means to an end rather than outcomes in themselves (United Kingdom Department for Education, 2023[4]).

Despite differences in terminology, most definitions converge on several core elements. Skills are generally treated as individual attributes that are developed through learning or experience and are closely connected to the execution of tasks in real world environments. In policy discourse, the term "skills" is also frequently used as an umbrella label encompassing a broader range of related constructs such as abilities, attitudes and knowledge, or in some cases as shorthand for the tasks themselves. Indeed, the concept of skills is often subdivided into various components; common distinctions separate knowledge and technical information (e.g. speaking a language), practical competencies (e.g. operating machinery), and behaviours or orientations that shape performance and interpersonal interaction (e.g. teamwork).

For instance, the OECD Skills Profiling Tool distinguishes between occupation-specific skills (including hard technical skills and some occupation-specific soft skills), foundational information-processing skills such as literacy, numeracy and digital skills, and transversal non-cognitive skills associated with personality and attitudes (Tuccio et al., 2023[5]). Other examples of such decomposition include Skills England's occupational profiles, which define occupations in terms of knowledge, skills and behaviours. Canada's Skills and Competencies Taxonomy identifies skills alongside knowledge, abilities and other concepts, including personal attributes (Government of Canada, n.d.[6]), and LinkedIn's Development Data

Partnership distinguishes transversal, tech, business, disruptive and specialised industry skill groups (OECD, 2025[7]). Although labels and logics may differ, the shared objective is to define components with sufficiently clear conceptual boundaries that they can express, in a consistent way, the requirements of jobs and the learning outcomes of education and training programmes.

Collecting skills information

High-quality information on skills and skill requirements is a necessary input for any skills language. Three main methods are commonly used to build or expand a skills language, and they are typically combined rather than applied in isolation. Consultative processes remain central in systems built around national qualifications frameworks or established occupational classifications. The Australian National Skills Taxonomy (NST), for example, is rooted in extensive engagement with individuals, unions, employers, industry bodies, tertiary education providers and government authorities. Consultations with these stakeholders are used to clarify use cases, test appropriate levels of granularity, decide alignment with existing standards such as the Occupation Standard Classification for Australia (OSCA) and the Australian Qualifications Framework (AQF), and validate initial skill lists (Jobs and Skills Australia, 2025[3]; 2024[8]).

Structured surveys and expert ratings provide a more systematised approach that supports statistical representativeness and comparability across occupations. The United States' O*NET illustrates this model through detailed questionnaires capturing the level and importance of hundreds of skills, knowledge areas, abilities and tasks. These surveys are administered to a statistically representative sample of firms and combined with structured ratings produced by trained occupational analysts. This produces a standardised dataset that can be aggregated into a hierarchical taxonomy (United States Department of Labor, n.d.[9]). While resource-intensive, this approach relies upon representative survey instruments and can provide stable time series and consistent occupational coverage.

Machine learning and AI tools are also increasingly used to build and update skills languages (see, for example, Gallagher et al. (2022[10]), Popov, Snelson and Baily (2022[11]), and Keevy et al. (2026[12])). Indeed, advances in analytical methods (such as large language models) have enabled data mining of online sources – including job postings, course descriptions, training packages, professional standards and CVs – to extract skills information. An advantage of this inductive process is that these methods do not rely on predetermined lists of skills and can therefore detect new skills that had previously been unobserved. In this way, such approaches can respond more quickly to emerging skills than traditional consultation – or survey-based methods, but they also present risks: they can amplify noise and redundancy and over-represent skills frequently mentioned in vacancies that are not central to performance. Expert validation remains necessary to check sources, design analytical procedures and validate outputs.

Many existing systems across the OECD combine these approaches, using each method to address limitations in the others. Skills England's development of the UK Standard Skills Classification, for example, combines and standardises skill and task statements from multiple sources, validates the resulting inventory against vacancy data, and then creates mappings between tasks, skills and knowledge concepts linked to occupations, courses and qualifications. Stakeholders are involved throughout to review results and improve usability (Skills England, 2025[13]; United Kingdom Department for Education, 2023[4]). Similarly, the European Skills, Competences, Qualifications and Occupations classification (ESCO) has introduced AI methods such as semantic similarity models to detect duplicate or obsolete concepts, while retaining human expert review and validation by member states' working group processes (European Commission, 2024[14]). Hybrid approaches enhance coverage and responsiveness, while preserving the governance and validation needed for public legitimacy and operational uptake.

Some countries have simply adapted existing frameworks to establish their shared skills language. For instance, Canada's Skills and Competencies Taxonomy draws on internal and international competency-based frameworks, including O*NET (Government of Canada, n.d.[6]). Japan's Ministry of Health, Labour

and Welfare created a “job tag” website based on data from the Japan Institute for Labour Policy and Training, largely adapted from the O*NET’s skills taxonomies (OECD, 2022[15]). These approaches have the potential to reduce development costs and accelerate implementation, but they still require efforts to ensure that skill concepts, occupational mappings and governance arrangements fit domestic institutions and policy objectives.

Structuring a skills language

An organised structure makes a skill language navigable, often through a hierarchy that groups skills at different levels of specificity. In many cases, the structure of a skill language is simply inherited from occupational standards or industrial classifications, which have their own hierarchies and which define occupations in terms of their skill requirements. For example, France’s ROME 4.0 is primarily an occupational framework organised around professional domains, but it also includes an embedded skill classification (“*arborescence des compétences*”). This skill classification is organised into a four-level hierarchy comprising 6 competency domains, 32 strategic skill challenges, 84 competency objectives and 507 macro-competencies, which are linked to detailed inventories of practical skills, knowledge and work-related behavioural competencies, as well as standardised classifications of work contexts (France Travail, 2025[16]). Similarly, the Singapore Skills Framework classifies skills according to roughly 1 900 job roles in 39 main industrial sectors (SkillsFuture Singapore, 2025[17]). These designs emphasise usability for public employment services and related actors by nesting skill concepts within recognisable occupational structures.

By contrast, other countries construct standalone skills taxonomies that do not inherit their structure from occupational classifications, while remaining mappable to occupations and learning programmes. Examples include the United Kingdom’s Standard Skills Classification or Australia’s National Skills Taxonomy, which is currently under development. The World Economic Forum is also establishing a Global Skills Taxonomy, aimed at serving as a common skills language for its network of partners and external users, whereas the ILO and OECD are carrying out a similar exercise for G20 countries.

Connecting occupations to skills

Firms may describe their job profiles using any internal skills terminology. However, at the national level, systematic linkage between occupations and skills typically relies on occupational standards. An occupational standard is a formal account of an occupation that specifies core duties together with the skills required for competent performance. Occupational standards are technically distinct from skills taxonomies: while skills taxonomies are structured frameworks that classify and organise skills, occupational standards are descriptions of occupations. It is when occupational standards are themselves described in terms of their constituent skills that similarities between occupational standards and skills taxonomies emerge.

Indeed, structuring an occupational standard around clearly defined skill requirements increases the utility of the standard. To be useful infrastructure for skills matching and labour market intelligence, occupational standards need to express requirements through structured skill information rather than narrative descriptions of tasks and responsibilities. Whereas tasks tend to describe what a worker does in a specific job context (for example, “prepare monthly management accounts” or “operate a milling machine”), skills describe transferable capabilities that can be applied across contexts (for example “financial reporting” or “operate specialised machinery”). Structured approaches should indeed emphasise portable capabilities expressed through a consistent vocabulary and stable identifiers (OECD, 2024[18]).

Table 2.1 presents selected OECD Member countries whose occupational standards express skill requirements through structured formats. France offers a particularly illustrative example. Its occupational

standard system ROME – managed by the Public Employment Service, France Travail – has undergone several revisions over time, culminating in the release of ROME 4.0 in 2023. This latest iteration reorganised occupational descriptions around a more explicit skills structure and hierarchy intended to strengthen job matching and labour market intelligence. The reform moved away from using tasks as proxies of skills, instead adopting stand-alone definitions of skills and establishing a clearer distinction between context-specific activities and more broadly applicable skills. Another relevant example comes from the United Kingdom, presented in Box 2.1.

Table 2.1. Examples of national occupational standards expressed in terms of skills

Country	Name of standard/ information portal	URL
Austria	Career Information System (*Berufsinformationssystem*, BIS)	https://bis.ams.or.at/bis/index.php
Belgium (Flemish Community)	Competent	https://extranet.vdab.be/competent
Belgium (French Community)	Francophone Service for Trades and Qualifications (*Service Francophone des Métiers et des Qualifications*, SFMQ)	https://sfmq.cfwb.be/
Canada	National Occupational Classification (NOC)	https://noc.esdc.gc.ca/
Czechia	National Occupations System (*Národní soustava povolání*, NSP)	https://www.nsp.cz/
France	Operational Directory of Professions and Jobs (*Répertoire Opérationnel des Métiers et Emplois*, ROME)	https://www.francetravail.org/opendata/repertoire-operationnel-des-meti.html?type=article
Japan	Job Tag	https://shigoto.mhlw.go.jp/
Korea	Workpedia	https://www.wagework.go.kr/pt/index.do
Sweden	Taxonomy Atlas	https://atlas.jobtechdev.se/taxonomy
United Kingdom	UK Skills Explorer	https://skillsclassification.org/
United States	O*NET	https://www.onetonline.org/

Note: Links accessed on 06 March 2026.

Usability of standards also improves when they specify the relative importance of skills within each occupation. For example, Flanders' *Competent* framework differentiates "essential" from "optional" skills and knowledge, thereby signalling typical employer expectations while accommodating variation (OECD, 2024[18]). This tiered approach is easy to interpret and to maintain over time. O*NET takes a more formalised, systematic approach, circulating questionnaires among industry representatives who explicitly score the importance of pre-identified skills associated with each occupation (United States Department of Labor, n.d.[9]).

Occupational standards deliver the most value when they can be easily linked or mapped to other systems, including training standards and qualifications. In French-speaking Belgium, the SFMQ (*Service Francophone des Métiers et des Qualifications*) provides a shared reference that translates occupational requirements into learning outcomes, units and assessment profiles (OECD, 2024[18]). Additional mappings between national occupational standards and widely used international frameworks – such as O*NET or ESCO – can further improve their use, especially among researchers and labour market analysts. Even within countries, occupational standards sit alongside other classification systems used in administrative data, vacancy statistics, and education systems. Without reliable crosswalks, analysts struggle to connect skills data to labour market outcomes; interoperability depends on maintaining accurate linkages across systems.

Occupational standards must be kept up to date to reflect evolving labour markets and technological change. Responsibility for updates and crosswalks should be explicitly embedded within governance arrangements. For instance, Flanders' public employment service reviews standards four times per year, updating them when necessary. In French-speaking Belgium, stakeholders can request updates, with simplified procedures available for minor modifications.

Box 2.1. Expressing occupations through structured skill information

The UK Standard Skills Classification Explorer illustrates the representation of occupations through structured skills information. More specifically, occupations are described in terms of their tasks, skill requirements, knowledge, relevant qualifications and even related occupations. For example, these are the descriptors for "Paper and wood machine operatives":

- Tasks, ranked by importance: e.g. "Monitor paper and wood processing operations to detect malfunctions and maintain standards", "Inspect logs or timber to determine optimal cutting plans", etc.
- Skills, ranked by importance: e.g. "Read job sheets to determine setup and material requirements", "Review technical specifications and drawings", etc.
- Knowledge areas: e.g. woodworking, machine tools, etc.
- Qualification pathways: e.g. apprenticeships as Wood machinist, apprenticeships as Wood product manufacturing operative, etc.
- Related occupations: Textile process operatives, print finishing and binding workers, Cabinet makers, etc.

Conceptually, the distinction between tasks and skills can at times be difficult to disentangle. Within the UK Standard Skills Classification, tasks are concrete work activities performed within a specific job context, whereas skills are defined as transferable capabilities that enable the performance of tasks across multiple roles and settings: tasks describe what is done in a particular workflow, while skills capture the underlying capability that enables not just a particular task, but also related activities in other contexts.

Firms aiming at adopting a skills-first approach for hiring and talent development also need to start the process by establishing an internal skill taxonomy. This process involves deconstructing job roles into clearly specified skills and communicating them explicitly to managers and employees. For instance, companies such as IBM have undertaken systematic reviews of job descriptions to identify the knowledge and skills required for each role before rewriting descriptions to emphasise skills rather than qualifications or tenure. This enabled the removal of degree requirements for many positions and created clearer pathways for workers to progress based on demonstrated skills (Burning Glass Institute, 2022[19]).

Other organisations have used skills intelligence tools to compare the skill profiles of declining and emerging roles and to design reskilling pathways based on overlapping skill sets. Unilever and Walmart, for example, have experimented with data-driven platforms that map roles to underlying skills and identify where targeted upskilling can support transitions (Accenture, 2021[20]). These exercises show that many workers already possess a substantial share of the skills required for new roles and can move into them with limited additional training. Firms that adopt such approaches gain more flexible internal labour markets and reduce recruitment costs.

A skills language can be applied at both the system and firm levels. When firms articulate job roles in skills terms, they help create demand for standardised skills descriptions across the wider education and labour-

market system. Conversely, when formal qualifications, occupational frameworks and career guidance tools use a shared skills taxonomy, firms can integrate this information directly into their workforce planning, job design and talent management processes. Though a system- or national-level skills language may be broader than the specific descriptions used by individual firms, applying firm-level skills-first language in a way that maintains coherence with commonly used skills languages has the potential to unlock the network effects that make skill taxonomies valuable and expand the range of viable career pathways.

Connecting education and training to skills

As with any language, the value of a skills language is strongly shaped by network effects. When use is fragmented or confined to isolated parts of the labour market, individuals and employers face frictions in interpreting skill requirements, and policymakers face reduced visibility over emerging skill needs. Therefore, although many skills languages originate from occupational standards, their integration with qualification registries is essential to maximise their relevance. Indeed, when qualification registries are fully articulated through consistent skills descriptors, users can see clearly how specific learning programmes build the skills required in the labour market. For learners, this means gaining clarity over the competencies acquired and the professional trajectories associated with their training; for employers, this implies a more granular understanding of the capabilities of prospective workers.

Across the OECD, there are several examples of countries whose national qualifications – at least for vocational and professional credentials – are explicitly linked to structured skill information (Table 2.2). For example, Skills England's Occupational Maps rely on its Standard Skills Classification to chart out the skills required for each occupation, the technical qualifications that align with it, and the career progression routes available to those already in the occupation. The maps also reveal where skills overlap across occupations, enabling individuals and guidance practitioners to identify adjacent roles requiring similar skills. Users of Italy's National Catalogue of Qualifications (*Repertorio Nazionale della Qualificazioni*) can use the Atlas of Occupations and Qualifications (*Atlante del Lavoro e delle Qualificazioni*) to examine how qualifications are described in terms of skills and associated work activities or learning outcomes. Presenting qualifications in this structured way simplifies the comparison between the qualifications defined by Italy's regions and provinces.

Table 2.2. Examples of national qualification registries linked to structured skill information

Country	Name of registry/ information portal	Link to occupational standards	Registry URL
Australia	Training.gov.au	Yes, linked to OSCA	https://training.gov.au/
Italy	Atlas of Occupations and Qualifications (*Atlante del Lavoro e delle Qualificazioni*)	Yes, linked via Areas of Activity (*Aree di Attività*, ADA)	https://www.inapp.gov.it/atlantelavoro/
Netherlands	CompetentNL	Yes	https://competentnl.nl/
Spain	Catalogue of Professional Certificates (*Catálogo de Certificados Profesionales*)	Yes, linked to the National Catalogue of Professional Competency Standards (*Catálogo Nacional de Estándares de Competencias Profesionales*, CNECP)	https://www.todofp.es/buscadorcertificados/buscador
United Kingdom (England)	Occupational Maps	Yes, linked via Standard Skills Classification (SSC)	https://occupational-maps.skillsengland.education.gov.uk/

Note: Links accessed on 06 March 2026.

Some registries also direct users to training institutions that deliver programmes associated with specific qualifications. Spain's Catalogue of Professional Certificates (*Catálogo de Certificados Profesionales*), Australia's National Training Register, and Skills England's Apprenticeship Finder include search functions that allow prospective learners to locate nearby providers offering the qualification in question.

A shared skills language also offers a basis for describing non-formal and informal adult learning. To do so credibly, training providers and validation bodies should derive learning outcomes and skills descriptors from training and occupational standards rather than using provider-specific labels. In this way, learning outcomes can be bundled into units that can be combined, recognised and assessed consistently, allowing to stack towards larger qualifications (OECD, 2024[18]). Describing the learning outcomes of non-formal and informal adult learning using a common skills language can reduce fragmentation and make skills development more transparent for workers and employers.

Despite progress, systems that aim to link qualifications, occupations and skills continue to face structural constraints. One limitation arises from uneven sectoral coverage. Many systems focus on vocational education and training (VET), but do not incorporate qualifications in higher education or non-formal adult learning. This is, for example, the case with Portugal's National Catalogue of Qualifications (*Catálogo Nacional de Qualificações*) and Spain's Catalogue of Professional Certificates (*Catálogo de Certificados Profesionales*). Higher education can be difficult to describe in terms of learning outcomes, as universities typically retain discipline-based curricula and maintain considerable institutional autonomy. Moreover, outside certain fields of study (such as engineering or health), university degrees tend to be less closely linked to specific occupations. A second challenge concerns the development of integrated digital platforms that present clear and navigable connections between qualifications, skills and occupations. Even where mappings exist, fragmented interfaces reduce usability and limit the capacity of learners, employers and advisers to interpret complex relationships. An effective platform should enable users to explore all relevant linkages within a unified environment.

Using skills to understand changing labour market demands

Skills intelligence has become a critical enabling condition for the adoption and diffusion of skills-first approaches in hiring, talent management and training systems. Employers, education providers and public authorities require granular and timely evidence on evolving skill needs in order to redesign recruitment practices, modernise workforce development strategies and align learning provision with emerging demand. High quality skills assessment and anticipation (SAA) exercises therefore function not only as analytical tools but also as institutional infrastructure that supports the transition from credential-based to skills-based labour market practices.

In particular, skills assessment and anticipation exercises are relevant to skills-first approaches only when they generate granular and timely intelligence on the skills required in the labour market rather than on occupations or industries alone. Their value lies in translating labour market signals into operational insights that employers, training providers and workforce planners can use to redesign recruitment criteria, competency frameworks and learning pathways. Exercises that integrate administrative data, vacancy analysis and structured employer inputs are better positioned to identify emerging skill clusters (that is, groups of interrelated skills that tend to co-occur in certain occupations or training pathways), transferable skills, and areas where targeted upskilling can replace formal credential requirements.

Methodological design also determines whether SAAs can sustain skills-first implementation. Mixed models that combine quantitative forecasting with qualitative expert consultation and sector-based foresight may be more effective in capturing rapidly evolving technical and transversal skills (OECD, 2023[21]). Continuous data collection, iterative validation with industry actors and alignment with skills taxonomies allow findings to be translated directly into talent management systems and training standards.

Without these features, outputs remain descriptive rather than operational and provide limited guidance for organisations seeking to adopt skills-first practices.

Even if dissemination practices are generally strong, with two-thirds of countries maintaining dedicated labour-market information platforms that present SAA findings in accessible formats to a wide range of users, current approaches often fall short because analysis remains anchored in occupational classifications and qualification structures that mask within-job skill variation and delay the identification of emerging skills (Table 2.3). Fragmented taxonomies and inconsistent terminology across data systems reduce interoperability and make it difficult to connect labour market intelligence with recruitment tools or curriculum design. As a result, assessments often identify labour shortages without specifying the underlying skills that drive them, which constrains their usefulness for skills-first hiring, workforce planning and skill-based education reform.

