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Skills Systems for Adults and Out-of-School Youth

A Technical Note

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Skills Systems for Adults and Out-of-School Youth: A Technical Note[1]

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Abstract

Amid rapid labor market changes and aging workforces, countries need institutionalized programs and services that support lifelong skill development and utilization, from the school-to-work transition through adulthood. This technical note presents a conceptual framework for building skills systems that promote lifelong learning and employment for adults and out-of-school youth, alongside a review of relevant literature and examples from countries at varying stages of economic development. The framework emphasizes the need for flexible, modular training pathways—including short-term, on-the-job, and foundational skills training—as well as career guidance and recognition of prior learning. It highlights the roles of diverse public and private training providers, employers, and government actors in financing, coordinating, and delivering services aligned with labor market needs. Effective systems tailor interventions to individuals' career stages and profiles, leveraging labor market data and employer input. Governments play a key role in ensuring governance, sustainable financing, and labor market information systems. Many low- and middle-income countries are still in the early stages of developing lifelong skills systems and can leapfrog existing models by learning from global examples, including those from high-income countries, and adapting them to local contexts where private sector involvement is often more prominent. Institutionalizing adult training as a permanent function, rather than an ad hoc intervention, can enhance workforce adaptability, social mobility, and economic resilience in an evolving labor market.

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Keywords: Lifelong learning, Skills training, Skills recognition, Career guidance, Employment services

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Executive Summary

This technical note provides a conceptual framework for skills systems that facilitate lifelong learning and employment for adults and out-of-school (OOS) youth. It highlights key objectives, roles of various stakeholders, and critical policy lessons to enhance skills development and employment services. The conceptual framework expands on the workforce development component of the *Skills Toward Employment and Productivity* framework, placing greater emphasis on the role of diverse public and private providers in bridging skills gaps. It promotes a flexible system designed to address the distinct skill development needs of individuals at various career stages, through a wide range of services including short-term training, on-the-job training, degree programs at formal education institutions, and career guidance.

Objectives and Key Elements of a Skills System

A skills system for adults and OOS youth refers to all the programs and providers that offer education, training, and employment services to adults and OOS youth, as well as the underlying policies and institutional arrangements that regulate and support them with coordination, quality assurance, financing, and information sharing. Well-functioning skills systems require sustained delivery and coordination across multiple institutions. Effective implementation depends on close collaboration between government, employers, providers, and individuals, with the government playing a key stewardship role.

The primary objective of the skills system is to **facilitate skill development, recognition, and utilization** for adults and OOS. These goals are achieved through multiple integrated service components. **Updating technical skills** requires short-term industry-relevant training that aligns with labor market demands and on-the-job training. Skill development also includes **strengthening foundational skills** as employer surveys and job vacancy data highlight a growing demand for cognitive, socioemotional, and digital skills. Modular short-term training and microcredentials offer efficient and flexible pathways for skill development, particularly for adults in rapidly evolving industries. In many lower-income settings, entrepreneurship support, agricultural extension, and remedial education remain major priorities as well. **Recognition of prior learning** facilitates the validation of professional knowledge among those who have experience but lack formal credentials. Skills recognition includes both technical and foundational skills and can provide high school equivalency degrees that facilitate access to further education. Finally, **career guidance** should extend beyond school-to-work transitions with continuous support to manage career shifts, skill upgrading, and job loss risks, and can provide **coordination with other labor programs** such as job search and income support.

Tailoring Skills Services to Beneficiary Needs

Services provided by skills systems must be tailored to individuals depending on their personal profile and career stage and should cover employed, unemployed, and inactive populations. Effective skills systems employ beneficiary profiling and tailored interventions, ensuring that

individuals receive appropriate levels of support based on their career stage and needs. Providers should identify and reach the workers most at risk of job loss or most in need of skill upgrading, which requires regular labor market analysis and research. Adult training must also be tailored to adult learning needs, which requires more repetition, offering flexibility considering adults' high opportunity cost of time, and capitalizing on the advantages possessed by adult learners.

The Role of Employers and Training Providers

A diverse array of stakeholders contributes to the success of a skills system. Employers play a crucial role in financing, shaping, and delivering job-specific training. Private providers often excel in flexibility, industry alignment, and specialized skills, while public and nonprofit providers are essential for scaling up training, particularly in foundational and industry-wide skills, and in reaching underserved populations. Accountability mechanisms are vital to ensure quality across all providers.

Training providers that actively collaborate with industry stakeholders tend to achieve better employment outcomes. Successful skills programs are those that align closely with industry and employer demand, leveraging strong private sector engagement and incorporating work-based learning opportunities such as apprenticeships and internships. However, informal apprenticeships must be standardized and regulated to ensure broader industry recognition.

The Role of Government in Supporting and Regulating Skills Systems

Governments play a fundamental role in setting strategic direction and ensuring the quality, efficiency, and inclusivity of skills systems by focusing on three key areas: governance, financing, and labor market information.

Governance and quality assurance mechanisms, such as accreditation systems, national qualification frameworks (NQFs), and outcome-based monitoring, help standardize and improve training quality. Well-designed NQFs facilitate skills recognition, ease transitions between education and employment, and ensure alignment with industry needs.

Sustainable financing models are essential for expanding access to training and maintaining provider accountability. Mechanisms include training levies, tax incentives, and training subsidies directed toward individuals, employers, or training providers. Results-based financing, tied to employment outcomes, can enhance the effectiveness of training programs by incentivizing demand-driven approaches, while targeted employer subsidies can encourage firms to invest in on-the-job training and apprenticeships.

Additionally, labor market information systems play a crucial role in supporting informed decision-making for individuals, employers, and policymakers. A centralized system for collecting and disseminating labor market data enables better coordination, career guidance, and workforce planning, ensuring that training programs remain responsive to evolving labor market demands.