Table 2.3. Focus and dissemination method of skills assessment and anticipation findings

		Dissemination of SAA data and findings			
		Sporadically	**Through regular communications**	**Through a dedicated labour market information platform**	
Explicit skill focus of SAA	**Focus on occupations or qualifications**	Israel New Zealand	Colombia Germany Finland Portugal	Belgium (Brussels) Latvia	
	Focus on skills and qualifications equally, or solely on skills	Belgium (Flanders) Greece	Hungary Japan Spain Switzerland	Australia Austria Belgium (Wallonia) Canada Costa Rica Czechia Denmark France Italy Korea Lithuania	Luxembourg Netherlands Norway Poland Singapore Slovak Republic Slovenia Sweden Türkiye United Kingdom United States

Note: Rows plot countries according to their responses to the question, "What is the main focus of your skills anticipation exercises?"; columns plot countries according to their responses to the question, "To what extent are findings from SAAs disseminated to relevant stakeholders?". OECD countries and jurisdictions with available data, as well as Singapore, are shown.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

Singapore's *Skills Demand for the Future Economy* (SDFE) report illustrates how SAA exercises can be designed explicitly around skills. The analysis – which draws on large-scale job-posting data to track changes in job requirements – focuses on identifying priority skills and skill clusters across growing sectors, such as the digital, green and care economies, rather than solely projecting occupational demand. The report highlights the most in-demand skills and identifies transversal "critical core skills" that are relevant across occupations. The findings are publicly disseminated through the SDFE report and interactive dashboards on the Jobs-Skills portal, allowing individuals, employers and training providers to explore labour-market insights and plan training pathways (SkillsFuture Singapore, 2025[22]). By combining vacancy analytics with sectoral analysis and presenting results in terms of specific skills and transferable skill clusters, the SDFE functions as a skills-focused SAA system that supports a skills-first approach to workforce planning and lifelong learning.

Reducing frictions to interoperability

The development of a common skills language is not a straightforward task, but a complex and long-term process. A central challenge is the persistent fragmentation of existing frameworks, which limits the scalability and comprehensiveness required for a fully functional skills taxonomy. Many countries have sought to merge or align pre-existing frameworks as a first step, but differences in definitions, units of analysis and levels of granularity often limit the benefits of this approach. Strengthening interoperability within national systems should therefore be a priority.

Federal systems inherently have another layer of complexity. The Canadian case illustrates the challenges of working across multiple jurisdictions. Canada uses the National Occupational Classification (NOC) framework (complemented by an associated Skills and Competencies Taxonomy), but many occupations within this framework have distinct regulatory requirements between provinces, reducing the clarity of skill expectations at the national level (Forum of Labour Market Ministers, 2022[23]). On the education side, Canada has a pan-Canadian Degree Qualifications Framework focused on quality assurance in higher education, alongside several provincial qualification frameworks (for example, Ontario's Qualifications Framework). Links between provincial qualifications frameworks are not always precisely articulated, nor are they linked to the Skills and Competencies Taxonomy (Canadian Information Centre for International Credentials, n.d.[24]).

Beyond national boundaries, increasing the international comparability of skills has become critical to support worker mobility, recognition processes and alignment of industrial strategies. Supranational initiatives such as the EU's Skills Portability Initiative and the ongoing OECD-ILO Global Skill Taxonomy effort signal a growing recognition that cross-border consistency is required to facilitate worker mobility and streamline qualification recognition (see Box 2.2).

Box 2.2. The EU's Skills Portability Initiative

The Skills Portability Initiative (SPI) is a forthcoming European Commission proposal designed to make workers' skills and qualifications more easily understood and recognised across all EU member states. It aims to reduce barriers that hinder labour mobility and the functioning of the single market by improving the transparency, comparability and digital usability of credentials, particularly for employers (including SMEs) that currently struggle to interpret qualifications obtained abroad.

SPI is structured around three interlinked actions:

1. Enhancing transparency and digitalisation of skills and qualifications so they are more portable and comprehensible across occupations and borders, building on interoperable tools such as qualifications registries referenced to the European Qualifications Framework (EQF), skills descriptions linked to ESCO, and digital sharing channels such as the EU Digital Identity Wallet.
2. Modernising and potentially expanding recognition procedures for regulated professions under existing EU frameworks to make cross-border recognition faster, more predictable and less administratively burdensome.
3. Simplifying qualification recognition for non-EU nationals, including by reducing fragmentation in assessment processes and improving the transparency of how foreign qualifications and skills are evaluated.

The initiative is being developed through a broad evidence-gathering and consultation process involving employers, workers, national and regional authorities and civil society, including targeted interviews and expert workshops. If successfully implemented, SPI could reduce procedural friction in cross-border hiring, support career progression across member states, and help mitigate skill mismatches by making skills signals clearer and more usable in recruitment and recognition processes.

Technological innovation offers potential instruments to address interoperability gaps. For example, Leveraging AI for Skills Extraction & Research (LAiSER) is an open-source initiative led by George Washington University in the United States, that applies large language models to extract skill statements from job adverts and educational content, link them to a dynamic skills database, and update the taxonomy as terminology evolves (Learn & Work Ecosystem Library, 2025[25]).

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3 Putting skills at the centre of learning

Placing skills acquisition at the forefront of learning reframes the role of credentials and refocuses education policy on three interrelated dimensions, which structure the analysis of this chapter. First, skills-first approaches promote greater granularity by treating credentials as organising frameworks that bundle clearly specified skills, with modules and micro-credentials providing practical illustrations. Second, skills-first approaches strengthen the emphasis on learning outcomes, improving the alignment between provision and evolving labour market needs. Third, skills-first learning moves beyond the notion of education as a fixed endpoint and instead situates skills development within a continuous, lifelong process, shaped by the interactions of education providers, employers and public authorities.

In Brief

Education and training must recentre around skills to support lifelong learning

- Aligning adult learning systems with the needs of a skills-first labour market requires shifting to a paradigm where qualifications are structured as clear bundles of skills that can be acquired, recognised and updated incrementally over the life course.
- Modularisation provides the foundation for incremental and personalised learning pathways. By structuring provision into discrete units with clearly defined outcomes, systems can enable learners to progress at their own pace, reduce the risk associated with long programmes, and strengthen recognition of prior learning. However, these gains materialise only where credit transfer arrangements, qualification frameworks and data systems ensure that modules are portable and stackable rather than fragmented. For instance, VET schools in Czechia recently piloted a systematic modularisation of curricula to strengthen reskilling and upskilling capacity and better align provision with labour market needs.
- Micro-credentials translate modularity into practice for targeted upskilling and reskilling. They can respond quickly to emerging skill needs and offer flexible entry points for adults. Their credibility as labour market signals depends on transparent learning outcomes, robust assessment, trusted awarding bodies and integration within recognised credit and quality assurance frameworks. In New Zealand, for example, national quality standards help underpin this credibility, with each micro-credential reviewed to ensure its labour market relevance.
- To keep learning provision aligned with evolving labour market demand, employer engagement needs to be systematic rather than ad hoc. Employers can contribute to the design of learning content by helping to translate skills intelligence into training standards and curriculum updates. They can also strengthen delivery by offering work-based learning opportunities and, in some cases, developing targeted online provision themselves. In Ireland, 70 Skillnet Business Networks, each representing a specific sector or region, provide a structured mechanism for sustained employer engagement in adult learning.
- Skills-first learning requires a lifelong learning culture, supported by policies that address barriers related to motivation, time and cost through flexible delivery, training leave arrangements and innovative financing instruments such as individual learning accounts.

Introduction

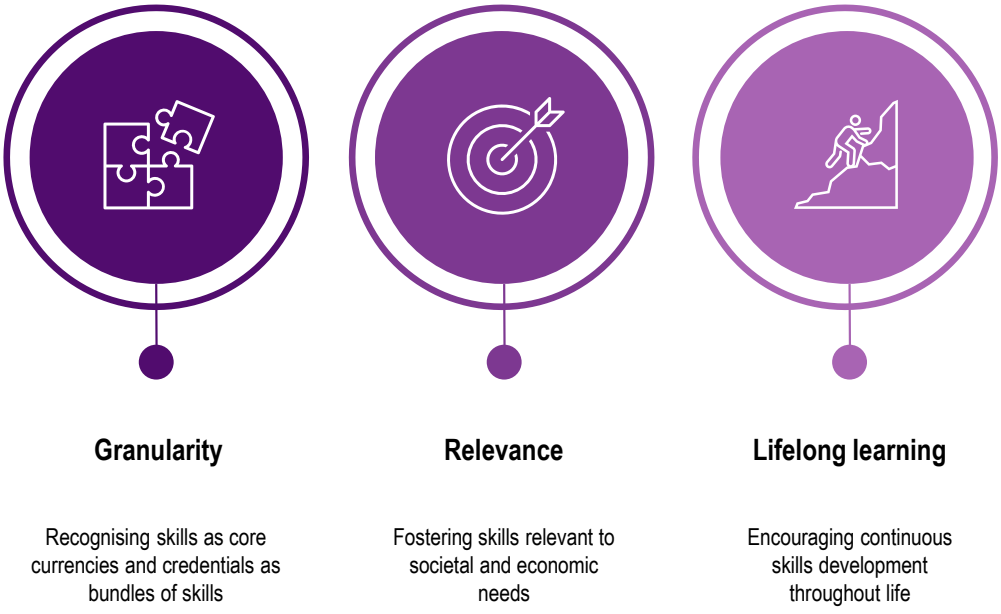
As labour markets evolve at an increasing speed and working lives lengthen, learning systems face increasing pressure to adapt. Education and training have traditionally been organised around programmes, institutions and qualifications. While these elements remain important, they often provide limited information about the actual skills learners possess upon completion (see Chapter 1). They also offer limited guidance to individuals and employers on how learning connects to changing skill demands. In doing so, they may reinforce the perception that earning a credential represents the end point of learning rather than a step within a longer trajectory.

Placing skills acquisition at the forefront of learning responds to this challenge by reframing the role of credentials. It shifts attention from inputs to outcomes and makes the concrete, usable skills that training

is expected to deliver explicit, with qualifications serving as complementary organising frameworks. Under this approach, credentials become transparent bundles of skills rather than ends in themselves. Learning systems are thus better positioned to align with labour market needs and to support the recognition and accumulation of skills over time.

Skills-first learning does not represent a conceptual rupture with past frameworks. Rather, it renews and sharpens emphasis on three longstanding elements in education policy: more granular forms of learning, such as modules and micro-credentials; stronger alignment between training provision and societal and economic needs; and a sustained commitment to learning throughout the life course (Figure 3.1).

Figure 3.1. Key elements of skills-first learning



Source: Authors' elaboration.

First, skills-first approaches promote greater granularity. Learning outcomes are articulated at the level of skills, ideally using a common skills language, as described in Chapter 2. This allows learning pathways to be structured as coherent combinations of smaller units, each focused on the development of clearly defined skills. Modularisation and micro-credentials exemplify this approach by enabling learners to acquire targeted competencies, progressively combine them into broader skill portfolios, and update their skill sets over time in response to evolving needs. The emphasis on discrete units also enhances transparency and portability between institutions and sectors.

Second, skills-first approaches emphasise the relevance of learning outcomes. The objective is not simply the acquisition of skills, but the development of skills that are valuable to learners, employers and society. This requires drawing on skills information, including skills-focused occupational standards as well as skills assessment and anticipation data (see Chapter 2). It also entails engaging employers in the design and delivery of training. Where appropriate, applied pedagogical approaches, such as work-based learning and problem-based learning, can strengthen the development of both technical and transversal skills by embedding teaching in authentic contexts of practice.

Third, skills-first approaches remove the notion of a fixed endpoint to learning and instead frame skills development as a continuous, lifelong process. Neither the completion of initial formal education nor the

acquisition of a credential constitutes the ultimate goal. Rather, these are milestones within an ongoing process of skills development. Individuals are encouraged to regularly assess their skill sets against changing labour market demands and to engage in continuous upskilling and reskilling.

Building flexible skill development pathways

The case for modularisation

Adult learning systems centred on long and front-loaded qualifications are increasingly ill suited to evolving labour markets and the constraints faced by working adults. A skills-first approach therefore requires learning pathways that enable the progressive accumulation of clearly defined competencies through smaller units – modules – that can be combined over time. A module is a discrete unit of learning with defined learning outcomes, which may form part of a wider programme or be undertaken independently. By extension, modularisation refers to the systematic reorganisation of education and training provision around such units, rather than a simple expansion of the supply of short courses. It therefore represents a reform of programme architecture, not a change in certification. A shift toward modularisation represents the foundation for incremental learning pathways.

Modularisation offers three interrelated advantages. First, modularisation increases the scope for personalised upskilling pathways. Learners can progress through learning units at their own pace, accumulating modules over extended periods rather than committing up-front to long, continuous programmes. In well-designed systems, modules can be combined across programmes, providers and, in some cases, across sub-sectors such as general adult learning, VET and tertiary education. However, this flexibility depends on robust credit transfer arrangements and interoperable qualification frameworks that ensure modules are portable and stackable rather than isolated.

In the context of Czechia's Modernisation of Vocational Education (*Modernizace Odborného Vzdělávání*) reform, secondary VET schools piloted a systematic modularisation of curricula as part of a broader effort to align provision with labour market needs and strengthen reskilling and upskilling capacity. The reform reorganised existing programmes into discrete certifiable units, enabling partial completion, facilitating transitions across levels and fields, and allowing curricula to be updated more flexibly in response to employer demand. By publishing all modules as open educational resources, the initiative also laid groundwork for wider re-use and potential development of VET-oriented micro-credentials (see following sub-section), provided that recognition and credit arrangements are sufficiently embedded in the system.

Second, modular provision can widen access to lifelong learning by lowering both practical and psychological barriers to training. OECD (2025[1]) shows that a lack of time due to work or family obligations is the most common barrier to adult learning. Smaller learning units are more accessible for those who may lack the time, confidence or resources to commit to full programmes. Furthermore, providing recognition at earlier stages reduces the risk of investing in learning, as individuals do not have to complete a lengthy programme before obtaining a formally recognised qualification. Partial recognition mitigates the all-or-nothing structure typical of lengthy qualifications and supports learners' confidence and momentum through visible progression. Certifying even partial completion also makes it easier for individuals to re-enter learning following interruptions linked to work, family or health. At the same time, it is important to note that modularisation alone does not guarantee higher participation rates; without complementary measures such as targeted outreach, guidance, and financial support, modular systems may favour learners who are already better positioned to navigate complex education and training landscapes. Adoption of flexible learning policies, such as digital delivery of learning and assessment and open learning schedules, can further improve the accessibility of modular learning.

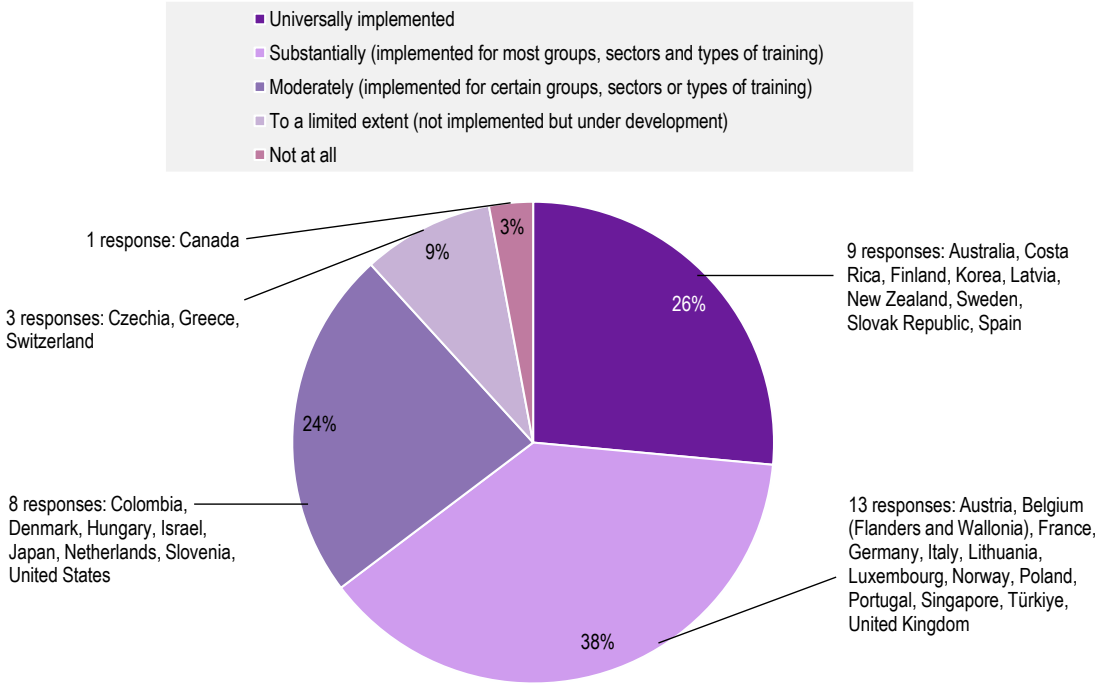
For example, Mexico's Model for Life and Work Programme (*Modelo Educación para la Vida y el Trabajo*, MEVyT) was designed to help adults with low levels of formal education obtain primary and lower-

secondary qualifications through a series of self-contained learning modules, each with clearly defined learning outcomes that could be progressively accumulated and eventually build toward a full credential. Learners can select modules according to their circumstances and take advantage of flexible learning modes, including online provision and in-person learning at community centres (OECD, 2019[2]).

Third, modular architectures provide a basis for more systematic recognition of prior learning. Clearly specified learning outcomes can be more easily assessed, matched and recognised, facilitating the validation of skills acquired through formal, non-formal or informal learning. On the other hand, if recognition systems are weak, modules lose their value, as learners may struggle to transfer credits or progress further. By awarding recognition for each completed unit, modular systems emphasise demonstrated skills rather than requiring individuals to finish a full qualification before any formal value is attached to their learning.

In recognition of these advantages, many OECD countries have integrated modular principles into formal education systems (see Figure 3.2). In higher education, this often takes the form of unbundling degree curricula into credit-bearing units that can be undertaken independently and later accumulated. For example, in Finland and Sweden, higher education institutions offer free-standing modules (typically 5-30 ECTS) that can be accumulated towards degrees within legal frameworks. In VET, modularisation is being used to restructure curricula, making progression more incremental and facilitating movement across programmes. For example, in Austria, apprenticeship qualifications are composed of a combination of both core and optional specialisation modules, enabling learners to build more personalised profiles while retaining a coherent qualification framework. Even outside formal education, tools such as micro-credentials are increasingly becoming a non-formal learning option (see the following subsection).

Figure 3.2. Implementation of modular learning pathways at the national level



Note: Responses to a question about the extent to which flexible learning approaches – specifically "modularisation of learning pathways" – have been implemented nationally. OECD countries and jurisdictions with available data, as well as Singapore, are shown.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

Despite its advantages, modularisation introduces system-level trade-offs. Excessive fragmentation risks creating learning dead ends without clear progression pathways and increasing complexity for learners. Highly flexible modular systems therefore require strong governance, including clear standards, transparent credit systems and integrated data infrastructures. Such mechanisms anchor learner autonomy within a coherent architecture and safeguard alignment with longer-term skill formation objectives (OECD, 2023[3]).

Denmark is an interesting case, having balanced the benefits of establishing a modular system while preserving coherence. Learners in Denmark can combine modules across different programmes and providers, including general, vocational and higher education institutions. In general adult education, modules can accumulate towards a full qualification granting access to further study, while in other parts of the system they can be assembled into a documented portfolio of skills, which may subsequently be recognised as partial learning in the form of credits. This flexibility is underpinned by robust administrative infrastructure. Each module is formally certified, in both paper and electronic form, and all completed modules are recorded against the individual's civic personal number. This allows learners and providers to track progress over time and across institutions. Because certificates are referenced to the Danish Qualifications Framework, accumulated learning remains visible and recognised across the system, supporting progression and sustained rates of full qualification attainment (OECD, 2023[3]).

Micro-credentials as flexible adult learning instruments

Micro-credentials operationalise incremental and modular learning within skills-first systems.[1] Defined as short, targeted learning that certifies mastery of specific skills (OECD, 2021[4]), micro-credentials are an ideal tool to develop, certify or signal discrete labour-market relevant skills without needing to incur the substantial costs associated with completing longer qualifications. They can be stand-alone units or be combined towards larger skill domains; some higher education institutions, for instance, unbundle degree programmes into individual micro-credential modules or short certificates, enabling learners to engage in education incrementally rather than through a single, high-commitment qualification. In this way, micro-credentials provide a practical mechanism for modularisation, lowering barriers to participation while preserving progression pathways towards formal qualifications where appropriate (OECD, 2021[5]).

Because they certify discrete and clearly defined competencies, micro-credentials enhance the precision of skill signalling in a way that broad qualifications cannot. By isolating and validating specific capabilities, they respond directly to specific skill gaps rather than bundling heterogeneous knowledge and skills into a single qualification. As such, micro-credentials are best suited to targeted upskilling and reskilling needs; this is particularly advantageous for mid-career adults who already possess a general qualification or occupational foundation and require only narrowly focused competencies to update technical skills or learn to use new tools. In this sense, micro-credentials operate primarily as complements to degrees and vocational qualifications, making specific skills available and communicable throughout the labour force (OECD, 2023[6]). Indeed, Singapore's sector-specific micro-credentials embedded within the SkillsFuture architecture are explicitly framed as tools for mid-career upskilling and reskilling within defined Skills Frameworks. These frameworks map sectoral roles, required competencies and career pathways, allowing micro-credentials to certify clearly delimited skill sets aligned to occupational functions rather than broad fields of study. Another example is Microidea, a project piloting micro-credentials in the tourism sector in five European countries. Drawing on several sources, including ESCO, the project developed an occupational profile for waiters that identified both core and optional tasks. Micro-credentials were then designed to support upskilling in optional tasks, particularly those related to digital and green skills, such as green cleaning and digital marketing (Microidea, 2025[7]).

Another advantage of micro-credentials is their potential to increase the responsiveness of learning systems. Their short design, approval and delivery cycles allow providers to update content more rapidly than is typically possible within traditional qualification frameworks. Often delivered through digital or

blended formats, micro-credentials enable rapid responses to emerging skill needs arising from technological change, sectoral restructuring or economic shocks. During the COVID-19 pandemic, for example, governments and institutions expanded micro-credential provision to address urgent upskilling needs, highlighting their potential as short-cycle policy instruments to support labour-market adjustment. This agility makes micro-credentials particularly relevant in sectors characterised by rapid skill obsolescence, and allows them to act as testing grounds for new content that may later be integrated into longer programmes (OECD, 2021[5]; 2023[6]). In the United States, the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) develops short, industry-aligned micro-credentials in advanced biomanufacturing, designed in close collaboration with employers to address rapidly evolving production technologies and regulatory requirements. By aligning credentials to employer-defined occupational standards and targeting technicians and incumbent workers, NIIMBL enables rapid updating of training content in a sector characterised by continuous technological innovation and skills shortages.

Table 3.1. Selected national micro-credential initiatives across jurisdictions

Country	Name of initiative and administering body	Concerned credential provider	Additional details
Australia	National Microcredentials Framework, developed by Department of Education	All education and training providers (including alternative providers)	Micro-credentials are positioned outside the formal AQF, but may reference AQF levels where credit-bearing
Canada (British Columbia)	Micro-Credential Framework, developed by BC Ministry of Post-Secondary Education and Future Skills	Post-secondary education institutions (including VET)	It emphasises employer-led labour-market relevance and demonstration of competence in assessment
Ireland	MicroCreds, led by the Irish Universities Association	Public tertiary institutions	Credentials are under 30 ECTS; stacking/accumulation possible through ECTS design
New Zealand	Micro-credential Approval and Accreditation Rules, designed by New Zealand Qualifications Authority	Accredited education providers (excluding universities)	Micro-credentials explicitly integrated into the national qualifications framework, with formal approval required
Singapore	SkillsFuture, co-led by SkillsFuture Singapore and Workforce Singapore	Approved continuing education and training providers	Sector-specific micro-credentials embedded within SkillsFuture architecture and aligned to national Skills Frameworks; explicitly framed as a tool for mid-career upskilling and reskilling
Slovenia	Reform of Higher Education for a Green and Resilient Transition to Society 5.0 Project, managed by Ministry of Higher Education, Science and Innovation	Public tertiary institutions	Micro-credentials target adult and continuing learners; positioned within a broader higher education reform agenda for lifelong learning
Spain	Royal Decree 822/2021, issued by Ministry of Universities	Public tertiary institutions	Credits are under 15 ECTS; stacking/accumulation possible through ECTS design
United States	Workforce development, organised by National Institute for Innovation in Manufacturing Biopharmaceuticals	Industry-led training providers	Sectoral model focused on advanced manufacturing/biotech; credentials are aligned to employer-defined occupational standards; intended to support targeted upskilling/reskilling for technicians and incumbent workers
United States (Colorado)	Opportunities For Credential Attainment, managed by Department of Higher Education	Community and technical colleges	Rapid delivery of industry-aligned credentials to help adults gain job-relevant skills quickly, targeting sector entry/transition

The effectiveness of micro-credentials is greatest when they are embedded in trusted frameworks that make learning outcomes transparent and portable. Their value depends on the clarity with which they document the skills acquired, the assessment methods used, the workload involved, and the credibility of the awarding body. Where micro-credentials are aligned with recognised credit systems, quality assurance arrangements and employer engagement, they can convey meaningful information about a learner's competencies (OECD, 2021[4]; 2021[5]; 2023[6]). Ireland's MicroCreds initiative illustrates this approach. It

developed micro-credentials within existing frameworks, with size defined as 1 to 30 credits within the European Credit Transfer and Accumulation System (ECTS) and level aligned to Levels 6 to 9 of the National Framework of Qualifications. Quality assurance is provided through extensions of existing institutional quality assurance arrangements, while labour-market relevance is supported through input from an Enterprise Advisory Group established for this purpose. This strengthens signalling value: employers and learners can interpret these micro-credentials within an established credit and qualifications architecture, rather than as stand-alone certificates of uncertain status. Hungary is pursuing a similar objective by strengthening the transparency, recognition and credibility of micro-credentials through the development of a unified framework that integrates them into established legislation across higher education, VET and adult learning (see Box 3.1) (Reform and Investment Task Force, 2025[8]).

Box 3.1. Harmonising micro-credentials and adult learning systems

The successful implementation of micro-credential policy requires a coherent strategy to embed micro-credentials within pre-existing credential systems. In 2022, the European Union adopted a Council Recommendation establishing a common approach to micro-credentials for lifelong learning and employability. The Recommendation calls on member states to embed micro-credentials within recognised credit and qualifications frameworks so that they can be portable, stackable and trusted signals of skills across institutions and national systems. Particular emphasis is placed on the transparent documentation of learning outcomes, expected workload, and assessment arrangements, which are necessary conditions for credibility and cross border recognition (Council of the European Union, 2022[9]).

Hungary is one of several European countries to have recently undertaken reforms in this direction. In a landscape where short courses already existed – but were fragmented across providers and sectors – Hungary has sought to harmonise these offerings by establishing a single national micro-credential framework spanning higher education, VET and non-formal adult learning. A central element of this system-integration approach is the inclusion of micro-credentials within existing legislative instruments, including the Adult Training Act, Higher Education Act and VET Act. Attention has also been given to the practical infrastructure needed to support harmonisation, including the integration of micro-credentials into Hungary's existing education and training information systems, with a focus on interoperability and alignment with European standards (Reform and Investment Task Force, 2025[8]).

Similarly, in Czechia, efforts are underway to establish a unified national strategy for micro-credentials in response to the fact that existing initiatives have developed in silos across different parts of the education and training system. In higher education, notable progress has been made, with public higher education institutions collaborating to develop a common micro-credential framework. In VET, programmes are being modularised to increase flexibility for learners. At the same time, a wide range of short non-formal training programmes is being offered under the piloting of individual learning accounts. In this complex policy landscape, discussions are underway to build a national system that can bring greater coherence to the different approaches adopted across sectors (OECD, n.d.[10]).

Table 3.1 summarises selected micro-credential initiatives across a range of jurisdictions. Various governance models are possible: some are embedded within national qualifications frameworks and administered by public authorities, while others are anchored in higher education systems through credit-based design, and still others are sector-led initiatives aligned directly to employer-defined occupational standards. Despite these differences, they share a common logic: each uses small, certified units of learning to introduce greater flexibility, enable incremental skill accumulation and respond to targeted

upskilling and reskilling needs. In doing so, they translate modularisation into practice and enable more precise signalling of skills.

For micro-credentials to advance a skills-first agenda, their benefits must extend throughout the labour market, including to disadvantaged or low-skilled adults. Yet evidence from many countries shows that take up is concentrated among individuals who already have tertiary degrees and financial support, often from their employers (OECD, 2023[6]). When public funding and student support remain primarily oriented towards full time degree study, lower qualified adults face structural barriers to participation. In this context, expanding micro-credential supply without adapting funding rules, guidance services and outreach strategies risks entrenching existing inequalities in skill accumulation rather than narrowing them (OECD, 2021[5]; 2023[6]). Embedding micro-credentials within a coherent skills-first architecture is therefore essential. This requires robust quality assurance and assessment arrangements, interoperable credit systems, employer involvement in design or validation, and transparent pathways for recognition and progression. Clear information, consistent terminology and guidance mechanisms are also critical to help learners and employers understand the value of micro-credentials.

Ensuring portability through quality assurance

Quality assurance plays an important role in building trust, supporting portability and strengthening labour-market recognition. Extending quality assurance principles to shorter and more diverse forms of provision requires a stronger focus on demonstrable learning outcomes than on institutional form or delivery mode. To support this, providers need to define clearly what learners are expected to know and be able to do on completion (OECD, 2024[11]). These outcomes should be explicit, measurable and intelligible to external stakeholders. France's Pix digital skills certification system illustrates how transparent learning outcomes can underpin credible micro-credentials. Pix is a national online platform for assessing and certifying digital skills against the Digital Competence Reference Framework (*Cadre de référence des compétences numériques*), which is itself aligned with the European DigComp framework. Skills are organised into clearly defined domains and proficiency levels, expressed as concrete "know-how" that describes what individuals can demonstrably do in digital environments. Certification follows standardised assessment and is overseen by Pix itself, with formal recognition through registration in the national directory of professional certifications managed by the authority for vocational qualifications, *France Compétences*.

At the same time, quality assurance of modular and short courses should be proportionate and risk sensitive. Applying full qualification-level quality assurance to every micro-credential would undermine the agility that makes modular provision attractive. A proportionate approach can safeguard minimum standards while allowing innovation, potentially increasing requirements with scale, public funding or formal recognition. OECD countries have tackled these competing priorities in different ways. In New Zealand, micro-credentials are subject to programme-level accreditation by the New Zealand Qualifications Authority (NZQA), which conducts a structured review of content, assessment practices, delivery methods, and learning outcomes before approval and registration. This approach mirrors the rigour applied to formal qualifications and offers strong assurance of quality but can be more resource-intensive and may slow the rapid deployment of short courses focusing on emerging skills. By contrast, Switzerland's eduQua framework certifies adult learning providers themselves, rather than individual programmes, granting a quality label to institutions that meet minimum standards and undergo periodic audits. This reduces administrative burden and preserves agility but offers less direct assurance at the course level.

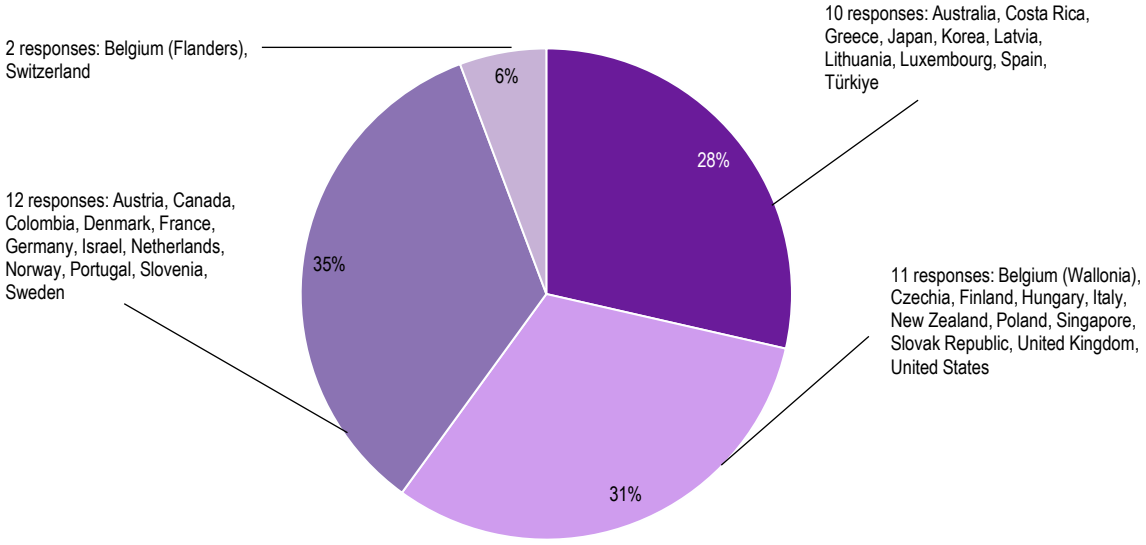
Leveraging employers as co-designers and providers of training

A coherent skills-first ecosystem rests on a tight link between skills development and skills recognition. Learning activities should therefore generate skills that are well valued in the labour market and in society more broadly. To achieve this, public authorities are strengthening policy instruments designed to steer

participation towards in-demand skills. Evidence from the OECD Trends in Adult Learning Policy Questionnaire 2025 shows that around 60% of responding countries report implementing, to a large or very large extent, policies that guide individuals towards training in high-demand skills and/or incentivise providers to offer such training (Figure 3.3). More than one-third report having similar policies to a moderate extent, suggesting a broad policy orientation towards skills-first learning.

Figure 3.3. Policies to steer the development of in-demand skills

Extent of policies designed to orient individuals and training providers towards high-demand skills and qualifications



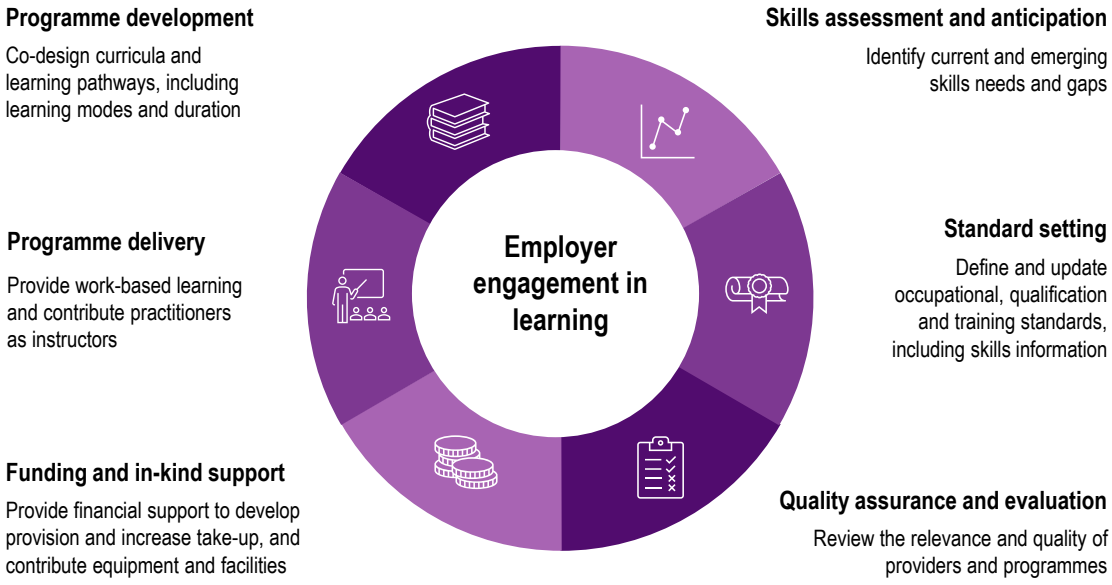
Note: Responses to the question, "To what extent does your country implement policies or initiatives aimed at guiding or incentivising individuals to train in high-demand skills and qualifications, and/or at encouraging providers to offer such training (e.g. digital skills, skills for the green transition, health and care occupations)?". OECD countries and jurisdictions with available data, as well as Singapore, are shown.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

Employers play a central role in ensuring that training content reflects current and future skills demand (Figure 3.4). Firms have first-hand intelligence on occupational changes and can therefore identify gaps between existing provision and workplace needs and contribute to the specification of occupational and training standards. Their involvement can support programme development by co-designing curricula and learning pathways, including modes of delivery and duration. They can also contribute to delivery by offering work-based learning opportunities and providing industry practitioners as instructors. In some cases, employers act as providers themselves, developing and delivering training programmes internally. Employers can also be an important source of funding and provide a strong anchor for quality assurance by confirming industry relevance and evaluating training programmes and providers.

While employer involvement in education and training is not new, a skills-first approach reinforces the need for structured and continuous participation rather than ad hoc consultation. In fact, in many countries and

sectors, particularly those with a tradition of vocationally oriented education, employers and providers have collaborated for decades. However, these connections often rely on personal relationships or individual institutions rather than structured arrangements and can sometimes lead to training that is tailored to the needs of particular firms rather than more widely transferable skills. As the demand for portability of skills across firms and industries increases, employer engagement needs to shift from bilateral, request-based consultation to structured, continuous participation in the design, delivery and evaluation of training.

Figure 3.4. Employers as key contributors to skills-first learning



Source: Authors' elaboration.

Sectoral skill bodies represent a key mechanism for systematically engaging social partners in education and training (Table 3.2). In Australia, for example, ten Jobs and Skills Councils support VET provision across their respective industry sectors. Their functions include identifying skills and workforce needs, updating training curricula, supporting collaboration between industry and providers to strengthen assessment practice, and generating sector-specific labour market intelligence. Although sectoral skills bodies typically play an advisory role, in some cases they also contribute to delivery. Ireland's Skillnet Business Networks play such a role, providing upskilling and reskilling programmes. For example, the Cultural and Creative Industries Skillnet offers short, targeted courses of around two to four months in areas such as ethical AI in creative industries, digital sculpting, and sound design for interactive media.

Expanding such mechanisms without increasing administrative burden or reducing agility could further support the development of in-demand skills. Sectoral skill bodies are often embedded in VET systems, but there is scope to extend their role to non-formal adult learning. In New Zealand, for instance, providers seeking quality assurance for micro-credentials must obtain written support from the relevant Industry Skills Board to show that the proposed training is relevant and meets labour market demand.

Many collaborations between training providers and employers also take place outside sectoral skills council frameworks. For example, in the United States, the Skills First Coalition, a consortium of around 20 employers and training providers, works to strengthen alignment between education and employment (Skills First Coalition, 2026[12]). Its activities include promoting diverse learning opportunities, such as short

online and hybrid programmes and work-based learning; advancing the recognition of prior learning; co-developing skills frameworks that define credentials and courses in high-demand fields such as healthcare, technology, and logistics; and supporting the modernisation of O*NET to incorporate real-time labour market data and more accurately define the skills required for jobs. At the European level, the EU's Pact for Skills similarly brings together public and private organisations to support collaborative commitments to adult learning that is responsive to labour market needs. It helps members connect with partners, promotes peer learning, and provides information on skill needs (European Commission, n.d.[13]).

Table 3.2. Examples of sectoral skills bodies

Country	Name	Coverage	
Australia	Jobs and Skills Councils (JSC)	VET	In 2023, ten JSCs were established to replace previous industry engagement arrangements. They operate as not-for-profit, industry-led companies, with Jobs and Skills Australia co-ordinating efforts at the national level (Australian Government, 2025[14]).
Costa Rica	Advisory Liaison Committees (*Comités Consultivos de Enlace*)		There are around ten committees established by the National Learning Institute. Around half have a sectoral focus, while the remainder have a regional focus (Attorney General's Office of the Republic of Costa Rica, 2007[15]).
Hungary	Sectoral Skills Councils (*Ágazati Készségtanácsok*)		Established in 2020, there are around 20 councils representing different sectors. Industry representatives are appointed by the minister responsible for VET, and co-ordination across councils is led by the Hungarian Chamber of Commerce and Industry (Hungarian Chamber of Commerce and Industry, 2021[16]).
New Zealand	Industry Skills Boards (ISB)	VET, including micro-credentials	Replacing the previous scheme, the government established eight ISBs in 2026. Each board comprises two ministerial appointees and six industry-nominated members (New Zealand Ministry of Education, 2025[17]).
Ireland	Skillnet Business Networks	Further education	Established in 1999, there are currently 70 networks, each a cluster of businesses collaborating by sector or region. The umbrella government organisation, Skillnet Ireland, co-finances the networks (Skillnet Ireland, n.d.[18]).