Lessons for Low- and Middle-Income Countries

Many low- and middle-income countries are in the early stages of building skills systems for adult learners. Existing initiatives often prioritize youth employment and school-to-work transitions, with less emphasis on upskilling, reskilling, and lifelong learning. There is limited evidence on the effectiveness of training programs for adults in low- and middle-income countries. Lessons on adult training from higher-income countries can inform strategies to develop effective governance, financing, and information-sharing frameworks. By adopting best practices and avoiding past inefficiencies, developing economies can progressively establish education, training, and labor market institutions that provide equitable and quality lifelong employment opportunities.

Building a Sustainable, Inclusive Skills System

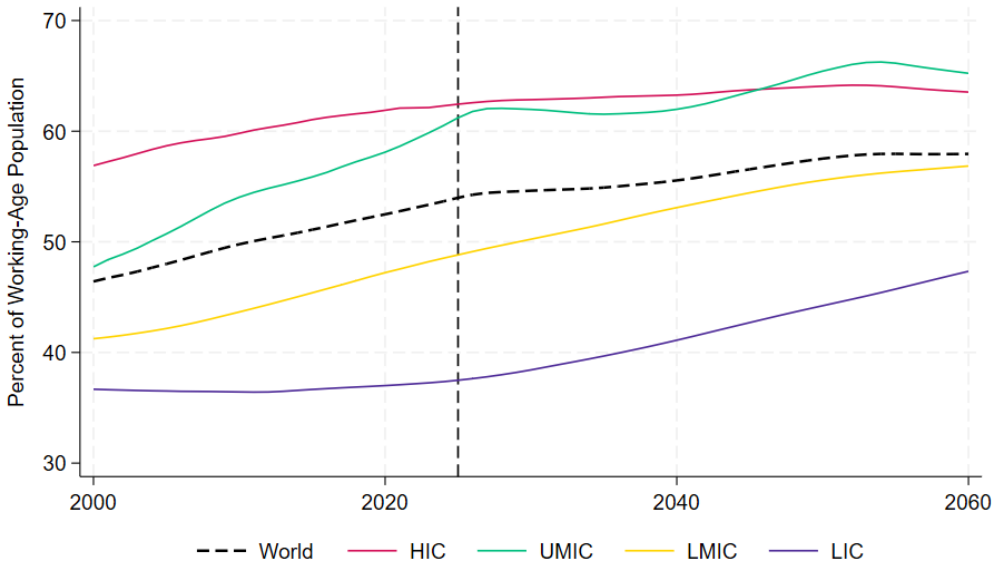
By institutionalizing workforce training as a continuously operating system rather than a series of short-term programs, governments can ensure long-term skill development and labor market adaptability. Creating a dynamic and inclusive skills system is essential to ensuring that adults and OOS youth can navigate an evolving labor market. By fostering collaboration among government, employers, and training providers, and by implementing policies that support lifelong learning, countries can enhance economic productivity, employment resilience, workforce adaptability, and social mobility.

Section 1: Why invest in skills systems for adults and out-of-school youth?

The knowledge, competencies, and skills demanded in the labor market are becoming increasingly complex and rapidly-evolving. Technological advancements and automation are replacing some occupations, expanding others, and creating new occupations altogether. The global outsourcing of jobs has created new opportunities in the service sector and the technology for remote work is developing rapidly. Meanwhile, the green transition is increasing demand for new occupations in sectors like renewable energy. Taken together, the rapidly changing needs of the labor market amplify the need to help adults and out-of-school (OOS) youth acquire and update knowledge, competencies, and skills (hereafter skills) throughout their careers.

At the same time, low- and middle-income countries (L/MICs) are facing growing labor forces in middle and old age, increasing the importance of policies that support career-long learning relative to focusing only on youth. Globally, the share of the working-age population over age 35 has increased from around 46 percent in 2000 to 54 percent in 2024 and is expected to continue increasing over the coming decades (**Figure *1***). Much of this increase will be driven by low-income countries (LICs) and lower-middle-income countries (LMICs). In these countries, youth populations are growing rapidly due to persistently high fertility rates, but the share of the working age who are 35 or older is also increasing due to the large numbers of young adults currently entering the labor force. Meanwhile, in high-income countries (HICs) and many upper-middle-income countries (UMICs), the share of the working-age population over age 35 has already increased to over 60 percent and this increase will slow as large number of older workers reach retirement age. This highlights that all countries, including LICs and LMICs, must invest in systems that support productivity for young adult, middle-aged, and older citizens.

Figure 1: Across all income levels, an increasing share of the working-age population is over 35