Employers act directly as training providers as well. Work-based learning and apprenticeship schemes are one important form of employer-led training. In Switzerland, for example, Swiss Federal Railways offers paid apprenticeships for adults seeking a career change across more than ten occupations, including train drivers, operational planning specialists and traffic controllers (Swiss Federal Railways, n.d.[19]). Participants may enrol on either a full-time or part-time basis, providing greater flexibility. In Türkiye, the Turkish Employment Agency partners with companies to provide paid on-the-job training for unemployed individuals (Turkish Employment Agency, 2026[20]). Standard placements last up to three months, but can be extended in priority sectors and for younger participants. For example, training in cybersecurity and cloud computing for participants aged 18 to 29 can last up to nine months. In addition, firms are developing online courses aimed at building specific technical skills, often focused on the use of their own products. Anthropic, for example, offers a range of online courses to support the effective use of its AI model, Claude, in both business and personal contexts (Anthropic, 2026[21]). Its training for individuals consists of a series of video-based lectures, leads to a certificate of completion and is offered free of charge.

Supporting employees' broader skill development is another important dimension of firms' engagement in training. Large firms may make skill development plans independently. Walmart, for example, offers both online and in-person training to support the development of job-specific and transversal skills, including leadership. It also provides employees with educational benefits by covering the cost of externally provided training of their choice, ranging from short courses to bachelor's degrees. SMEs may choose to co-ordinate with public authorities and other firms. Finland's Joint Purchase Training system is a staff training scheme under which training activities are organised by the public employment service in co-operation with individual employers or groups of employers seeking either to retrain existing staff or to establish training

programmes for new staff (OECD, 2021[22]). Through this system, employers can receive funding and tailored support to recruit employees with the right skills or to adapt the skills of existing staff to technological and operational changes within the company.

Fostering a lifelong learning culture

A skills-first labour market requires skills to be developed, updated and reconfigured throughout the life course, not only during the initial cycle of formal education. Yet, across the OECD, participation in adult learning remains persistently low and unequal, with disadvantaged groups – including low-skilled adults, older workers, those in non-standard employment and individuals without employer support – participating the least (OECD, 2025[1]). Building a culture of lifelong learning is therefore essential to enable all adults to re-enter learning repeatedly in response to evolving skill needs, supported by mechanisms that make such transitions normal, feasible and worthwhile.

Strengthening motivation and confidence to learn

For a substantial share of adults, poor engagement does not reflect formal exclusion, but rather a limited desire or confidence to participate. Nearly half of adults in the Survey of Adult Skills reported that there was no adult learning activity they wished to participate in over the course of the past year (OECD, 2025[1]). This may stem from negative prior schooling experiences, a lack of confidence in their ability to succeed, or scepticism about labour market returns. In some cases, suitable training provision may also be unavailable or poorly signalled.

Outreach strategies and guidance play a key role in reducing informational asymmetries, strengthening individual expectations of returns, and mitigating behavioural barriers that inhibit participation in adult learning, particularly when embedded within trusted local institutions. For instance, Austria's Vienna Employment Promotion Fund (waff) illustrates how innovative outreach can help normalise adult learning. Established by the City of Vienna and operating in close co-operation with the Public Employment Service (AMS) and social partners, waff combines counselling and financial support with creative communication strategies. Professionally produced social-media series portray individuals retraining into in-demand occupations such as elderly care or early childhood education, documenting their routines and career transitions. These campaigns are embedded within broader "social recruiting" efforts, including influencer partnerships, multilingual counselling, pop-up outreach in housing complexes and large-scale events such as the Future Fit Festival. The goal of waff is to frame lifelong learning as socially recognised and attainable rather than exceptional.

Other initiatives use a highly targeted approach to raise awareness and confidence among specific demographic groups. For example, Italy's SheTech initiative focuses on increasing women's participation in AI and digital fields by combining visible role models with low-risk entry formats. Short, one-day bootcamps allow participants to explore technical subjects before committing to lengthy programmes. Alongside technical content, SheTech integrates training in public speaking, leadership, personal branding and time management, explicitly addressing confidence and self-efficacy. Similarly, in Spain, *Somos F5* engages under-represented groups in digital training via active community outreach through social media, local networks and targeted communication. Its strategy targets women, migrants and other groups distant from formal training systems. Entry barriers are lowered through discovery workshops and one-month trial periods, allowing participants to test programmes before committing fully. A dedicated job placement co-ordinator supports learners throughout, providing guidance on course choices, assisting with CV preparation and interview techniques, and linking training directly to employment opportunities (OECD, forthcoming[23]).

Addressing time and flexibility constraints

Even when motivation exists, time constraints linked to work and family responsibilities frequently inhibit participation. Among adults who wished to participate but did not, lack of time is the most frequently cited barrier, reported by approximately 45% (OECD, 2025[1]). This constraint becomes particularly acute in mid-career, when reskilling needs intensify in view of career changes (OECD, 2025[24]).

Two principal policy levers address time constraints. The first concerns flexible provision. Digital and blended learning models can allow adults to adapt the timing and mode of study to their responsibilities. Modularisation, asynchronous delivery, and online and hybrid formats enable learning to be sequenced in smaller units and organised more flexibly, reducing the need for extended absences from work. Uptake of these methods is prevalent in some countries. In Lithuania and Poland, over 40% of non-formal adult learning is already delivered at distance; the COVID-19 pandemic accelerated use of these digital tools, in many cases (OECD, 2025[1]). Germany provides an example of how formal education providers can incorporate flexibility into their delivery: public adult education centres (*Volkshochschulen*) are encouraged to offer courses in varied temporal formats, including evening and weekend classes, flexible start dates and part-time study loads. Widening the range of scheduling options is associated with higher participation. Similarly, Australia's national portal for finding micro-credentials, the MicroCred Seeker platform, signals the course duration, level, and delivery mode for courses up front (in addition to information on credits and stackability) so that learners can easily find learning opportunities that align with their time constraints while preserving transparency around progression routes and benefits to learning (OECD, 2023[3]).

The second lever concerns training leave. Statutory or collectively negotiated leave arrangements could enable workers to allocate time to skill development while maintaining employment security. Nearly half of the 34 countries surveyed in the OECD's 2025 Trends in Adult Learning Policy Questionnaire report having statutory training leave in place. Design choices – such as whether leave is paid or unpaid, and whether it can be taken full-time or part-time – influence take-up and distributional effects. For example, training leave schemes that cover foregone wages are more likely to benefit lower-income workers who would otherwise be unable to afford time away from work. Although countries can vary considerably in how they structure leave (Table 3.3), reforms increasingly seek closer alignment with labour market needs and tighter targeting towards genuine retraining and mid-career transitions. Sweden's Student Finance for Transition and Retraining, for instance, introduced in 2022, consists of a grant and an optional loan to cover up to 80% of previous salary for up to 44 weeks of full-time study (with part-time options), and requires that the chosen training improve the individual's employability based on labour market needs. Eligibility is restricted to adults aged 27-62 with at least eight years of work experience and recent employment, revealing an emphasis on mid-career transitions and labour-market-relevant retraining more so than open-ended study.

Table 3.3. Examples of training leave policies in OECD countries

Country	Programme name	Right to leave	Paid or unpaid	Full-time / part-time options	Duration
Austria	Further Training Allowance (*Weiterbildungsbeihilfe*)	Based on agreements with the public employment service and with employers	Paid (via public funding)	Full-time or part-time	2-12 months full-time (longer if part-time)
Finland	Study Leave (*Opintovapaa*)	Yes, statutory (employer may postpone but not refuse within limits)	Unpaid	Full-time or part-time	Up to 2 years over 5-year period
France	Career Transition Project (*Projet de transition professionnelle)*	Yes, statutory (employer may postpone but not refuse within limits)	Paid (via public funding)	Full-time or part-time	Variable (linked to training programmes)
Sweden	Student Finance for Transition and Retraining (*Omställningsstudiestöd*)	Yes, statutory (linked to studies)	Paid (grant + optional loan)	Full-time or part-time	Up to ~44 weeks full-time equivalent

Reducing financial and opportunity costs

Financial barriers remain a significant deterrent to training participation and are the second most frequently cited obstacle after time constraints. Around 13% of adults who wished to participate in adult learning but did not cited cost as the primary barrier (OECD, 2025[1]). Costs include not only direct tuition fees, but also the opportunity costs of foregone wages, as well as other expenses including childcare costs for those with family responsibilities or transportation costs for those who need to travel to reach the provider offering the relevant training. For adults in insecure employment or with low skills, investment in training may appear excessively risky, especially if returns are uncertain. Mitigating financial barriers is therefore central to sustaining participation over time.

Employers have an important role in sharing these costs, particularly where they benefit directly from enhanced productivity. Around two-thirds of adults participating in non-formal job-related learning reported their employer covered part or all of the training costs (OECD, 2025[1]). Employer contributions can take the form of direct funding, reimbursement schemes or in-kind support such as paid time allowances. Evidence shows that adults are substantially more likely to participate when employers integrate learning into career progression and recognise acquired skills (OECD, 2023[3]).

Policy instruments such as individual learning accounts (ILAs), training vouchers and subsidised short courses reduce financial risk and provide purchasing power (OECD, 2023[25]). ILAs are particularly effective as they institutionalise the idea of continuous skill investment rather than one-off interventions (OECD, 2025[26]). By establishing an "account" associated with the individual over time, ILAs symbolically and financially reinforce the norm that skill development is an ongoing responsibility supported by public policy. For example, Lithuania's *KURSUOK* individual learning account targets those who have at least vocational education and are employed (including self-employed) at the start of training, to avoid overlap with public employment service support. Funding is steered towards priority skills, with 50% of the budget reserved for digital skills and the remainder allocated to the eight key competence areas defined in the EU Council Recommendation on key competences for lifelong learning, namely literacy, multilingualism, STEM, digital skills, personal and social development, citizenship, entrepreneurship, and cultural awareness. In France, the *Compte personnel de formation* (CPF) allows individuals to accumulate annual training credits, which remain valid until retirement and can be used to enrol in courses of their choice, among a list of accredited training courses.

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Note

[1] While modularisation is closely related to micro-credentials, the two are not equivalent: modularisation concerns the organisation of learning, whereas micro-credentials are certifications that attest the acquisition of specific skills.

4 Promoting skills-first hiring and talent management

Skills-first talent recognition reflects a broader shift in employer practices and typically unfolds in four steps, which this chapter examines through concrete examples. Organisations first identify priority roles and engage relevant internal and external stakeholders to support implementation. They then update job descriptions to specify the skills required to perform each role. Hiring processes are subsequently adapted to assess and select candidates based on demonstrated skills, with explicit attention to fairness. Finally, skills-first principles are embedded beyond recruitment within wider talent management practices, including performance assessment, career progression and the design of personalised skills development pathways.

In Brief

Skills-first talent recognition is expanding, but requires the right tools

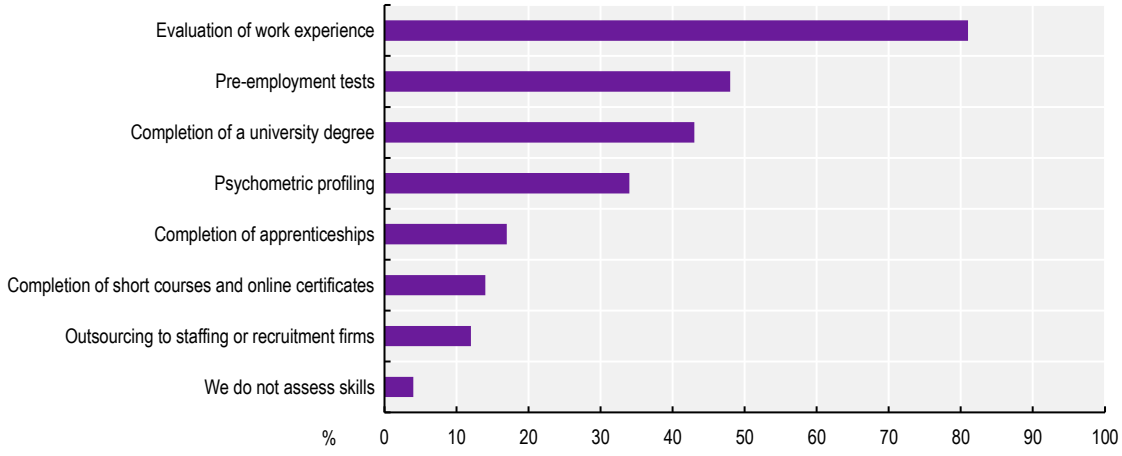
- Employers can initiate their skills-first journey through targeted pilots in a small number of roles, while engaging stakeholders early to support shared learning and sustained commitment. Suitable pilot roles can be identified through a broad review of job descriptions, or by focusing on specific priorities such as shortage occupations and entry-level positions.
- Employers should translate selected roles into skill requirements, drawing on skills language infrastructure, such as skills-focused occupational standards. While skills are increasingly referenced in job advertisements, a skills-first approach makes them the main criterion for recruitment decisions, with qualifications and experience playing a complementary role.
- Selection processes should prioritise demonstrated skills through structured assessments and competency-based interviews, delivered internally or via specialist providers. Across OECD countries, the use of pre-employment tests is expected to grow, supported by digital tools and emerging technologies that allow more systematic and scalable assessment of skills.
- Removing degree requirements alone does not automatically expand opportunities for underrepresented groups. Employers need to take deliberate measures to mitigate bias and expand access, including blind recruitment practices and alternative entry routes such as apprenticeships or short training programmes.
- Skills-first approaches should extend beyond hiring and be embedded across talent management, including goal setting, performance reviews, career development and training. Skills frameworks and proficiency levels can support clearer career pathways and performance assessment, while digital platforms and AI help identify skill gaps and target training.
- Public authorities can support wider adoption of skills-first hiring and talent management, with particular attention to SMEs. Options include developing skills-focused occupational standards and progression pathways (e.g. Austria and Japan), supporting skills assessment (e.g. France), providing practical implementation toolkits (e.g. the United States), and leading by example through public-sector practice (e.g. the United Kingdom).

Introduction

Work experience and university degrees continue to serve as the primary proxies for assessing individuals' skills in recruitment. According to the World Economic Forum's data from 2024, based on responses from over 1 000 companies across 55 economies, around 80% of surveyed employers expect to prioritise work experience when hiring between 2025 and 2030, while over 40% anticipate relying on university degrees (Figure 4.1). At the same time, recruitment practices are gradually diversifying: around half of employers plan to use pre-employment tests, and one-third intend to apply psychometric profiling, reflecting a growing interest in demonstrated skills and personal attributes. Other methods, including the completion of apprenticeships, short courses and online certificates, are also emerging.

Figure 4.1. Employer-reported skill assessment mechanisms

Share of employers surveyed which will prioritise the following ways to assess skills when hiring, 2025-2030



Note: Data are based on responses from over 1 000 employers across 55 economies.
Source: World Economic Forum (2025[1]), The Future of Jobs Report 2025: Data Explorer, https://www.weforum.org/publications/the-future-of-jobs-report-2025/data-explorer-foj25/.

This continued reliance on work experience and university degrees reflects two underlying challenges. First, assessing skills in a reliable and scalable way remains difficult. Second, cultural resistance and unconscious biases reinforce established hiring practices.

Skill assessment remains a major obstacle for employers considering adopting skills-first approaches. A 2021 McKinsey survey of around 300 small and medium-sized firms in the United States found that validating skills, competencies and references represented the most significant hiring challenge, with nearly half of respondents identifying it as a key concern (McKinsey & Company, 2022[2]). Similarly, a 2023 survey of 1 500 employers reported that most respondents considered the validation of hard and soft skills to be the most difficult aspect of their hiring process (66% and 57% respectively) (TestGorilla, 2023[3]).

Cultural resistance and unconscious biases further complicate progress. A study by the SUSS-IAL identifies cultural resistance as one of five structural inefficiencies that uphold the prominence of credentials and hinder transitions towards skills-first practices. Degrees often serve not only as indicators of technical competence but also as symbols of identity, aspiration and legitimacy in professional contexts (Gog, Sung and Sigelman, 2025[4]). Unconscious biases also shape hiring decisions, as employers tend to favour candidates who resemble themselves in terms of gender, race, experiences, leisure interests and self-presentation styles (Rivera, 2012[5]). In mature organisations with established norms about what a typical employee looks like, such tendencies can amplify the signalling value of prior experience and academic qualifications.

Despite their widespread use, prior work experience and years of education are increasingly recognised as weak predictors of job performance. Drawing on a meta-analysis, Schmidt and Hunter (1998[6]) reported that general cognitive ability tests and work sample tests had the highest mean validity for predicting job performance across 19 recruitment methods, whereas years of experience in a similar role and years of education showed substantially lower predictive power. A more recent meta-analysis of 81 study samples also concluded that pre-hire work experience is generally a poor predictor of future performance (Van Iddekinge et al., 2019[7]).

One reason may be that work experience and education serve only as indirect proxies for the skills acquired through those experiences. More detailed information on individuals' skills could help fill this knowledge gap. For example, Dokko, Wilk and Rothbard (2009[8]) found that task-relevant knowledge and skills – as opposed to organisation-specific knowledge – can mediate the relationship between prior experience and job performance. This suggests that much work experience is highly organisation-specific and does not necessarily translate into improved performance unless it fosters knowledge and skills linked to job tasks. The same applies to formal qualifications. As discussed in Chapter 1, information on specific skills offers a more granular understanding of what degree holders actually know and can do.

An overreliance on prior experience and formal qualifications can also shrink the available talent pool. It disadvantages young adults with limited work experience, people returning after career breaks for family or health reasons, international talent whose qualifications may not be formally recognised, and candidates without degrees. According to Generation, a global non-profit network, more than 90% of employers in 2023 required prior work experience for entry-level roles involving technology-related tasks, which can exclude candidates with the right skills but no formal employment history and further constrain hiring in occupations that already face skills shortages (Generation, 2023[9]).

Identifying priority job roles and securing stakeholder buy-in

Skills-first talent recognition reflects a broader shift in employers' mindsets and practices and typically unfolds in four steps (Figure 4.2). First, organisations identify priority roles and engage relevant internal and external stakeholders. Second, they update job descriptions to specify the skills required to perform each role. Third, they adapt hiring processes to assess and select candidates based on demonstrated skills, while promoting fairness and inclusion. Finally, skills-first principles extend beyond recruitment into wider talent management, including performance assessment and the design of personalised skills development pathways.

Figure 4.2. Key steps of skills-first hiring and talent management

Source: Authors' elaboration.

Evidence on how to implement skills-first hiring effectively remains limited and is largely anecdotal. However, early experiences suggest that organisations can start small while maintaining a clear strategic direction (OECD, 2024[10]). For example, employers may pilot skills-first approaches for a limited set of roles, while engaging a wide range of stakeholders from the outset. This supports experimentation, enables shared learning, builds a common understanding of the approach, and strengthens commitment across the organisation.

Target roles for pilot initiatives can be determined in different ways. One approach is to conduct a comprehensive review of all job descriptions to identify positions where core skills can be developed through non-formal and informal learning, including roles for which skill requirements are evolving faster than formal curricula can adapt. IBM, for example, gradually introduced skills-first practices for its "new-collar" jobs. These roles demand specialised technical skills but do not necessarily require a four-year degree, and they include positions such as cybersecurity analysts, application developers and cloud computing specialists (IBM, 2026[11]).

Organisations with more limited resources may prefer a more targeted strategy. One option is to focus initially on occupations facing the most severe labour shortage. According to the OECD Skills for Jobs Database, shortage occupation groups in countries with available data include health professionals, teaching professionals, legal, social and cultural professionals, sales workers, and information and communications technology professionals (OECD, n.d.[12]). In Europe, high-skilled shortage occupations encompass a range of technical roles, such as engineers, engineering technicians, software developers, applications programmers, and systems administrators (Table 4.1).

Table 4.1. Examples of high-skilled shortage occupations in Europe

Occupations at the ISCO 4-digit level identified as being in shortage in at least 13 European countries, 2024

Occupation	Number of countries
Nursing professionals	22
Specialist medical practitioners	21
Physiotherapists	19
Generalist medical practitioners	18
Chefs	17
Electrical engineering technicians	17
Electrical engineers	16
Industrial and production engineers	16
Pharmacists	16
Civil engineers	15
Dentists	15
Mechanical engineering technicians	15
Nursing associate professionals	15
Software developers	15
Systems administrators	15
Audiologists and speech therapists	14
Early childhood educators	14
Vocational education teachers	14
Applications programmers	13
Civil engineering technicians	13
Primary school teachers	13

Note: The data include occupations in major groups 1 (managers), 2 (professionals), and 3 (associate professionals) of the International Standard Classification of Occupations (ISCO), which typically refer to jobs requiring a high level of education (Cedefop, 2026[13]). The dataset covers 29 countries, namely the 27 EU Member States, Norway, and Switzerland.
Source: European Employment Services (2025[14]), Labour shortages and surpluses in Europe, https://eures.europa.eu/living-and-working/labour-shortages-and-surpluses-europe_en.

It is important to recognise that skills-first approaches are not a one-size-fits-all solution (European Commission, 2024[15]). Their suitability varies between roles and industries. For instance, although shortage occupations include roles in regulated sectors, such as health and education, most occupations in these fields legally require specific qualifications or licences, typically linked to formal education pathways. In such cases, the scope for applying skills-first approaches is more limited.

Nonetheless, the broader principle of treating skills as a core currency remains relevant even in regulated or highly specialised occupations. A stronger focus on skills can support their transferability between countries with different regulatory requirements and between jobs. This is increasingly becoming a political priority, as reflected in initiatives such as the EU's Skills Portability Initiative (see Box 2.2).

Another method for identifying suitable roles for skills-first hiring, proposed by the Burning Glass Institute and Harvard Business School, is to prioritise occupations where there is a substantial mismatch between the qualifications employers request and those held by the current workforce. The authors argue that, in such cases, the degree requirement is likely to be a matter of preference rather than necessity. Examples based on their analysis, which primarily focuses on the United States, include construction managers, web developers, distribution managers, production and planning clerks, computer programmers, and event planners (Sigelman, Fuller and Martin, 2024[16]).

A practical starting point is also to focus on entry-level roles or positions within human resources departments, where there may be greater openness to experimenting with new recruitment practices. These roles can help build internal momentum and demonstrate early results. It may also be easier to redesign job descriptions for roles where specific technical skills – rather than broader non-tangible skills – are the primary requirements. Another possible approach is to begin with teams and managers who are particularly receptive to piloting new methods.

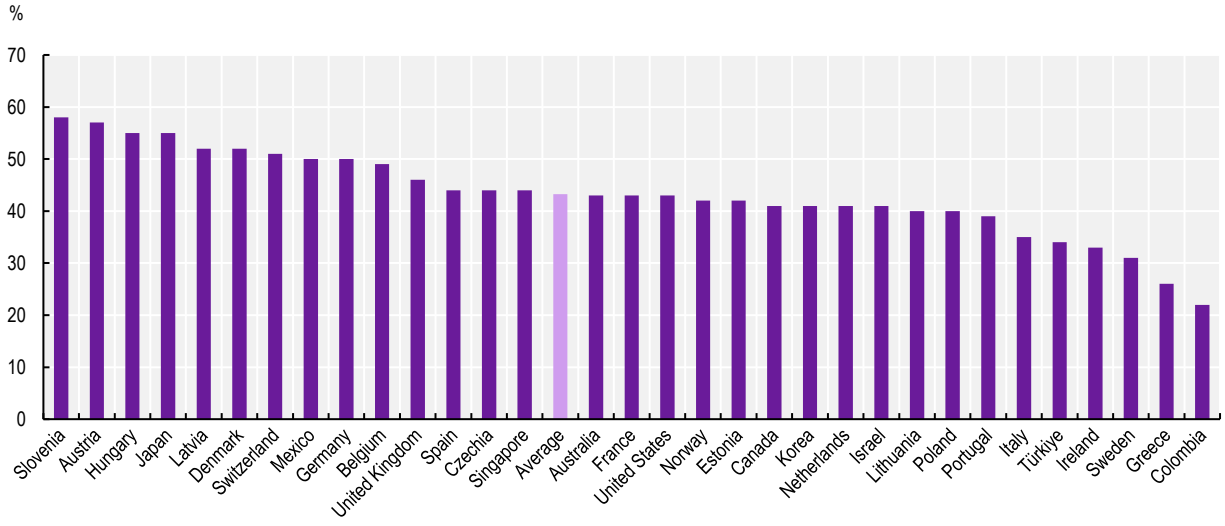
Engaging a wide range of internal stakeholders from the outset is another critical component of successful implementation, with senior and executive leaders playing a pivotal role. The World Economic Forum identifies organisational culture and resistance to change as among the most frequently cited barriers to organisational transformation. On average across OECD countries with available data, two in five employers expect these factors to hinder transformation, rising to over half in some countries, including Slovenia and Austria (Figure 4.3). Senior and executive leaders can help make the skills-first agenda mainstream by setting strategic direction, allocating resources, driving shifts in organisational culture and scaling up effective practices.

Human resource professionals are equally important, as they ensure consistent use of skills taxonomies at the organisational level, explore different options for skills assessments and embed skills-first approaches in hiring, performance management and skills development. Hiring and line managers are at the centre of the process. They review and redesign job descriptions to focus on required skills, select appropriate assessment methods and apply skills-based perspectives in performance evaluations. Technology teams may contribute by developing the digital infrastructure that supports skills-first practices. Other relevant internal stakeholders include communications teams, which help employees understand new processes, and diversity, equity and inclusion teams, which identify underrepresented groups and promote fair outreach.

In addition to internal actors, several external stakeholders could support the adoption of skills-first practices. Employer associations can encourage the use of consistent skills taxonomies within and across industries and help disseminate good practices. Trade unions can ensure that skills-first approaches contribute to improving working conditions and job satisfaction and can explore how these approaches may be incorporated into collective agreements. Career guidance professionals and recruiters also play a key role, as they often serve as intermediaries between employers and jobseekers. Where firms collaborate with training providers, these partners can help align their programmes with organisational needs. For roles that require mandatory qualifications or licences, employers may also consult credentialling bodies to clarify the skills underlying these requirements.

Figure 4.3. Organisational culture as a barrier to transformation

Share of employers surveyed expecting organisational culture and resistance to change will hinder their organisational transformation, 2025-2030



Note: OECD countries with available data and Singapore are shown.
Source: World Economic Forum (2025[1]), The Future of Jobs Report 2025: Data Explorer, https://www.weforum.org/publications/the-future-of-jobs-report-2025/data-explorer-foj25/.

Designing skills-focused job descriptions

Once priority roles have been identified and relevant stakeholders engaged, the next step is to translate these roles into clearly defined skill requirements. Skills-first hiring is often narrowly interpreted as removing degree requirements. In fact, it reflects a broader shift whereby candidates are assessed on the basis of the skills they can demonstrate, regardless of whether these were acquired through formal, non-formal or informal learning. Clear and explicit definitions of required skills are therefore essential and should appear directly in job postings.

In defining skill requirements, employers can draw on existing resources such as skills taxonomies, occupational standards, and skills assessment and anticipation data developed by public authorities or social partners (see Chapter 2). Flanders's Competent, for example, provides detailed descriptions of essential and optional skills for different professions, including relevant soft and digital skills. Each skill is further specified through behavioural indicators and associated knowledge requirements. The database is kept up to date through inputs from social partners and users, complemented by AI-enabled information processing (VDAB, 2025[17]). Employers can use such resources as a starting point and adapt them to the specific requirements of individual vacancies. In Austria, the Public Employment Service supports employers in tailoring skills-oriented occupational standards to job postings (Austrian Public Employment Service, 2025[18]). In some cases, employers also collaborate to co-create shared skill profiles for specific roles. In the United States, for example, ten large firms have joined forces to develop standardised skill profiles for 30 selected job roles (Box 4.1).

Many employers already reference skills in job postings. An analysis of online job advertisements published between 2012 and 2019 across six English-speaking countries (Australia, Canada, New Zealand, Singapore, the United Kingdom and the United States) found that around 90% include some form of skill-related keyword (OECD, 2022[19]).

Box 4.1. Employer co-operation to develop shared skill profiles

In 2024, the Burning Glass Institute and Walmart launched the Skills-First Workforce Initiative, bringing together ten large firms in the United States, including Bank of America, Microsoft and Walmart, to co-create skills-first job profiles. Drawing on labour market intelligence, the working group identified key skills for 30 roles that collectively represent around one-quarter of the private-sector workforce, ranging from truck drivers and cashiers to cybersecurity analysts and project managers*. These job skill profiles are published on a publicly available online portal.

For each role, key skills are grouped into four categories. For example, for human resources specialists, around 20 skills are identified across: core role-specific skills (such as payroll processing), baseline applied skills (such as Microsoft Excel), foundational and leadership skills (such as problem solving), and specialisation skills (such as labour law) (Table 4.2). The portal also provides labour market insights for each skill, including its frequency of demand, role specificity, projected five-year growth, and associated wage premiums. Each skill is further described using three proficiency levels – basic, intermediate, and advanced – with clear behavioural indicators.

Table 4.2. Example of skill profile – Human resources specialists

Category	Skills
Core role-specific skills	Benefits administration, benefits enrollment processes, employee engagement, employee onboarding, employee relations, human resource management, human resources information system, payroll processing, training and development, workforce planning
Baseline applied skills	Data analysis, Microsoft Excel
Foundational and leadership skills	Business administration, change management, communication, organisational skills, problem solving, project management, writing
Specialisation	Applicant tracking systems, full-cycle recruitment, labour law, performance management, succession planning, workers' compensation

As a next step, the initiative aims to promote the use of these shared skills profiles through the Skills-First Implementation Fellowship. The fellowship provides grants to employer coalitions, education networks and similar organisations to integrate the skills data into key infrastructure, including career navigation and job-posting workflows, learning platforms, and employer or workforce data systems. In parallel, efforts are underway to support regional adaptation through collaboration with local organisations.

Note: *The 30 job roles for which skills are defined are as follows: Assemblers and fabricators; cashiers; customer service managers; customer service representatives; cybersecurity analysts; data scientists; financial analysts; financial managers; human resources specialists; industrial machinery mechanics; inspectors, testers, and samplers; labourers and material movers; maintenance and repair workers; packers and packagers; product managers; production and expediting clerks; project management specialists; purchasing agents; receptionists and information clerks; retail salespersons; retail supervisors; sales managers; sales representatives; security guards; shipping and receiving clerks; software developers; stockers and order fillers; transportation supervisors; truck drivers; warehouse managers.
Source: The Burning Glass Institute (2026[20]), Skills-First Workforce Initiative, https://www.skills-first.org/.

Some companies go further by highlighting skills at the forefront of job postings or placing greater emphasis on skills than on formal qualifications or past experience. For example, a vacancy for a Customer Solutions Engineer posted on Google's career webpage in November 2025 lists a range of technical skills as minimum requirements, including writing and debugging code in general-purpose programming languages (such as Java, C, C++, Python, Shell, Go or JavaScript), computer networking and web technologies (such as HTTP, HTML and DNS) and virtualisation and orchestration frameworks. While the posting mentions a

bachelor's degree requirement, it also states that equivalent practical experience is acceptable (Google, n.d.[21]). AXA XL, a subsidiary of AXA, provides another example of a job vacancy that clearly articulates required skills (Box 4.2).

Box 4.2. Piloting skills-based hiring

AXA XL, the property, casualty and speciality risk division of the French multinational insurance corporation AXA, employs around 7 500 staff and is currently piloting skills-based hiring. The company has reviewed all job roles, identified the skills required for each, and begun incorporating these skills into postings for selected hard-to-fill positions. For example, the job description for an Operations Analyst sets out requirements based on specific skills. It does not mandate a formal degree, and relevant experience is described as desirable but not essential (Table 4.3).

Table 4.3. Example of skills-first job description – Operations analysts

Required Skills and Abilities:
Computer literate – experience using Microsoft Outlook, Excel (including formulas & pivots), Word, PowerPoint and Teams would be advantageous
Experience of being a proactive individual with an enthusiasm to deliver change
Effective and professional communicator with proven experience in stakeholder management
Accurate and exceptional attention to detail
Excellent proactive organisational skills and ability to plan and prioritise their own work
Excellent work ethic
Sound mathematical skills with the ability to analyse complex data and statistics
Creative thinker, curious and ready to challenge the status quo
An appetite for achievement and building a career within the insurance market
Desired Skills and Abilities:
Microsoft Excel LOOKUPS & IF formulas
System data entry experience and process experience
Previous project related experience
Previous insurance experience from an administration or operational support perspective
Experience of the London and/or Lloyd's Market
Knowledge of underwriting processes

Note: Information extracted on 20 November 2025.
Source: AXA (2025[22]), Careers AXA, https://careers.axa.com/careers-home.

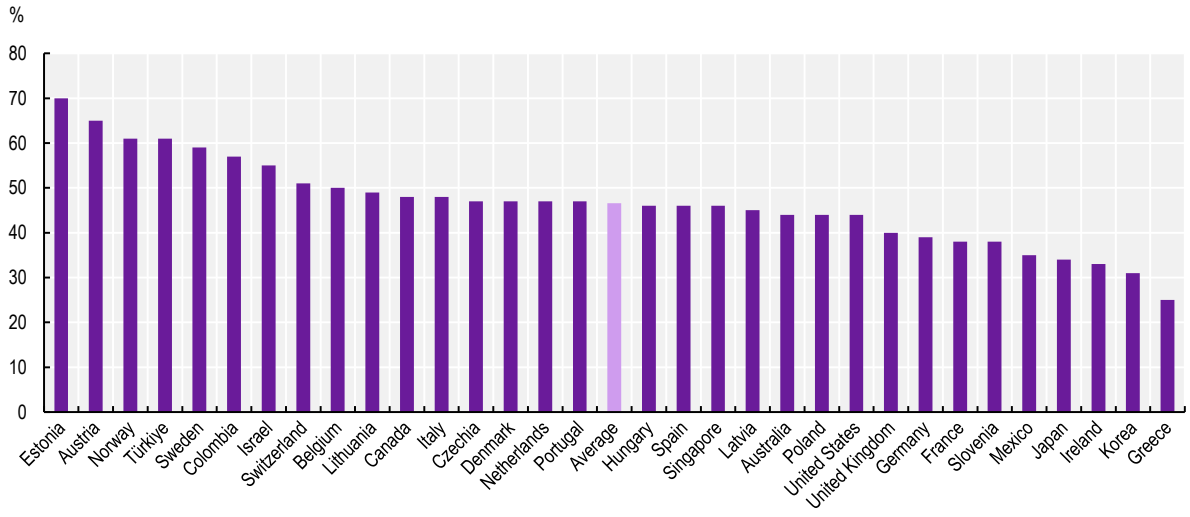
Selecting talent through demonstrated skills

Methods to select candidates on the basis of demonstrated skills can take multiple forms, including structured assessments and competency-based interviews. On average across OECD countries with available data, nearly half of surveyed employers expect to use pre-employment tests to assess skills in hiring between 2025 and 2030 (Figure 4.4). Around one-third also report plans to use psychometric profiling, including tools such as the Big Five personality traits test and logical reasoning tests (World Economic Forum, 2025[1]). Employers may develop their own selection methods or collaborate with specialised firms that design and administer skill assessments.

While ideally all candidates should have opportunities to demonstrate their skills, many recruitment processes begin with screening. This stage is increasingly supported by algorithmic tools, which can help reduce certain forms of human bias but can also reproduce or amplify bias depending on how they are designed, trained and used (Milanez, Lemmens and Ruggiu, 2025[23]). Whether screening is conducted by humans or algorithms, one practical step is to define, before reviewing CVs, the types of experience and learning pathways that can build the skills sought but may be missed in rapid screening. For example, a manager hiring an event co-ordinator could look beyond conventional job titles and recognise experience in hospitality or managing large groups, such as waiting tables, military service or student teaching, as evidence of organisational and interpersonal skills (United States Department of Labor, 2024[24]).

Figure 4.4. Employers using pre-employment tests to assess skills during hiring

Share of employers surveyed which will prioritise the use of pre-employment tests to assess skills when hiring, 2025-2030



Note: OECD countries with available data and Singapore are shown.
Source: World Economic Forum (2025[1]), The Future of Jobs Report 2025: Data Explorer, https://www.weforum.org/publications/the-future-of-jobs-report-2025/data-explorer-foj25/.

Among the different types of skills assessments, online assessments are among the most widely used, in part because they can be administered at scale and enable employers to assess large numbers of candidates efficiently. For example, the United Kingdom-based company SHL offers a range of assessments to support employers seeking talent. Its cognitive assessments measure candidates' numerical skills, problem-solving and critical reasoning capabilities. Its behavioural assessments evaluate alignment with workplace expectations through scenario-based exercises that simulate job contexts. Its personality assessments aim to measure candidates' preferences, motivations and capacity to work effectively in remote settings (SHL, 2026[25]). Similarly, HackerRank, a technology firm based in the United States, offers coding assessments that measure more than 250 technology-related skills using real-world tasks such as debugging. The platform also includes AI-enabled features that help employers evaluate how effectively candidates can use AI (HackerRank, 2026[26]). In addition, some public institutions, such as France's public employment service, support employers in implementing skill assessments (Box 4.3).

Skill assessments are increasingly leveraging leading-edge technologies. For instance, Accenture has replaced traditional written case studies in its early talent recruitment process with virtual reality simulations that recreate challenges employees may encounter in their roles. One such assessment, known as "the

Project Room", places candidates in a virtual environment where project-related information is presented across Gantt charts, pie charts, tables, and data. Candidates are required to identify and extract relevant information, manage project tasks, and communicate their plans to others (Accenture, 2023[27]).

Box 4.3. Skills assessment through simulations

In 1995, France's public employment service introduced the simulation-based recruitment method (*Méthode de Recrutement par Simulation*, MRS), often described as "recruitment without a CV". France Travail recommends MRS for large-scale hiring and for vacancies that are difficult to fill. The method has been applied across a wide range of occupations, including aircraft assemblers, ambulance attendants, caregivers, garden machinery technicians and production operators.

Once France Travail and an employer agree to use MRS, they jointly identify the technical and soft skills required for the position and develop practical assessment tests tailored to job-specific tasks. A specialised team supports employers throughout the implementation process. For example, for a position as a professional delivery driver, candidates may be asked to sort cubes and other coloured objects into boxes. This task is designed to assess their ability to organise a delivery van and retrieve the correct parcels efficiently and without error. Candidates who demonstrate the required skills through these tests are then invited to interviews.

Source: France Travail (2026[28]), La méthode de recrutement par simulation (MRS), https://www.francetravail.fr/employeur/vos-recrutements/selectionnez-des-candidats/la-methode-de-recrutement-par-si.html.

Competency-based interviews are another commonly used method for assessing candidates' skills. These interviews typically combine technical questions (for example, asking candidates to develop an online campaign plan for a digital-marketing role) with behavioural and situational questions (such as inviting candidates to describe a time when they worked closely with a colleague whose working style differed significantly from their own) (Adecco, 2024[29]).

Skills-first hiring is often presented as a new concept, but many of its core assessment methods, such as cognitive skills tests and competency-based interviews, have long been used in recruitment. In this sense, it is not so much an entirely new practice as a reframing that places skills at the centre of selection decisions, relative to other criteria. At the same time, advances in technology are enabling new ways to assess candidates' skills, broadening the scope and scalability of skills-focused evaluation and increasing the potential of skills-first talent management.