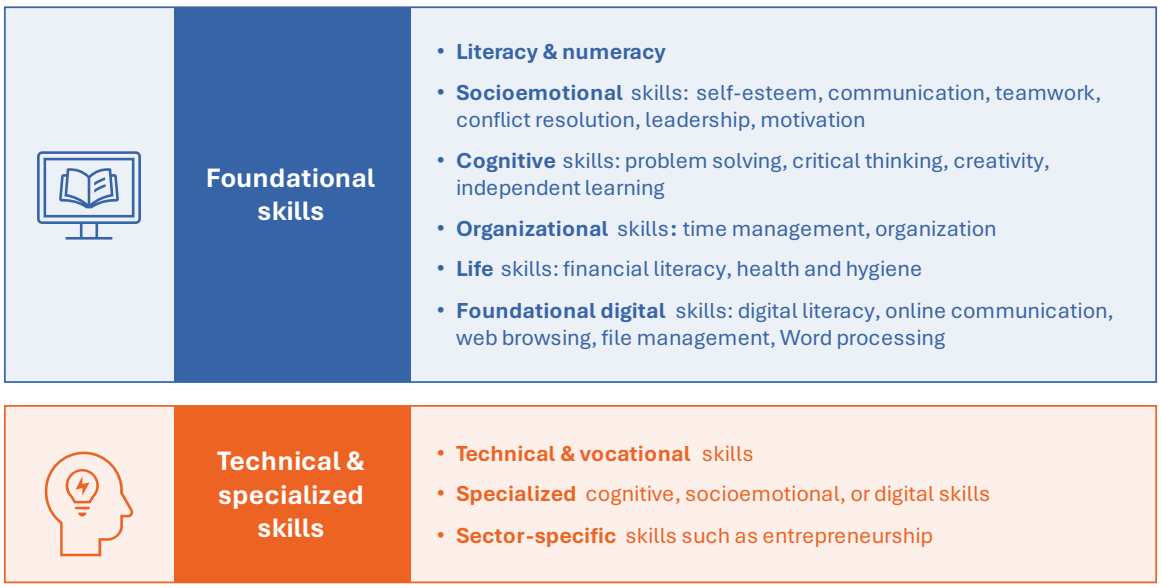


Source: Author's calculations based on UN Population Division medium fertility variant.

These adults and OOS youth require a system of policies and programs to help ensure they remains skilled, productive, and economically active to support their career-long income and job satisfaction. Without the right combination of training and labor market policies to help them maintain up-to-date and marketable skills and to find jobs that properly use these skills, these people may fail to stay productive or economically engaged throughout their career. This will affect their own income and well-being and reduce aggregate economic productivity. Investments that we fail to make in generations today will have long-term repercussions as it makes it harder to support them later in life (OECD 2021a).

Over the lifecycle, people must develop a wide range of foundational and specialized technical skills (Figure 2). Foundational skills are skills which are fundamental for a wide range of tasks and are thus applicable across a wide range of sectors and occupations. Examples include higher-order cognitive skills such as problem-solving, critical thinking, analytical skills, as well as socio-emotional skills that allow a person to effectively navigate interpersonal interactions and regulate emotions (Deming and Kahn 2018). Foundational skills also increase ability for additional learning through formal or informal training and on-the-job learning, which is essential for lifelong skills acquisition and can involve learning-by-doing, learning from others, or independent study and research (World Bank 2019). Basic foundational skills such as literacy and numeracy, in addition to facilitating broad employability and further skill acquisition, also directly improve quality of life through channels such as improved access to information. Though the division is not always well-defined, foundational skills are distinct from technical or specialized skills, which can be broadly industry-relevant or more narrowly relevant for specific sectors, occupations, or firms. Entrepreneurship is an example of a sector-specific skill which is highly relevant in settings of abundant self-employment.

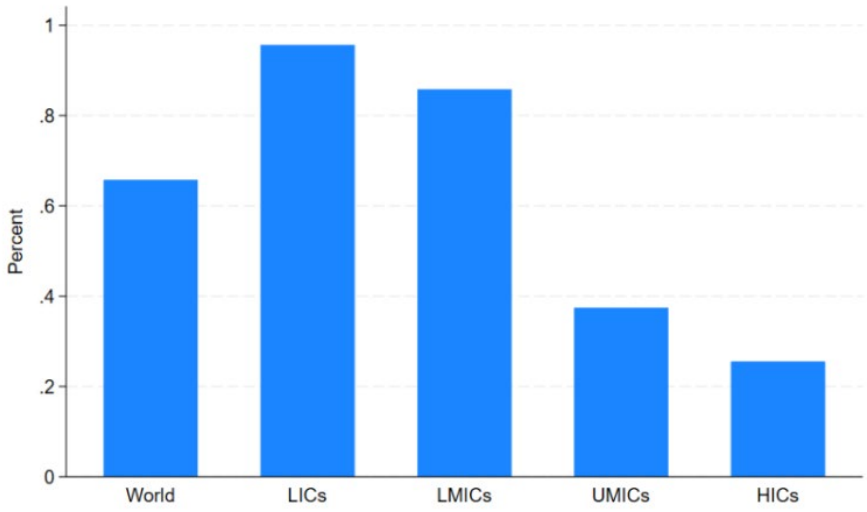
Figure 2: People must develop and wide range of foundational and specialized skills



There is evidence that foundational skills, including basic digital skills, are becoming increasingly valued in the global economy. Economists have long documented a strong association between wages and socioemotional skills such as leadership and motivation (Deming and Kahn 2018). The labor market returns to socioemotional skills have increased in recent decades, in part because technological improvements and automation generally complement rather than replace social tasks (Deming 2017, Autor et al. 2015). Some of the skills most valued by firms today include higher-order cognitive skills such as analytical thinking, creativity, and independent learning (Di Battista et al. 2023). Studies of job vacancies show that employers across many occupations increasingly emphasize socioemotional, cognitive, and digital skills (Cabus et al. 2021). Digital skills are becoming increasingly relevant across a wide range of occupations, including the ability to access and filter online information and to use digital tools and programs to be more effective in the workplace (Leopold et al. 2025). Thus, career-long productivity is not just about updating technical skills alongside evolving skill needs – it is also about strengthening foundational skills where they are lacking, especially for younger individuals who have left formal schooling without developing essential foundational skills.

Basic foundational skills such as literacy, numeracy, and basic cognitive skills are lacking for many adults and OOS youth, yet they are essential for more advanced skill development. Basic foundational skills are key for developing more complex foundational skills and having access to quality jobs (World Bank 2019, Hanushek et al. 2015). Yet, evidence from the 2023 *Survey of Adult Skills* indicates that, across OECD countries, literacy and numeracy rates remain low for many adults and have actually decreased over the last decade in many countries, especially for the less educated (OECD 2024a). Globally, at least two-thirds of youth do not achieve basic literacy, comprehension, and reasoning (**Figure *3***). This rate increases to 96 percent in LICs, 86 percent in LMICs, 94 percent in Sub-Saharan Africa, and 89 percent in South Asia (Gust et al. 2024).

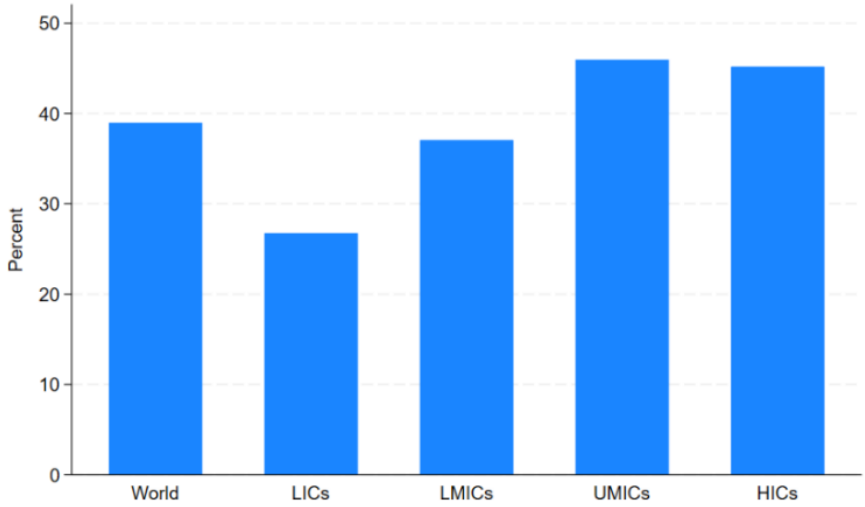
Figure 3: The majority of youth globally lack basic foundational skills



Estimated share of children, including those already out of school, who have not achieved basic skill levels equivalent to PISA level 1. Source: Gust et al. (2024)

At the same time, much of the next generation of workers has already completed formal schooling, reflecting the growing share of young adult, middle-aged, and older people in the workforce. To put this in perspective, around 40 percent of the global working-age population in 2050 is already over age 18 today, and thus past secondary school age. This increases to almost a third of the working-age population in LICs and almost half in MICs (**Figure *4***). For many of those who have finished school, going back to the formal education system is not an option, either because of age restrictions or because the formal system is not designed in consideration of their more specific training needs and the increased opportunity cost of their time.

Figure 4: A large share of the 2050 working-age population is already over age 18



The percent of the 2050 working age population (age 18-64) who are over age 18 in 2023.
Source: Author's calculations based on UN Population Division medium fertility variant.

Most adult skills development occurs through on-the-job training and experience, but wage growth tends to be lower in less developed countries due to a range of factors including lower initial human capital, high job transition rates, and fewer training opportunities. On-the-job learning includes formal training offered by an employer as well as all informal learning that occurs through experience in the workplace. These increase a person's productivity over the career cycle and often account for a half or more of a person's lifetime human capital. However, it is well-documented that wages increase more slowly for workers in less-developed countries – recent evidence indicates that lower returns to on-the-job experience is as relevant as differences in formal education attainment for explaining cross-country differences in GDP per capita (Jedwab et al. 2023). The lower returns to experience in less developed countries is partially explained by that fact that wages grow more slowly for workers who are less educated, implement manual tasks, or work in low-productivity sectors (Lagakos et al. 2018). Less developed countries tend to have worse worker-firm matches and higher transition rates between jobs and types of employment, reducing the value of job-specific skills and increasing the rate at which workers fall into lower-wage work or unemployment (Donovan et al. 2023). Finally, workers in less developed countries have fewer on-the-job training opportunities, driven

by higher self-employment rates and less on-the-job training – according to enterprise surveys, around 20-50 percent of formal firm workers in most HICs receive some form of on-the-job training, compared to 10-30 percent in most L/MICs (Ma et al. 2024, Arias et al. 2019).

A range of constraints limit both demand and supply of lifelong opportunities, including information barriers, lack of resources, and misaligned incentives. Employers may be reluctant to invest in worker skills if those workers can be "poached" by other firms, especially in settings with high worker turnover (Carranza and McKenzie 2023, Caicedo et al. 2022).[2] Employers and workers may also lack information about what skills will be needed, the returns to training, or where to find training opportunities (de Silva and Santos 2023). Skills training requires an up-front investment which takes time to pay off in terms of increased productivity, and firms and workers may be short-sighted because of short-term constraints such as credit constraints. Poor business management practices also reduce firm investment in training (Bloom et al. 2012).[3] These market failures, as well as the need to redistribute and protect disadvantaged individuals, motivate the need for government to regulate and support skills training (Saraf 2017).

Meanwhile, a multitude of public, private, and non-profit providers offer training and employment services to unemployed and inactive populations, as well as entrepreneurship or agricultural extension programs to self-employed workers, and often in an ad-hoc and uncoordinated manner. People must be supported during periods of job loss and unemployment because rapid return to employment is fundamental to limit skills depletion and promote career stability and growth. Services may include career guidance, various types and modalities of training, skill recognition, as well as other employment services such as job search and matching, wage subsidies, income support, or public work programs as a tool to re-employ and retrain inactive populations. Often, these elements are provided ad-hoc by different types of providers or government agencies who fail to coordinate to more effectively target, combine, or streamline services.