Making skills-first hiring inclusive

Available evidence suggests that removing formal qualification requirements alone does not necessarily broaden access to jobs for groups that are under-represented in certain occupations and in the workforce more broadly, including women, younger and older workers, and ethnic minorities. As mentioned above, a study by the Burning Glass Institute and Harvard Business School shows that, between 2014 and 2023, the annual number of roles in which employers dropped degree requirements rose fourfold. While this marks progress towards a more skills-first labour market, fewer than 4% of these newly degree-free job postings resulted in the hiring of non-degree candidates. Among the firms analysed, just over one-third made a substantive change by increasing their recruitment of non-degree holders, while the remaining two-thirds continued to hire the same (or an even greater) share of university graduates, despite removing degree requirements (Sigelman, Fuller and Martin, 2024[16]). A more recent study similarly finds that

companies that removed degree requirements from job postings saw only a two p.p. increase in the share of hires with non-degree credentials (Rao, Weathers and Martin, 2026[30]).

If employers want to broaden opportunities for underrepresented groups, they will need to make additional, intentional efforts. Skills-first approaches are not intended to devalue formal education, and selecting candidates with degrees based on their demonstrated skills remains both reasonable and fair. However, if employers are seeking to diversify their talent pipelines, they may need to take deliberate action, such as addressing unconscious bias in selection processes and creating alternative pathways that support candidates from underrepresented groups.

To foster more inclusive skills-first hiring, reducing unconscious bias in recruitment processes is crucial. Blind recruitment – which involves removing identifying information such as names, photographs, gender, age or educational institution during screening and interviews – is one example. Several studies report that blind recruitment can increase the likelihood that non-traditional candidates progress through selection stages and are ultimately hired, although some evidence also points to potential limitations in its effectiveness for workforce diversification (Fath, 2023[31]). Other research shows that anonymised processes can encourage applications from counter-stereotypical candidates, such as women and individuals aged over 45 applying for technical roles (Boring et al., 2025[32]). The City of Helsinki, the largest employer in Finland, piloted anonymous screening for 13 selected job roles in 2020 and found that applicants with an immigrant background were more likely to be invited to interview and subsequently hired. The pilot also showed no significant differences in wages or turnover between anonymised and traditionally recruited hires, while anonymisation increased the overall number of applicants, particularly among women (Kanninen, Kiviholma and Virkola, 2023[33]).

Another strategy for widening talent pools is to establish alternative entry routes for specific groups. For example, some companies offer apprenticeships and short training programmes to candidates from underrepresented backgrounds so they can demonstrate their skills. According to 2024 data from the World Economic Forum, about 15% of surveyed employers plan to use the completion of apprenticeships, short courses or online certificates as indicators of skills when hiring between 2025 and 2030 (Figure 4.1).

Indeed, apprenticeships are increasingly recognised as an effective tool for promoting inclusive hiring. For example, Eli Lilly, an American multinational pharmaceutical company, offers several apprenticeship pathways that combine formal training with paid, on-the-job learning and are tailored to different target groups. Its Professional Apprenticeship Programme is a 13-month scheme spanning multiple functions, including human resources, marketing, and research and development. Lilly also offers a Technical Pathway Programme, lasting up to 24 months, which focuses on IT roles such as data operations, service management, analytics, and automation. Both programmes target adults without a four-year degree and provide a structured pathway for career transition and progression, including consideration for full-time positions at Lilly upon successful completion. In addition, a Craft Apprenticeship Programme is available for recent high school graduates (Lilly, 2026[34]).

Short courses can also provide alternative pathways into specific occupations. Micro-credentials, for instance, help individuals develop in-demand skills and signal them effectively to employers (see Chapter 3). While such programmes tend to disproportionately benefit learners from more advantaged backgrounds, there are examples where, when carefully designed with specific target groups in mind, they have enabled underrepresented learners to demonstrate their capabilities more quickly than formal education pathways allow (OECD, 2023[35]). Merit America, a non-profit organisation, provides an illustrative example. It supports learners from underserved communities to enrol in and complete industry-recognised certificates in high-demand skills, such as Google Career Certificates. Training is available in fields including cybersecurity, data analytics, IT support, project management, semiconductor technologies, supply chain management and user experience design. Programmes are offered on a part-time basis, either online or in a hybrid format, and typically last four to five months. Learners enrol at no upfront cost and repay a zero-interest loan only if they secure employment with annual earnings of at least

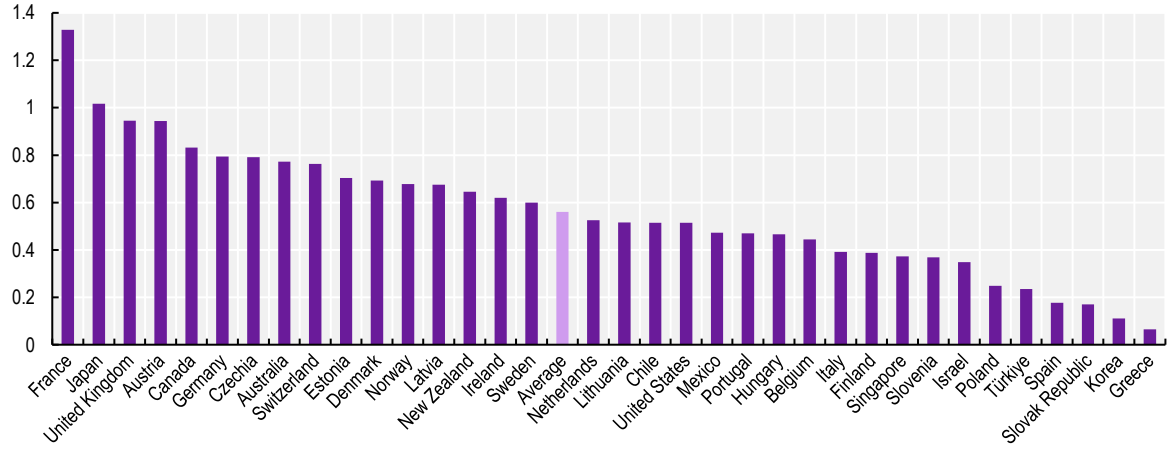
USD 40 000. Participants also receive wraparound support, including coaching, AI-enabled job search assistance and financial support for living costs during training. Merit America reports that, on average, alumni increase their annual earnings from around USD 28 000 to USD 49 000 upon completion of the programme (Merit America, 2026[36]). In England, government-run Skills Bootcamps provide another example of short, targeted training that can support entry into new occupations. These are free, flexible courses of up to 16 weeks for adults aged 19 and over, focused on high-demand skills such as digital, green, and health and social care. Learners who complete the training are guaranteed a job interview (United Kingdom Department for Education, n.d.[37]).

Embedding skills in talent management more broadly

Skills-first approaches extend beyond hiring to encompass goal setting, performance management and continuous training. Skills-focused job descriptions help individuals plan their skill development and enable employers to assess performance based on demonstrated skills, rather than years of service. Identified skill needs can also inform the design and targeting of relevant training opportunities.

Available evidence suggests that many countries are still progressing towards rewarding skills through remuneration. Analysis of PIAAC data indicates that stronger information-processing skills are positively associated with higher wages: median earners with higher skill levels earn around USD 30 per hour on average, compared with around USD 20 per hour among those with lower skill levels (OECD, 2024[38]). However, across OECD countries with available data, the wage premium associated with skills is generally more modest than that associated with educational attainment, with the exception of France and Japan (Figure 4.5). On average, a one standard deviation increase in years of education is associated with a 16% increase in wages, while a one standard deviation increase in numeracy proficiency is associated with a 9% increase in wages.

Figure 4.5. Comparative returns to skills versus qualifications



Note: Estimates are based on individual-level PIAAC data. For each country, a regression model is estimated in which log hourly wages are regressed on two core variables: numeracy proficiency (measured through PIAAC's direct skills assessment) and years of education. The model also controls for gender, migrant background, partnership status, having children and years of work experience. The indicator shown in the figure is the ratio of these two marginal effects (i.e. the estimated return to skills relative to the estimated return to education). Higher values indicate that skills are rewarded more strongly (through higher wages) relative to years of formal education.
OECD countries with available data and Singapore are shown.
Source: OECD/SUSS-IAL (2025[39]), Skills-First Readiness and Adoption Index, https://www.oecd.org/en/data/dashboards/skills-first-readiness-and-adoption-index.html.

Existing skills frameworks can support the design of skill-based career development plans. In Japan, for example, career development frameworks have been established for selected occupations, defining proficiency levels for the key skills required in these roles (Box 4.4). These frameworks can be used to support career planning and to assess performance in a more structured and transparent way.

Box 4.4. Visualising career progression in key professions

Japan has introduced initiatives to standardise career progression pathways in selected professions. One example is the Skill Standards for IT Professionals (*IT Skill Hyojun*, ITSS), first developed in 2002, by the Ministry of Economy, Trade and Industry in consultation with industry representatives. The framework defines proficiency levels for the skills required across 11 occupation groups and 35 specialisations, including marketing, sales, IT specialists, software development and customer service.

In marketing, for instance, the occupation is divided into three specialisation areas: marketing channel strategy, marketing management and market communication. For a marketing role specialising in marketing channel strategy, around ten core skills are identified as particularly relevant, including opportunity assessment and selection, marketing strategy, sales channel strategy, compliance, project management and communication leadership. For each of these skills, proficiency is specified across multiple levels, thereby outlining a structured pathway for skills development and career progression (Table 4.4).

Table 4.4. Example of skill proficiency level descriptions

	Selected categories
Job category	Marketing
Specialisation	Marketing channel strategy
Skill category	Communication
Defined skills	Two-way communication; information transmission; information organisation, analysis, and search
	Skill proficiency level descriptions
Level 4	As a team leader responsible for the sales channel strategy of a specific product or service at a defined scale, the individual can communicate effectively with team members and execute tasks related to sales channel strategy.
Level 5	As an individual accountable for the sales channel strategy of a specific product or service at a defined scale, the individual can implement marketing activities for sales channel strategy in a small-sized market. They can communicate effectively with internal managers and translate business strategy into operational actions.
Level 6	As the individual accountable for sales channel strategy across multiple product groups and service lines at an overall scale, the individual can design and develop sales channel strategy operations for a medium-sized market. They can communicate effectively with senior management and internal executives and provide leadership in shaping business strategy.

Beyond skill-level specifications, ITSS also provides an overarching career development framework. Careers for IT professionals are defined across seven levels, ranging from entry level (Level 1), through intermediate level (Levels 2 to 3) and high level (Levels 4 to 5), to mastery level (Levels 6 to 7). A range of national qualifications obtained through the Japan Information Technology Engineers Examination are mapped to Levels 1 to 4*. Individuals can take examinations up to Level 3 without prior work experience, while examinations aligned with Level 4 require relevant professional experience. In this way, ITSS, in combination with national qualifications, supports individuals seeking to enter the IT sector by helping them assess their skills and identify potential career pathways. There is no standardised national examination for Level 5 and above, and local assessments for those levels are based on professional experience.

Another example is the Career Level Classification System for Care Professionals (*Kaigo Professional Career Dan-i Seido*), developed by the Cabinet Office in 2012 and currently managed by the Ministry of Health, Labour and Welfare. This framework also classifies careers across seven levels, providing a structured reference for progression in the care sector.

Note: *There is no standardised national examination for Level 5 and above; assessment at these levels is typically conducted locally and is based primarily on professional experience.
Source: Elderly Service Providers Association (n.d.[40]) and Information-technology Promotion Agency (2026[41]).

Many firms are also leveraging digital technologies to manage their workforce through a skills-first lens. Deutsche Telekom, for instance, has developed more than 500 role profiles by combining internal expertise with external AI-based skill forecasts. Its skills and career management platform, the Growth Hub, personalises training plans to address skill gaps identified through annual self-assessments and manager validation (Ulbrich, 2025[42]). Coca-Cola Europacific Partners, the largest independent Coca-Cola bottling company, provides another example. The company have partnered with Eightfold, an AI-powered talent intelligence system, to launch their Career Hub, often described as an "internal LinkedIn". The platform enables employees to document their career journeys, plan skills development, expand professional networks and explore internal mobility opportunities. Managers can use it to identify potential internal candidates for recruitment, with both employees and managers supported by AI-driven recommendations. Combined with the company's skills framework, which maps three to five key skills to each role, this system enables skills-based talent management. As a result, more than half of permanent roles within the company are currently filled through internal mobility (Coca-Cola Europacific Partners, 2023[43]). Similarly, Unilever's U-Work internal talent marketplace enables employees to move flexibly between projects and tasks (Chapter 1).

Overall, skills-first approaches to talent management offer benefits to both employees and employers. Employees gain clearer visibility over career pathways and a more targeted understanding of their skills development needs, while employers are better equipped to identify firm-level skill gaps and opportunities for skill transfer across roles.

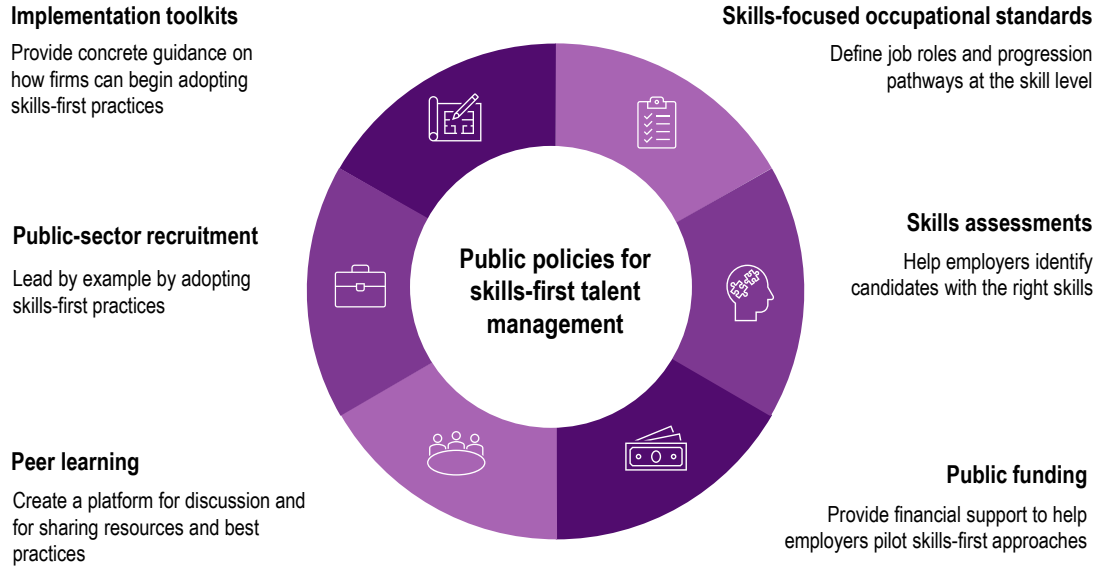
Enabling a skills-first shift through public policy

Public authorities can play a pivotal role in accelerating the adoption of skills-first hiring and talent management at the national level, particularly among small and medium enterprises (Figure 4.6). Governments can spearhead the development of skills-focused occupational standards (Chapter 2) and clearer progression pathways (Box 4.4), helping to anchor employer practices in a shared skills framework. Public employment services contribute by supporting firms to identify candidates with the relevant expertise through skills assessment tools (Box 4.3) and targeted career guidance (Chapter 5). The development of practical implementation toolkits can further lower entry barriers for businesses seeking to adopt skills-first approaches. Governments can also lead by example, embedding skills-first recruitment and talent management within the public sector and creating platforms for peer learning that enable employers to exchange resources and effective practices. Finally, public funding can provide strong incentives for firms to pilot and scale skills-first approaches.

Providing a clear roadmap for implementing skills-first approaches helps firms understand the operational steps and the resource implications involved. For example, in 2024, the United States Department of Labor, in collaboration with the Department of Commerce and social partners, published the Skills-First Starter Kit. The guide sets out practical steps, from identifying the skills required for a role to assessment, recruitment and onboarding. It includes sample evaluation rubrics, references to existing tools and illustrative case studies of employer practice (United States Department of Labor, 2024[24]).

Governments can also demonstrate what works by adopting skills-first recruitment and talent management in the public sector, although feasibility varies between countries. In the United States, a growing number of states have reformed degree requirements in public employment (Chapter 1). The United Kingdom's Department for Work and Pensions offers multiple entry routes, including apprenticeships that combine permanent civil service contracts with structured training. Recruitment materials explicitly encourage applications from underrepresented groups, including people from ethnic minority backgrounds (DWP Digital, n.d.[44]). However, in some countries, statutory qualification requirements constrain experimentation in public employment.

Figure 4.6. Public authorities as key promoters of skills-first talent management



Source: Authors' elaboration.

Governments can further promote skills-first approaches by facilitating dialogue and peer exchange among stakeholders. Mechanisms include tripartite agreements, councils and committees, and the establishment of dedicated organisations (Chapter 5). The EU-US Talent for Growth Task Force is an example of international dialogue. Established between 2023 and 2024, it was led by public officials and brought together employer and worker representatives, as well as training providers. It provided a forum to discuss skills-first hiring and micro-credentials (European Commission, n.d.[45]).

Finally, public funding can provide strong incentives for firms to pilot and scale skills-first approaches. Singapore, for example, offers the SkillsFuture Workforce Development Grant to support job redesign and workforce transformation. The grant covers 50% of eligible costs for businesses to receive expert guidance from pre-approved consultants, build internal capability, and adopt technology tools, up to SGD 150 000 (around USD 120 000). Support increases to 70% for SMEs (Government of Singapore, 2026[46]).

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5 Connecting learning to jobs through guidance, signalling and collaboration

Education and training providers are increasingly aligning curricula and assessment practices around skills, while employers place growing emphasis on skills in recruitment and talent management. Translating these parallel developments into a coherent, nationwide skills-first approach requires mechanisms that connect the worlds of learning and work and strengthen co-ordination among the actors involved. This chapter examines four such mechanisms: career guidance, skills passports, recognition of prior learning, and multi-stakeholder collaboration arrangements.

In Brief

Bridging learning and work is essential for a coherent skills-first approach

- Individuals need clear information and targeted advice to navigate labour-market and learning options through a skills lens. Career guidance services play a central role by providing skills-focused information on occupations and learning opportunities, as in Austria and Korea, and by helping individuals identify their skills and interests through self-assessment tools, as in Canada and Germany. Personalised counselling can also support individuals in interpreting information and converting it into informed decisions. For example, Flanders offers career guidance vouchers, while New Zealand provides free career guidance in person, online, and by phone.
- Skill signalling, whereby individuals proactively articulate and communicate their skills, is expanding in OECD countries, increasingly supported by digital infrastructure. Governments are developing tools, such as skills passports, that allow individuals to store and showcase information on education, work experience and skills in a single interface. Many of these tools draw on administrative data on employment and training, providing a platform through which verified information can be presented, as in France and Singapore.
- Recognition of prior learning (RPL) systems help bridge emerging skills-first practices and existing qualification structures, by validating skills acquired through non-formal and informal learning and translating them into recognised credentials. Yet, while such systems exist in most OECD countries, participation remains limited due to low awareness and complex procedures. In response, some countries, including France, have introduced reforms to increase take-up.
- Implementing a skills-first approach requires sustained collaboration among actors with distinct mandates and incentives, including governments, employers, training providers and individuals. Traditional arrangements include tripartite co-operation, councils or committees, and programme-based partnerships, but countries are increasingly establishing dedicated organisations responsible for skills policy implementation and cross-sector co-ordination, as in Australia, England, and Finland.

Introduction

A final core component of a skills-first ecosystem is stronger integration between learning systems and labour market practices. Education and training providers are increasingly reorienting curricula and assessments around skills, while employers are placing greater emphasis on skills in recruitment and talent management. Yet in many countries, the link between learning and work remains weak. Occupational standards, qualification registries and training curricula often use different skill languages, making it difficult to translate learning outcomes into job requirements (see Chapter 2). Information is also frequently fragmented. Learning and employment opportunities are spread across multiple platforms, often managed by different ministries, which makes it harder for individuals to navigate their skills journey.

Converting these parallel developments into a coherent, nationwide approach therefore requires mechanisms that connect the worlds of learning and work and strengthen co-ordination among the actors involved. Career guidance is one important example, particularly when it helps individuals frame their education and career choices in skills-focused terms. Measures that enable individuals to signal their skills

to employers, such as skills passports, are another essential element and can be reinforced through public policy. Recognition of prior learning, including the validation of non-formal and informal learning, can further support the transition to a skills-first economy by ensuring that skills are recognised in forms comparable to formal qualifications. Finally, multi-stakeholder dialogue, in its various forms, can play a pivotal role in aligning and co-ordinating these initiatives, helping to build greater coherence across education, training and labour market systems.