Skill development policymakers and practitioners often focus their efforts on youth, leaving a policy and knowledge gap on adult skills training. This focus on youth skills training may be due to the perception that it is easier for youth to acquire new skills, the fact that youth skills training generates a lifelong benefit and reduces need for later reskilling, or because of the large number of unemployed youths in many countries. However, workforce aging and rapid labor market changes motivate a greater focus on skills training for adults, and there is strong evidence that

[2] In Burundi, for instance, agricultural employers who were offered a retention guarantee were 50 percentage points more likely to invest in worker training, leading to greater adoption of new row-planting techniques and increased profits (Cefala et al. 2024).

[3] For example, among Indian textile firms, owners do not believe that they need training even when information on training opportunities is widely available, in part because they compare themselves with other similarly unproductive local firms (Bloom et al. 2013). Firms in developing countries are often focused on high-quantity and low-quality production, paying workers a piece-rate salary that creates little incentive for workers to invest in new technology or training (Atkin et al. 2017), while firms that offer performance-based wages, invest more in R&D, and adopt more innovative technologies, are all more likely to invest in training (Saraf 2017).

adults can indeed learn and benefit from skill upgrading initiatives. In many L/MICs we know relatively little about the prevalence, cost-effectiveness, and optimal design of skills training for adults, which is significant because optimal training design for adults and youth may differ in key ways (World Bank, UNESCO, and ILO 2023, Arias et al. 2019).

Adults and out-of-school youth face many overlapping needs with regards to skills training and career guidance, but those needs evolve as people age and face a broad range of labor market situations, levels of preparation, and learning needs. After initial formal schooling, people develop increasingly differentiated needs depending on their age, career stage, training preparedness, and labor market status. While unemployed seek labor market re-entry, current workers face the need to upskill within a job or profession or to reskill for larger career shifts, to keep skills up-to-date with industry demand, reduce the risk of displacement, and prepare for job search in case of displacement, especially for those facing high unemployment risk. Modular, flexible, and short-term programs become increasingly relevant, making it increasingly important to leverage diverse public and non-public training providers. Furthermore, this note emphasizes that adults have different learnings strengths and weaknesses, including lower brain plasticity and the need for greater concept repetition, the need for more flexibility considering adults' high opportunity cost of time, greater ability for attention and self-reflection, and more pre-existing experience and knowledge.

A shift towards a comprehensive view of a skills system – in which a wide array of services and providers support people at different life stages with underlying institutional support – can help improve coordination, oversight, effectiveness, and equity in skills development. In order to ensure quality and consistency across a wide range of services, providers, and beneficiaries, governments must play a key role in regulating services and supporting coordination and collaboration across actors. This support should be systematic rather than ad-hoc, and to be efficient it requires coordination across public and non-public agencies.

This technical note proceeds as follows. Section 2 defines a skills system for adults and OOS youth and presents a conceptual framework of its objectives, services, main actors, and supporting elements. Section 3 identifies key lessons for the design of skills systems from the existing literature on skills training and career guidance, with a focus on programs for adults. Section 4 outlines the roles of government to support the skills system with governance, financing, and information-sharing, with examples of best practices. Section 5 concludes.

Section 2: Skills systems for adults and out-of-school youth: A conceptual framework

This conceptual framework outlines the objectives, services, main actors, and supporting elements in a complete skills system for adults and OOS youth. This framework builds directly on the *Skills Toward Employment and Productivity* (STEP) framework, which brought together research and practical experience to provide a comprehensive view of lifelong learning (Banerji et al. 2010). STEP includes five stages – early childhood development, inclusive basic education, building job relevant skills through public-private collaboration, building skills for entrepreneurship and innovation, and facilitating labor mobility and job matching – and emphasized the importance of foundational skills, job-relevant skills, and the importance of initial skills development for facilitating lifelong skills development. The present framework focuses on adults and OOS youth who have exited the initial formal education system. It highlights how programs, providers, and institutions can collaborate to form a cohesive skills system that supports individuals through education, training, and employment services. This system aims to enable continuous learning, productivity, and adaptability throughout people's careers.

Box 1: Definition of key terms related to learning, education, and training

Lifelong learning: An overarching term covering all learning activities for people of all ages – from early childhood to elderly – and all modalities including formal, informal, and non-formal.

Adult or continuing education and training: A subset of education and training focused on adults, defined as those who are regarded as adults by the society in which they live. It provides opportunities for individuals to upgrade, reskill, or learn new skills after completing their initial formal education. It is often tailored for adults seeking to adapt to technological changes, job market shifts, or personal growth needs.

Technical and vocational education and training (TVET or VET): Education and training designed to equip individuals with the technical skills, practical knowledge, and vocational training needed for specific trades, occupations, or industries. TVET can occur in any type of institutions (public, private, non-profit, or other) and can be formal or non-formal. Within TVET, continuing vocational education and training (CVET) refers to adult-targeted programs.

Formal education and training: Structured education and training provided by recognized education and training providers, such as schools, universities, polytechnics, colleges, or accredited training providers. They typically offer recognized degrees or qualifications.

Non-formal education and training: Structured education and training which occurs outside of recognized institutions and providers. They typically do not offer recognized degrees or qualifications.

Informal learning: Unstructured learning resulting from regular activities related to work, family, or leisure. Unlike non-formal education and training, informal learning does not involve a structured learning program.

On-the-job, workplace, or work-based training: Structured training provided to current workers and relevant to their work, either in-house or by an independent training provider. The decision to provide on-the-job training is typically made by the firm with specific business needs in mind.

On-the-job, workplace, or work-based learning: All learning which occurs in the workplace, including on-the-job training or informal learning acquired through regular work experience.

Apprenticeship: A structured program of workplace training combined with classroom instruction, typically based on an employment agreement and with renumeration. Apprenticeships can be formal, or they can be non-formal (often referred to "traditional" or "informal" apprenticeships) which occur outside of recognized providers and/or firms.