Embedding skills-first approaches in career guidance

Most adults require clear information and targeted advice to navigate labour market and learning options through a skills perspective. Career guidance services play a critical role in this process by providing skills-focused information on occupations and learning opportunities and by equipping individuals with tools that enable skills-first decision making.

Career guidance refers to services "intended to assist individuals to make well-informed educational, training and occupational choices" (OECD, 2004[1]; 2021[2]). In broad terms, career guidance services can be grouped into three interconnected areas (Figure 5.1). First, they produce and disseminate information on skills required for different occupations and related education and training opportunities. Second, they offer a wide range of self-assessment tools and diagnostic instruments to help individuals identify their strengths, skills, and interests. Third, they provide personalised counselling that supports individuals in their interpretation of labour market information and self-assessment results and in the translation of these insights into tailored advice to support employment outcomes. These services are typically delivered by public employment services (PES) and private providers but are also offered by some education and training institutions and employers.

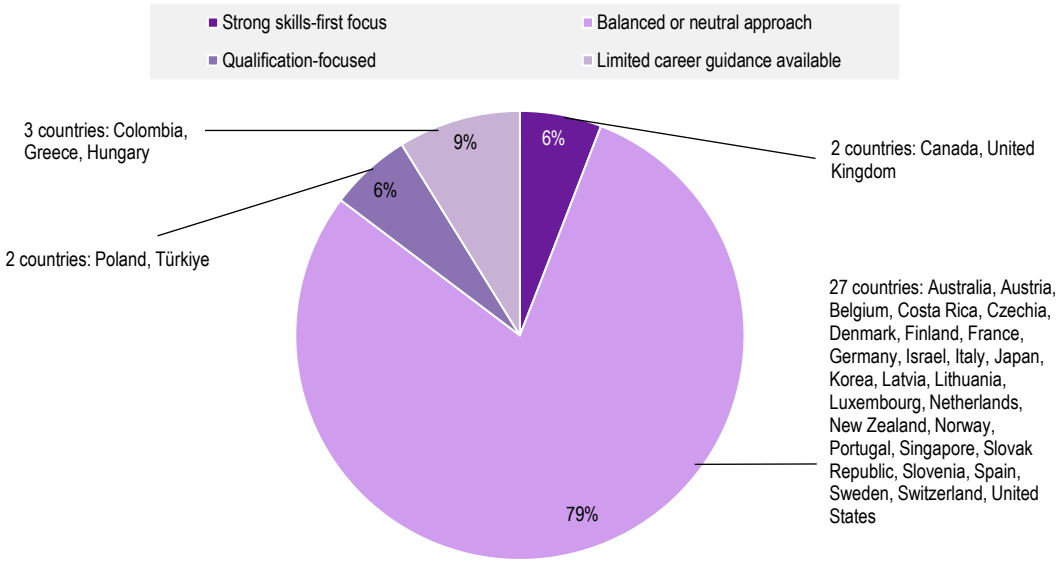
Figure 5.1. Key pillars of skills-first career guidance

Source: Authors' elaboration.

Across OECD countries, guidance systems have traditionally treated formal qualifications and skills development and recognition as equally legitimate routes into employment. Results from the OECD Trends in Adult Learning Policy Questionnaire 2025 indicate that around 80% of the 34 responding countries report that their career guidance systems provide information on both skills development and formal qualifications as pathways into employment (Figure 5.2). Despite this institutional neutrality, career guidance services are increasingly incorporating skills-first elements.

Figure 5.2. Focus of career guidance

Extent to which career guidance emphasises developing skills rather than obtaining formal qualifications



Note: Responses to the question, "To what extent does career guidance in your country focus on helping individuals understand and develop skills, rather than obtaining formal qualifications?". The response option "strong skills-first focus" refers to career guidance that primarily emphasises skills development, including recognition of prior learning, micro-credentials, and skills-based career pathways. "Qualification-focussed" refers to career guidance that primarily encourages individuals to pursue formal degrees and certifications, with limited emphasis on alternative skills-building pathways. "Balanced or neutral approach" indicates that career guidance provides information on both skills development and formal qualifications as routes to employment. "Limited career guidance available" indicates that no structured approach to career guidance is in place. OECD countries with available data and Singapore are shown. Data for Belgium refer to Brussels, Flanders and Wallonia.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

Facilitating access to labour market information remains a core function of guidance systems, with digital portals playing a prominent role. Austria's Career Information System (*Berufsinformationssystem*), managed by the PES, encourages users to explore careers through a skills-first perspective (Austrian Public Employment Service, 2026[3]). Its skills search function allows individuals to identify occupations associated with specific skills. For example, a search for supply chain management skills yields a diverse set of job profiles, including business development managers, industrial engineers, warehouse workers, and wholesale buyers. For each occupation, the system provides information on expected income, current job vacancies, other in-demand skills, and relevant training programmes. Similarly, Korea's Workpedia provides detailed occupation information, including required skills ranked by importance, average annual salary, job satisfaction and workers' educational backgrounds (Korean Ministry of Employment and Labour, 2025[4]). CareerNet is a portal that presents Workpedia content in a user-friendly format and complements

it with an aptitude test that assesses individuals' strengths and helps match them to suitable options (Korea Research Institute for Vocational Education and Training, n.d.[5]).

Equally important is supporting individuals in understanding their own skills and interests. Public authorities offer a broad range of skills self-assessment tools, which are often combined with other support mechanisms. These instruments can be embedded within labour market information portals and digital skills passports or incorporated directly into counselling services where professional facilitation enhances interpretation and follow-up. Their primary purpose is to support reflection, for example by helping individuals identify hidden talents and interests, or by suggesting occupations they may not have considered but that align with their skills and preferences. Most tools therefore rely on self-evaluation and are distinct from assessments used in recruitment to measure specific skills (e.g. coding skills), which are discussed in Chapter 4. Other tools, instead, draw on psychometric tests to measure personality traits and cognitive abilities, methods also used in hiring to assess candidate fit.

Some skills self-assessments rely primarily on open-ended questions and strongly encourage the involvement of counsellors. Germany's ProfilPASS, for example, is designed to help individuals identify skills acquired not only through formal education but also through non-formal and informal learning (German Institute for Adult Education, n.d.[6]). Distributed in a printable workbook format, it guides users through structured reflection on a wide range of competencies, including social, technical, language and artistic skills. Trained ProfilPASS consultants support individuals throughout the reflection and documentation process, and participants receive a certificate of competence,[1] following an advisor-supported self-assessment. Introduced in 2006, ProfilPASS has since been adapted for different target groups, including young adults, women, self-employed individuals and migrants, and is now available in more than ten languages.

However, a growing number of self-assessment tools are delivered through online platforms using closed-ended questions. Canada's Job Bank, for instance, offers a range of career quizzes to help individuals explore their interests, abilities and work preferences (Government of Canada, 2026[7]). The ability quiz consists of around 40 questions in which individuals rate their skills on a five-point scale. It assesses strengths across several domains, including verbal, numerical and learning ability, manual and finger dexterity, spatial ability and clerical perception. Based on their results, the system generates occupational suggestions that correspond to the assessed skills profile.

In some cases, these approaches are combined and complemented by innovative formats such as game-based assessments. In Japan, the Job Card framework incorporates a questionnaire based on open-ended questions alongside online self-assessment tools that employ closed-ended questions to identify individuals' interests and skills (Japanese Ministry of Health, Labour and Welfare, n.d.[8]). Individuals are also encouraged to discuss the results with registered career counsellors to support interpretation and action planning. In the Netherlands, the Passport for Work initiative implemented in Eindhoven targets workers with low educational attainment and integrates a game-based assessment component to identify skills and interests, while generating outputs that can be shared directly with prospective employers (Box 5.1).

Different approaches to skills self-assessment present distinct advantages and limitations. Tools based on open-ended questions, such as ProfilPASS in Germany, can support a more personalised and nuanced identification of skills, but their effectiveness depends heavily on the availability and expertise of professional facilitators. Online tools based on a fixed set of closed-ended questions, such as those used by Canada's Job Bank, offer greater standardisation and scalability and can draw on rich labour market data to link individuals with occupations requiring similar skill profiles. However, they may be less effective in encouraging deeper reflection on individuals' skills and learning experiences.

Looking ahead, advances in large language model technologies suggest potential for integrating open-ended self-assessment responses into structured labour market information in a more standardised way. This could combine the depth and personalisation of reflective tools with the scalability and data richness

of digital platforms. Game-based assessments may further strengthen accessibility and engagement, particularly for users who are less likely to complete traditional questionnaire-based tools.

Box 5.1. Helping individuals understand and showcase their skills

Since 2019, the municipality of Eindhoven offers an online tool – Passport for Work – that combines skills assessment and skills signalling functions. The platform aims to increase labour market participation among vulnerable groups, particularly individuals with vocational education backgrounds, and in the construction, technology and healthcare sectors. It provides game- and simulation-based skills assessments to strengthen individuals' self-awareness, identify occupations with closely aligned skill profiles, and highlight suitable training opportunities to address skill gaps. The tool also serves as a skills signalling mechanism, enabling individuals to communicate their skills to prospective employers.

Initial impact analysis indicates that the tool increased jobseekers' awareness of their skills and broadened their understanding of potential career pathways with similar skill requirements. The evaluation also highlights the importance of engaging a wide range of partners, including the public employment service and organisations working with target groups, to expand outreach and support effective implementation.

Source: Lievens (2023[9]), Passport for Work's Legacy: Journal 4, https://uia.urban-initiative.eu/en/news/passport-works-legacy-journal-4.

Despite growing attention devoted to digital platforms and online self-assessment instruments, the involvement of professional career counsellors remains essential to the effective functioning of skills-oriented guidance systems. Counsellors support individuals in interpreting labour market intelligence and self-assessment outputs, thereby strengthening the analytical basis of upskilling and employment decisions. They also assist individuals in articulating and signalling their skills, for example through the development of CVs and skills passports, as well as by supporting interview preparation.

In Flanders the PES offers career guidance vouchers to jobseekers identified as likely to benefit from personalised support (VDAB, n.d.[10]). Individuals can choose from a range of career guidance providers, some of which specialise in specific target groups, such as highly educated adults, young people, or individuals aged 50 and over. Guidance encompasses identification of existing skills and skills gaps, selection of relevant training where needed, and practical assistance with job search activities, including application preparation and interview coaching. In New Zealand, free personalised career advice from career experts is available face-to-face, online, and by phone, ensuring broad accessibility (New Zealand Government, 2025[11]). This support helps individuals recognise their transferable skills and how these can be applied in new roles, develop a tailored career and training plan, and improve CVs and cover letters.

Making skills more visible through signalling

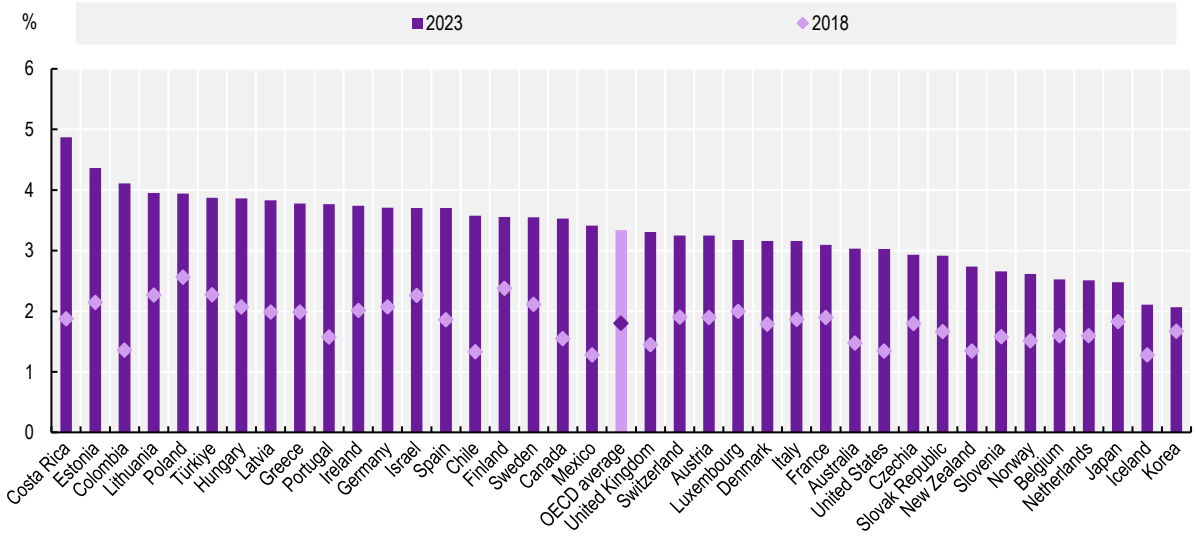
Enhancing the visibility of skills allows employers to recruit on the basis of skills and enables individuals to access jobs and training opportunities aligned with their capabilities. This process, through which individuals explicitly communicate their skills, is increasingly referred to as skills signalling. Within a skills-first ecosystem, skills signalling performs a central function by reinforcing the link between skills development and skills recognition.

Skills signalling has expanded across OECD countries in recent years, and individuals increasingly communicate their skills through digital platforms, including social media. Recent analysis drawing on LinkedIn data shows that the share of users adding skill information to their profiles increased from 1.8%

in 2018 to 3.3% in 2023 on average across OECD countries (Figure 5.3). In 2023, this share exceeded 4% in Costa Rica, Estonia and Colombia, but remained below 2.5% in Korea, Iceland and Japan. While international comparisons based on a single platform have limitations, particularly due to differences in platform use across countries, the OECD (2025[12]) argues that these cross-country variations may partly reflect underlying labour market characteristics. In Latin America, informal employment is more prevalent, with around half of the working-age population employed informally. This increases reliance on practical experience and informal learning, which may encourage individuals to signal their skills more actively. In East Asia, by contrast, employment structures tend to be more rigid, with lower job mobility and therefore fewer incentives for workers to engage in skills signalling. The same analysis shows that younger adults and unemployed individuals are more likely to add skill information to their profiles than other groups. In addition, the share of individuals signalling skills is higher in the "technology, information and media" and "professional services" industries relative to other sectors.

Figure 5.3. Skills signalling by individuals

Percentage of LinkedIn users who add skills to their profile



Source: OECD (2025[12]), *Empowering the Workforce in the Context of a Skills-First Approach*, https://doi.org/10.1787/345b6528-en.

This trend is likely to accelerate as platforms expand skills signalling features. In early 2026, LinkedIn announced that, alongside existing skills features based on self-assessment and endorsements from others, users would be able to display proficiency in selected AI tools verified by the tool providers themselves (LinkedIn, 2026[13]). Partner companies assess proficiency analysing product usage data and though AI-enabled assessment methods, and issue a certificate that users can add to their LinkedIn profile.

Employers are also increasingly seeking skill information. As discussed in Chapter 1, LinkedIn reported in 2022 that 40% of recruiters used skills data to fill open roles on its platform, an increase of 20% compared with the previous year (LinkedIn, 2022[14]). More recent evidence from LinkedIn recruiter search behaviour shows that, across OECD countries in 2023-2024, nearly 15% of candidate searches applied skill-based filters, compared with around 2% applying degree-based filter (OECD, 2025[12]).

Governments have introduced a growing number of policy initiatives to support the documentation, standardisation and communication of skills (Table 5.1). Generally referred to as "skills passports" – although they may appear under different names, such as the Learning and Employment Record in the

United States – such instruments enable individuals to record and showcase their education, work experience and skills acquired through formal, informal and non-formal learning contexts. Several of these tools draw on administrative data on employment and training, providing a platform to display verified information. They can be used not only to communicate skills to employers during job search, but also to support exchanges with career guidance professionals and to help individuals identify skills gaps and development priorities when planning future career steps.

Table 5.1. Examples of government-led skills passport initiatives

Initiatives that support individuals in documenting and communicating their education, work experience and skills acquired across formal, non-formal and informal learning settings

	Country	Initiative	Background information
National	France	Skills Passport (*Passeport de compétences*)	Developed to enable individuals to store and share verified information on employment and training, supporting job search, career guidance and training planning. The service is integrated into the Personal Training Account. It is mandated by the Ministry of Labour, Health and Solidarity and administered by the public financial institution Caisse des Dépôts.
	Japan	Job Card	Available in both PDF and online formats, this tool helps individuals identify and articulate the strengths and skills gained through professional experience, using self-assessment. It also supports communication of these skills to current and prospective employers. It is administered by the Ministry of Health, Labour and Welfare.
	Singapore	Careers & Skills Passport	Designed to help individuals take charge of their career and skills development by consolidating government-verified data on employment, qualifications and skills in one place. The tool is part of MySkillsFuture, a one-stop portal for lifelong learning, and is managed by SkillsFuture Singapore, a statutory board under the Ministry of Education.
Regional	Netherlands (Eindhoven)	Passport for Work	See Box 5.1.
	United Kingdom (Scotland)	Energy Skills Passport	Targeting professionals in the energy sector, this initiative aims to support transitions from oil and gas to renewable energy jobs. Currently in a pilot phase, it helps individuals showcase their skills and identify career opportunities aligned with their existing skill sets and understand potential skills gaps to enable smooth transition. It is led by industry representatives with the support of the government.
	United States (California)	Career Passport	This programme primarily aims to support individuals without a four-year degree in demonstrating their skills. It is part of the Governor's Master Plan for Career Education, which seeks to strengthen career pathways to high-paying jobs for a diverse workforce.

Well-established examples can be observed in France and Singapore, where skills passport initiatives are embedded within broader lifelong learning systems. In France, the Skills Passport forms part of the Personal Training Account (*Compte Personnel de Formation*, CPF), an individual learning account that provides residents with rights to training entitlements that accumulate over time (OECD, 2025[15]). It offers four core functionalities: "My Career Path", which compiles professional and training records and is partly pre-filled using social security declarations and reporting data from training providers; "My Skills", which maps acquired skills; "My CV", which enables users to generate a CV using verified official information; and "My Future", which helps users explore new professional opportunities in light of their skills, potential and career goals (Ministère du Travail, de la Santé, des Solidarités et des Familles, 2025[16]). In Singapore, the Careers and Skills Passport is integrated into the MySkillsFuture portal, a one-stop shop for lifelong learning services. It features a dedicated skills section that draws on verified skills from completed certifications, employer validation and self-endorsement. The passport also includes sections on employment and on academic and professional certifications, each underpinned by administrative data (SkillsFuture Singapore, 2025[17]).

Other initiatives are more targeted and are often implemented at the regional or sectoral level. California's Career Passports, for example, aim to help individuals, particularly those without a four-year degree and veterans, demonstrate their skills and experience more effectively to potential employers (Governor Gavin Newsom, 2024[18]). Focusing on the energy sector, Scotland's Energy Skills Passport helps workers identify and showcase transferable skills, as well as recognise areas requiring further development in order to facilitate occupational mobility (Scottish Government, 2025[19]).

Skills signalling tools are often paired with skills self-assessment instruments. For example, the primary purpose of Japan's Job Card is to help individuals better understand their skills and career interests, but it can also be used to demonstrate acquired skills to both current and prospective employers (Japanese Ministry of Health, Labour and Welfare, n.d.[8]). Similarly, the Passport for Work developed in Eindhoven is designed to help jobseekers without higher education demonstrate their skills, and it is accompanied by a gamified skills assessment tool (Box 5.1).

Skills signalling may be particularly beneficial to narrow the gap between skills acquisition and labour market recognition for vulnerable workers. A study based on LinkedIn profile data from the United States covering the period from 2015 to 2021 finds that adding ten self-reported skills to a user's profile is associated with a reduction in the median duration of employment gaps by around 0.7 months, relative to a baseline median gap of approximately six months. Individuals without formal education listed on their profiles experienced the largest reductions in employment gaps following the inclusion of skills. The study also reports higher returns for the signalling of emerging technology skills, such as robotics and AI, as well as for soft skills (Baird, Ko and Gahlawat, 2024[20]).