Source: Author's elaborations based on the UNESCO glossary (https://uis.unesco.org/en/glossary)

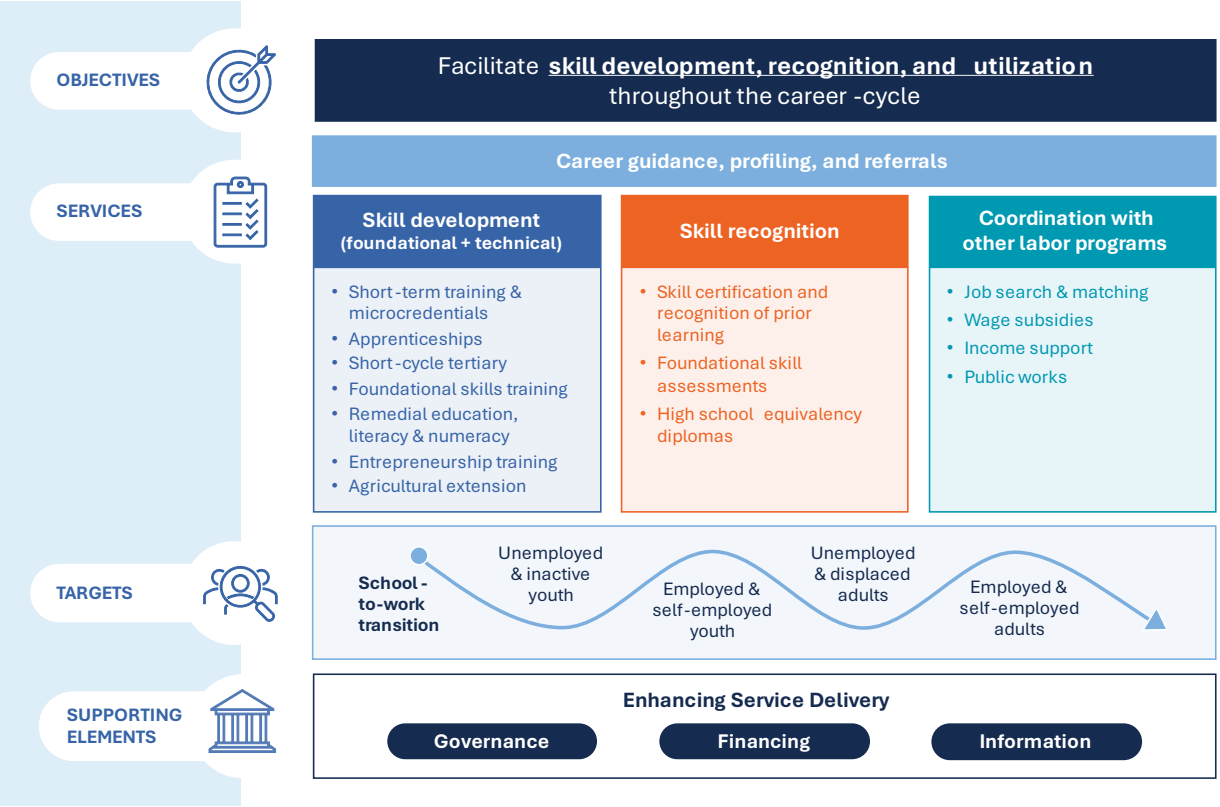
This skills system includes all the programs and providers that offer services related to skill development, recognition, and utilization for adults and OOS youth, as well as the underlying policies and institutional arrangements that regulate and support them. The skills system includes a range of education and training initiatives designed to address gaps in foundational learning or provide occupation-specific skills, skills recognition, and supporting services such as career guidance. These services are provided to people with varying ages, career statuses, preparation, and needs. Different types of providers, including public, private, and non-profit providers, have different comparative advantages according to the target skills, training modality, and included beneficiaries. Skills systems also include the policies and institutional arrangement that regulate and support this diverse delivery system with regulation, quality assurance, financing, and information sharing. Skills systems involve sustained delivery and coordination across several institutions and thus require close coordination between government, employers, providers, and individuals. Effective skills systems also integrate with labor market delivery programs, such as job matching, wage subsidies, income support, and public works.

The primary objective of the skills system is to facilitate skill development, recognition, and utilization throughout the career-cycle, with the ultimate goal of increasing lifelong productivity, income, and satisfaction. As shown in **Figure *5***, this is achieved through four primary service categories – career guidance, skills training, skills recognition, and coordination with other labor market programs. Crucially, career guidance, which involves profiling individuals with diverse needs and referring them to available training, recognition, and employment services, is necessary throughout the career-cycle to ensure both employed and non-employed people can access available training and employment opportunities, are aware of their fit for alternative career pathways, and have the ability to effectively utilize their skills.

Skills training includes both filling gaps in foundational skills and developing and updating technical skills to promote career development in both formal and informal sectors. Technical skills training can include short-term technical training, on-the-job training, apprenticeships, or

short-cycle tertiary education. Foundational skills training, such as cognitive, socioemotional, and basic digital skills training, may be standalone or integrated into technical training programs. They may also include remedial education, literacy, and numeracy programs. Entrepreneurship and agricultural extension are additional examples of sector-specific services. While foundational skills are generally more widely applicable across a wide range of occupations, there is not always a clear division between foundational and technical skills and most technical or vocational training will include some degree of foundational skills training.

Figure 5: The objectives, services, beneficiaries, and supporting elements of the skills system



Services must be tailored for different career stages, including youth who have recently left formal schooling but remain unemployed or inactive, young workers in early stages of their career, displaced workers, and adults in need of reskilling and upskilling (Figure *6*). Programs should begin to support youth with career guidance during formal schooling. The most critical group to address is youth who have recently left school but remain unemployed or inactive. This group needs intensive career guidance and profiling to determine their pathways to return to formal schooling or to access other training and work opportunities that can increase their career prospects. Youth who are working can also benefit from career guidance and training opportunities to ensure that they are strengthening necessary foundational and technical skills for a positive career trajectory. This helps to minimize the additional support and services they will need as adults. Strengthening foundational skills is particularly important for youth, as these

skills are useful across a wide range of occupations and pave the way for ongoing career growth and skill development. Meanwhile, unemployed adults have relatively greater need for short-term technical training and recognition of prior learning to promote rapid return to work and minimize skills depreciation. Employed adults must also have access to technical skill upgrading opportunities, especially in sectors which face high risk of displacement, to promote within-job upgrading, or to prepare for a shift to occupations with similar skillsets that face growing demand. Across all ages, entrepreneurship training can support self-employed workers or unemployed and inactive people in need of income-generating opportunities.

Figure 6: The skills system supports individuals at a variety of career stages

TARGET	PRIORITY SERVICES	GENERAL PRINCIPLES
School-to-work transition	• Career guidance	Promote a **high-quality first job** with access to continued education and training opportunities.
Unemployed & inactive youth	• Career guidance • Intensive skills training [1] & apprenticeships • Referral to other labor programs (income support, job search, etc.)	Support **pathways to new training and career opportunities, or back to formal schooling,** with a focus on identifying and strengthening lacking foundational and general technical skills.
Employed & self-employed youth	• Career guidance • Intensive skills training & apprenticeships	Ensure a **high-quality career path** with on- and off-the-job skills training and transitions to jobs with long-term growth potential, with a focus on identifying and strengthening lacking foundational and general technical skills.
Unemployed & displaced adults	• Career guidance • Short-term skills training • Recognition of prior learning • Referral to other labor programs (income support, job search, etc.)	Facilitate **rapid return to work to limit skills depreciation,** with a focus on enhancing use of acquired skills and experience via skills recognition and short-term modular skills training.
Employed & self-employed adults	• Career guidance • Short-term skills training • Recognition of prior learning	Promote **lifelong skills upgrading,** especially for those in fields with high risk of displacement, to promote within-job career development and prepare for future job transitions.

[1] Skills training may include technical or foundational skills, as well as entrepreneurship or agricultural extension

Crucially, course design and pedagogical techniques must consider participants' age, level of preparation, and opportunity cost of time (Box 2). There is extensive evidence that adults learn differently. Lower brain plasticity means that adults need relatively more repetition before they can master a task. At the same time, adults often have various learning advantages including greater attention and focus and pre-existing knowledge and experience (Thomas et al. 2020). Programs must be designed around adults' relatively higher opportunity cost of time, with work and care responsibilities that require flexible learning schedules.

Box 2: Understanding how adults learn

It is essential that adult education programs consider the unique ways in which adults learn and the pedagogical approaches that are most effective. Brain plasticity, or the ability of the brain to grow and adapt in response to the world around it, decreases steadily over the lifetime. Furthermore, entrenchment is a phenomenon in which information becomes gradually stable in specialized areas of the brain, and this makes it hard to learn later in life if this requires adjusting patterns of brain activity. This does not mean that adults cannot learn,

but rather that adult learners must compensate with more supported learning and appropriate pedagogical approaches. These include:

1) **Spaced learning and repetition:** Every time a piece of information is "retrieved", it is reconsolidated in the brain. Thus, "spaced learning" schedules, in which the same information is repeated over several sessions or days, are effective tools to combat lower plasticity and entrenchment. This can also be achieved with more practice in between sessions, which can be facilitated with modern digital approaches such as text reminders and assignments as well as online social groups.

2) **Interactive learning:** Active engagement, in which learners are engaged to answer questions or participate in discussion, is important for all learners, but there is evidence that this is especially important for adults.

3) **Optimizing learning materials to emphasize key features:** This includes exaggerating features that need to be paid attention to or the concepts that are particularly challenging for adults. It also includes presenting materials in various different format and using many different examples, including exercises and practical applications that position material as relevant to daily life.

Adult education should capitalize on the advantages that adult learners possess, including attention and focus, planning, explicit learning, meta-cognition, and existing knowledge. Executive function is related to attention, control, and abstract thought, and it develops gradually throughout young adulthood**.** It allows adults to focus better amid distractions and make personal goals. Executive function is also associated with meta-cognition (learning about learning) that allows adults to make learning plans and to better understand their learning process and where they are making or not making progress. Adults are also better than children at explicit learning, which is based on overt learning strategies (as opposed to implicit learning, which occurs subconsciously) and this allows adults to deliberately learn and study rules or patterns. These skills typically peak between age 20-30 and begin to decline after age 60. Finally, adults often have preexisting knowledge that can be useful to support learning – in the case of literacy, for example, adults already have oral language with extensive vocabulary and grammar.

Adult education must also consider the high opportunity costs of adults' time and the many responsibilities and constraints they face outside the classroom. Adults face many demands on their time, including work and family care, and this varies heavily with age, gender, and occupation. Learning schedules should take this into account with flexible participation options and can be complemented with support for transportation and childcare. Considering the slow and difficult process of adult learning, combined with the many other stressors that adults face in their daily lives, adult learners will often need to be additionally encouraged, and at the same time, given realistic expectations about the degree of learning they can achieve.

Source: Thomas, M. S., Knowland, V. C., & Rogers, C. (2020). The Science of Adult Literacy. Social Protection & Jobs. Discussion Paper No. 2001. World Bank.