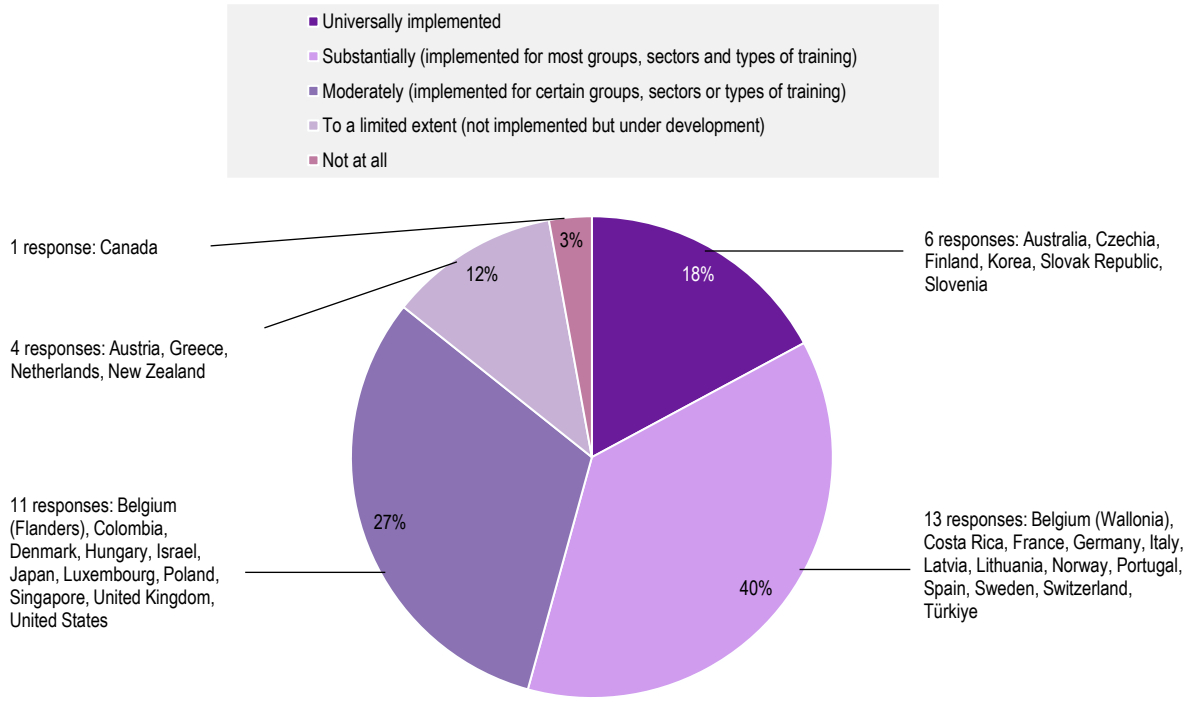
Formalising skills through recognition of prior learning

The transition to a skills-first economy takes time, and in the interim, recognition of prior learning (RPL) systems can facilitate adjustment by translating the emerging currency of skills into the traditional currency of credentials. RPL refers to the process of validating individuals' skills acquired through formal, non-formal or informal learning and awarding full or partial qualifications, certifications, or academic credit. The term "recognition" is often used interchangeably with "validation" (Meghnagi and Tuccio, 2022[21]).

RPL has become a standard policy instrument across OECD countries and beyond, with its importance firmly established in the policy landscape for over a decade. The Council of the European Union, for instance, adopted a Recommendation on the validation of non-formal and informal learning in 2012, calling on Member States to establish national validation systems (Council of the European Union, 2012[22]). This political momentum is reflected in practice: according to the OECD Trends in Adult Learning Policy Questionnaire 2025, over 80% of the 34 responding countries report having a national RPL system in place, and nearly 60% report that it is implemented universally or substantially (Figure 5.4).

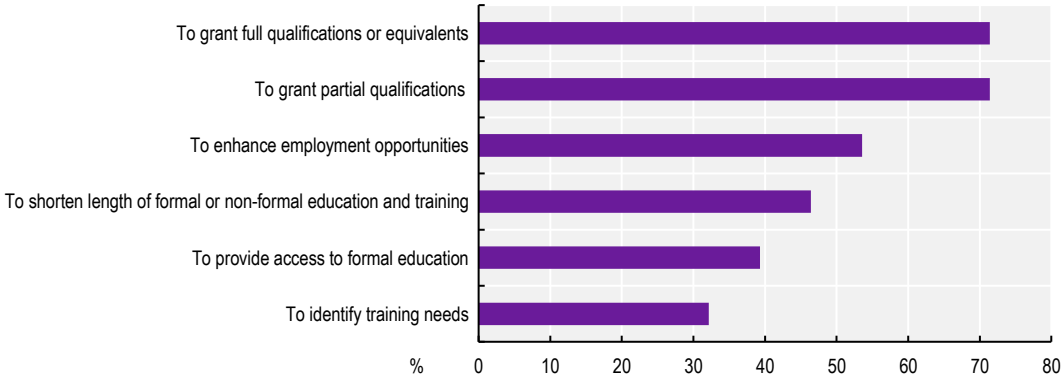
RPL systems can be designed to support both employability and lifelong learning. The most tangible objective, reported by more than two-thirds of countries with an RPL system, is to award full or partial qualifications, or equivalent credentials (Figure 5.5). More than half of countries use RPL to enhance employment prospects by translating non-formal and informal learning into credentials, with the aim of improving the signalling of candidates' skills in recruitment. In around 45% of countries, RPL is intended to shorten the duration of formal education by recognising acquired knowledge and skills and exempting learners from parts of the curriculum. RPL can also facilitate entry to education programmes by granting exemptions from admission prerequisites on the basis of prior learning. Taken together, these processes can help learners, education and training providers and career guidance practitioners to identify skills gaps and training needs.

Figure 5.4. Implementation of recognition of prior learning systems at the national level



Note: Responses to the question, "To what extent have recognition of prior learning and validation of skills been implemented nationally? ". OECD countries and jurisdictions with available data, as well as Singapore, are shown.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

Figure 5.5. Objectives of recognition of prior learning systems



Note: Responses to the question, "What are the main objectives of your country's RPL system?" (multiple responses allowed). Total valid responses: 28.
Source: OECD Trends in Adult Learning Policy Questionnaire 2025.

In most countries, national RPL procedures build on existing instruments, such as national qualifications registers or occupational standards, drawing on the skills descriptors embedded in these frameworks (see Chapter 2). For instance, in Czechia, the system for validating non-formal and informal learning is structured around the National Register of Qualifications, which includes around 1 500 full and partial vocational qualifications (Ministry of Education, Youth and Sport of the Czech Republic, 2026[23]). A full

qualification is composed of several partial qualifications, each with clearly defined learning outcomes in terms of knowledge and skills. Individuals may obtain certification by successfully completing examinations for these (partial) qualifications. Assessment is competence-based and typically involves a combination of oral and written tests and a practical demonstration of the skills and competencies specified in the qualification and assessment standards. In Colombia, the Evaluation and Certification of Labour Competencies service is organised around Sectoral Standards of Labour Competence (National Training Service, 2026[24]). The National Training Service assesses individuals' occupation-specific knowledge and skills against these standards and awards a certificate of professional competence upon successful completion. In India, an RPL framework implemented under the skill certification scheme Pradhan Mantri Youth Training Program is based on both the National Skills Qualification Framework (NSQF) and the National Occupational Standards (NOS). The process typically includes counselling to identify relevant job roles within the NOS that match an individual's prior knowledge and skills, followed by a pre-screening stage that involves submission of supporting documentation and self-assessment. Candidates then complete a mandatory 30-hour orientation and, where needed, additional training to address identified skill gaps. The final assessment evaluates the skills defined in the NOS and results in certification mapped to the NSQF (Government of India, 2024[25]).

Despite widespread institutionalisation, participation rates in recognition of prior learning remain modest in many countries. Barriers include limited awareness of RPL among potential beneficiaries and lengthy and complex procedures. Countries therefore continue to reform and strengthen their RPL systems. In response to these challenges, France recently initiated a reform of its longstanding system for the Validation of Acquired Experience (*Validation des Acquis de l'Expérience*, VAE), which was first introduced in 2002 (République Française, n.d.[26]). A centralised online information portal, France VAE, was launched in 2023 to facilitate access to information and the online submission and management of applications. A dedicated professional role described as a career guidance architect was created to support candidates throughout the process. In addition, financial constraints were addressed through eligibility for funding via the French individual learning account (CPF).

Even though RPL procedures result in qualifications and certifications, their operational logic remains grounded in skills-first approaches. In practice, RPL functions as an extended form of skills assessment, in which individuals' competencies are measured against established standards and converted into formally recognised credentials. In this sense, RPL acts as a bridge between skills and qualifications, enabling skills acquired outside formal education pathways to become visible and portable within credential-based systems. RPL also reflects the skills-first spirit of widening opportunities for a broad range of individuals. For example, it can support access to regulated occupations for migrants trained in different systems, enable mid-career workers with lower levels of educational attainment to demonstrate job-relevant skills, and help adults with fragmented educational histories convert prior learning into recognised credentials.

Strengthening multi-stakeholder collaboration

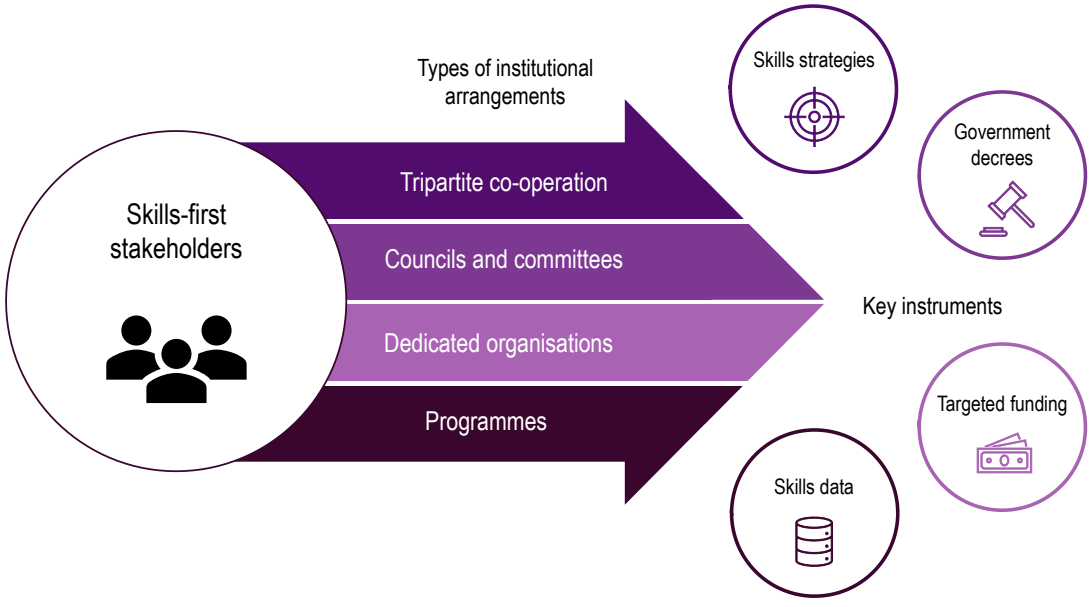
The skills-first ecosystem encompasses a wide range of actors whose mandates and interests differ substantially. Governments play a central role, yet responsibilities are often distributed across multiple ministries, notably education and labour. Co-ordination across ministries is not always seamless, with implications for policy coherence and implementation efficiency. Beyond ministries, a variety of public bodies are involved, including public employment services and quality assurance agencies. Employers are also critical actors, but their priorities, resources and levels of engagement vary significantly between sectors and firm size. Individuals, typically represented by trade unions, are at the centre of skills-first policies, yet their needs and pathways for skills development are highly diverse. Education and training providers are equally essential, but they often operate within segmented institutional domains

encompassing VET, higher education, and non-formal learning. Other important stakeholders include career guidance practitioners and civil society organisations.

The effective implementation of a nationwide skills-first strategy depends on structured dialogue and collaboration among this wide range of stakeholders to support coherent adoption and minimise fragmentation across policy domains and operational settings. While co-ordination across this diverse landscape remains challenging and no single governance model fits all contexts, countries are taking steps to strengthen multi-stakeholder collaboration through a range of institutional arrangements (Figure 5.6). The most traditional approach relies on tripartite co-operation among government authorities, employers' organisations and trade unions. In parallel, some countries have established councils or committees that provide a forum for dialogue on skills policy, while others have created dedicated organisations responsible for skills policy implementation and cross-sectoral co-ordination. Programme-based partnerships, such as targeted adult learning initiatives, are also widely used.

Across OECD countries, collaborative arrangements have emerged not only through government leadership but also through initiatives driven by labour market partners and training providers. This diversity of origins reflects differences in governance traditions and institutional capacity. Depending also on which actors are involved, collaborative structures make use of a wide range of instruments, including national skill strategies, government decrees, targeted funding mechanisms, and systems for the collection, analysis and dissemination of skills intelligence. In some cases, multi-stakeholder dialogue leads to the development of these instruments, while in others, the instruments themselves serve as a mechanism to bring stakeholders together.

Figure 5.6. Mechanisms for skills-first stakeholder collaboration



Source: Authors' elaboration.

Tripartite governance involving government, employers' organisations and trade unions remains one of the most widely established models for co-operation. In Denmark, for example, a tripartite agreement on adult learning was most recently signed in 2023, with an annual earmarked budget of DKK 360 million (approximately EUR 50 million) (Eurydice, 2026[27]). The funds are intended to ensure that the workforce

is well equipped for current and future labour market needs, and support a range of initiatives, including a national programme aimed at strengthening basic skills.

Building on this foundation, many countries have also established dedicated councils and committees focused on skills policy co-ordination and strategic oversight, often involving education and training providers. In Norway, for instance, several co-ordination bodies with skills-related mandates operate alongside tripartite arrangements. The Skills Policy Council was established in 2017 following the Norwegian Strategy for Skills Policy 2017-2021, with responsibility for monitoring the strategy's implementation (Norwegian Directorate for Higher Education and Skills, 2025[28]). Its mandate was renewed in 2022, and its membership includes representatives from five ministries, social partners, municipalities, and organisations representing adult learning, higher education and VET. Complementing this structure, the Norwegian Committee on Skills Needs undertakes skills assessment and anticipation studies and provides skills data and analysis that inform the deliberations of the Skills Policy Council.

A similar multi-stakeholder approach underpins skills policy co-ordination in Germany. The National Continuing Education Strategy is jointly led by the Federal Ministry of Labour and Social Affairs and the Federal Ministry of Education, Family Affairs, Senior Citizens, Women and Youth (German Federal Ministry of Labour and Social Affairs, n.d.[29]). It brings together 17 partners, including the federal states (*Länder*), businesses, trade unions and the Federal Employment Agency. Introduced in 2019 and updated every three years, the strategy identifies challenges in continuing VET from multiple perspectives and sets out strategic priorities supported by targeted funding measures. In Hungary, legislation is often used to enable stakeholder collaboration. Government Decision No. 1 276/2023 (VII. 17.), for example, mandates that the Minister for Culture and Innovation is responsible for preparing a detailed concept on the development of a national micro-credential framework and on the possibilities of introducing individual learning accounts, with the Minister for Economic Development and the Minister for Finance named as key co-ordination partners (National Legislation Database, 2023[30]).

Sectoral skill councils are another widely used mechanism for articulating sector-specific skill needs and guiding education and training provision. Skillnet Ireland offers one of the longest-standing examples. It is a national agency operating under the Department of Further and Higher Education, Research, Innovation and Science, and is funded through the National Training Fund, which is primarily financed by employer levies. Skillnet Ireland supports 70 Skillnet Business Networks, each representing a specific sector or region, enabling employers to articulate evolving skills demands and co-design short, targeted training programmes in partnership with education and training providers (see Chapter 3 for more examples).

Programme-based collaboration offers a further avenue for direct operational engagement among stakeholders. In the Netherlands, approximately EUR 400 million from the National Growth Fund has been allocated to the Lifelong Learning Catalyst initiative for the period 2022-2027 (LLO Catalyst, 2026[31]). Co-ordinated by the Ministry of Education, Culture and Science, the initiative brings together stakeholders from different education and training sub-sectors, government, and national and local business representatives. Its objective is to strengthen multi-stakeholder co-ordination in lifelong learning and accelerate the development of high-demand skills (see Chapter 3 for more examples).

A more institutionalised variant of these governance models involves the establishment of dedicated bodies with mandates centred on advancing skills policy. Finland's Service Centre for Continuous Learning and Employment operates under the joint responsibility of the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment (OECD, 2023[32]). Established in 2022, it aims to support workforce development in response to current and emerging labour market needs. Its functions include analysing present and future skills demand, managing the allocation of funding for short adult learning programmes in high-demand fields, and developing information and guidance services. Its work is guided by the Council for Continuous Learning and Employment, which includes representatives from several ministries as well as more than ten social partner organisations. In England, Skills England, an executive agency of the Department for Work and Pensions, is mandated to work across government to ensure that

young people and adults have clear, coherent skills development pathways (GOV.UK, n.d.[33]). It works with employers and other partners to co-develop and regularly update occupational standards, apprenticeships and technical qualifications in line with evolving skills needs. It also collaborates with regional partners to address local labour market challenges and respond to national priorities. Jobs and Skills Australia is a statutory body under the Department of Employment and Workplace Relations (Jobs and Skills Australia, n.d.[34]). It advises the government on current and future skills needs and on the effectiveness of training and migration systems in responding to those needs. Its performance is overseen by a Ministerial Advisory Board comprising representatives from employers, employees, and state and territory governments.

Some countries go further by establishing a body with a specific mandate to promote skills-first approaches. In Singapore, the SUSS-IAL launched the Centre for Skills-First Practices in 2025, aiming to build system-wide capability and shared understanding among stakeholders to articulate, activate and recognise skills (SUSS-IAL, 2026[35]). The centre publishes a series of papers examining skills-first approaches from different stakeholder perspectives, delivers capacity development training to engage and empower stakeholders, and partners with employers to pilot skills-first approaches. In the United States, the non-profit organisation, Opportunity@Work, was established in 2015 to help ensure that individuals who are "Skilled Through Alternative Routes" (STARs) are recognised and rewarded in the labour market. The organisation works with companies, philanthropic organisations and worker representatives to remove unnecessary degree requirements from job postings. One of its initiatives focuses on the public sector, bringing together 15 state and local governments to offer training, peer-learning opportunities and hands-on technical assistance to accelerate skills-first hiring in core functions such as budget and finance, human resources and data analysis, and IT and cybersecurity (Opportunity@Work, n.d.[36]). In the Netherlands, the Skills Embassy, a grassroots community launched in 2023, facilitates dialogue and supports cross-sector co-ordination and collaboration on skills-first initiatives, including efforts to connect different skills passports (Skills Embassy, 2026[37]).

These approaches differ in both their institutional set-up and the nature of the collaboration involved. Some take the form of temporary or ad hoc stakeholder engagement, with collaboration organised around a defined period or specific initiative. Others are more permanent structures with an explicit mandate to bring stakeholders together on an ongoing basis. The former may be more feasible to establish in the short term and is already common in many countries. The latter requires greater effort and resources to set up, but it can provide a more robust basis for co-ordination and signal a strong national commitment to the coherent adoption and implementation of skills-first approaches.

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Note

[1] A ProfilPASS certificate of competence is prepared by a trained adviser and summarises the skills identified through the skills assessment. A sample is provided in the booklet (page 86): https://www.profilpass-international.eu/files/pp_english.pdf.

Getting Skills Right

A Skills-First Labour Market

Labour markets across OECD countries are undergoing rapid transformation, widening the gap between the skills employers need and those that formal education systems alone can provide. This report examines why skills-first approaches to hiring, talent management and skills development are becoming essential for improving labour market functioning and productivity, and what systemic changes are needed to adopt them at scale. It explores the development of common skills languages, the integration of modular learning pathways and micro-credentials into education and training systems, the adoption of skills-first human resource practices within firms, and the role of career guidance, skills passports and recognition of prior learning in linking learning to jobs. Drawing on data from the Skills-First Readiness and Adoption Index, as well as emerging policy practices across the OECD, the report identifies the conditions under which skills-first systems can reduce information asymmetries, widen access to employment opportunities, and support economic dynamism, resilience and social mobility during a period of sustained change.

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