Training for adults and OOS youth are provided by a range of public and non-public providers who have different comparative advantages and face different incentives (Figure *7*). There is little systematic documentation of the share of training coming from public versus private providers across L/MICs. Insights from the *Skills Towards Employability and Productivity* (STEP) Employer Surveys, implemented across various L/MICs between 2011-2017, indicate that, when formal firms contract external providers to implement skills training, they rely on a combination of public, private, and non-profit providers. In most countries covered, such as in Kenya, Albania, and Azerbaijan, employers were more likely to use private training providers, while in some countries, such as Vietnam, they were more likely to use public providers. While the ideal balance of education and training provision type will vary by country and level of development, different types of providers have unique comparative advantages for certain types of skills or target populations:

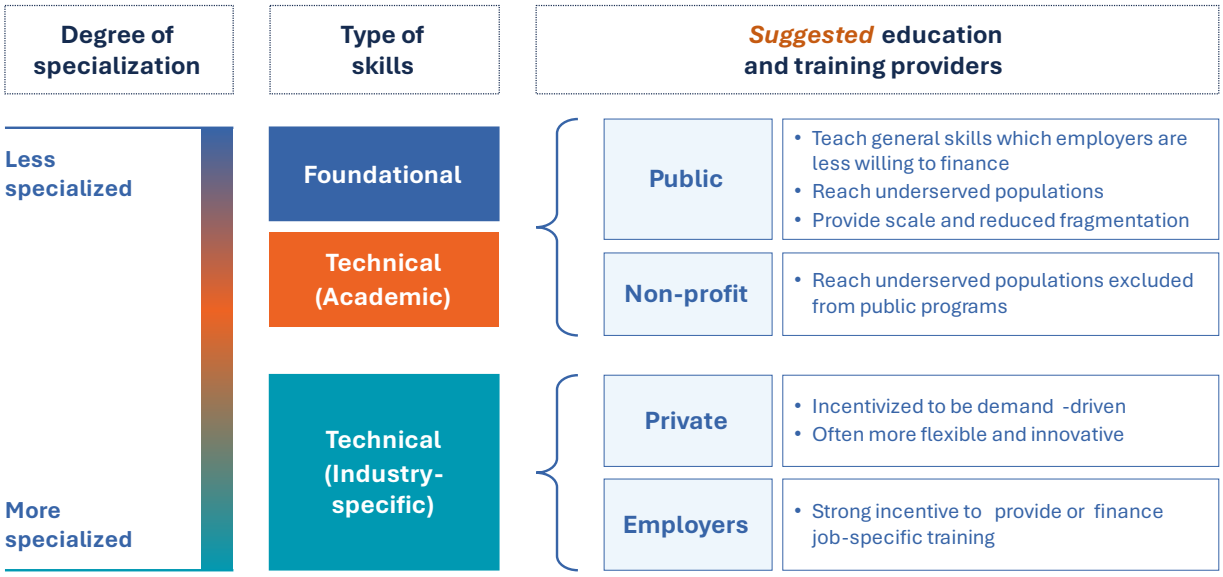
- **Public education and training providers often have a comparative advantage in training general or industry-specific skills and offer sustainability, scale, and inclusivity.** Public systems often have the advantage of an integrated and developed network of providers, infrastructure, and teachers. Formal education institutions can admit experienced adult learners to degree programs or offer courses for adults with more flexible participation requirements such as part-time, evening, or hybrid courses to accommodate work or family responsibilities. They can reach populations that are underserved and implement programs that are not profitable for private providers. Through partnerships with firms and industry associations, they can blend classroom-based with work-based learning and ensure that curricula reflect evolving skill needs. However, public providers in many countries face significant challenges. They are often less flexible and responsive compared to private providers, with curriculum updates frequently taking too long to match rapidly changing employer demands. These challenges are especially pronounced in less developed countries, where public training systems often struggle with governance and quality issues. Common problems include teachers lacking industry experience or pedagogical training, institutional incentives that prioritize established practices over market-driven needs, weak linkages with the private sector, and inconsistent funding (World Bank, UNESCO, and ILO 2023).

- **Private providers often have a comparative advantage in delivering more specialized skills and in fostering strong private-sector linkages, ensuring that trainees gain practical, job-relevant skills.** Independent private training providers may cater to broader markets, offering specialized courses to individuals or firms across various sectors. They often respond directly to requests from private sector firms who are seeking to build their human resources and can play a vital role in filling gaps not addressed by public systems. However, private providers tend to be highly fragmented, and their profit-driven nature can sometimes lead to issues such as overpromising program quality or outcomes. Disadvantaged adults and OOS youth often face financial barriers that prevent them from accessing private training unless such programs are subsidized by governments or supported through targeted funding initiatives.

In many contexts, like public providers, private providers struggle with lack of experience, qualified trainers, and equipment, exacerbated by poor access to capital. Translating identified skills demands into effective education and training curricula requires specialized expertise which is often lacking among smaller and emerging providers.

- **Non-profit providers are especially relevant where public providers are failing to reach vulnerable populations and to train basic foundational skills.** Non-profits are often most likely to implement entrepreneurship training, agricultural extension, remedial education such as literacy and numeracy, and foundational skills training for more vulnerable and lower-income people. These services are often, though not always, insufficiently profitable for private financing and will rely on a combination of public and non-profit provision.
- **Finally, employers play a role in financing training and in providing training which is closely aligned with job-specific needs.** In countries of all income levels, employers face challenges in finding workers with the required skills, partially reflecting the fact that some skills or skill bundles are highly job-specific. This creates a financial incentive for employers to train workers in job-specific skills, either in-house or through contracting independent training providers. Employer-based programs often involve direct access to advanced technologies and industry expertise, making them effective for developing specialized competencies.

Figure 7: Different types of providers excel in training specific types of skills

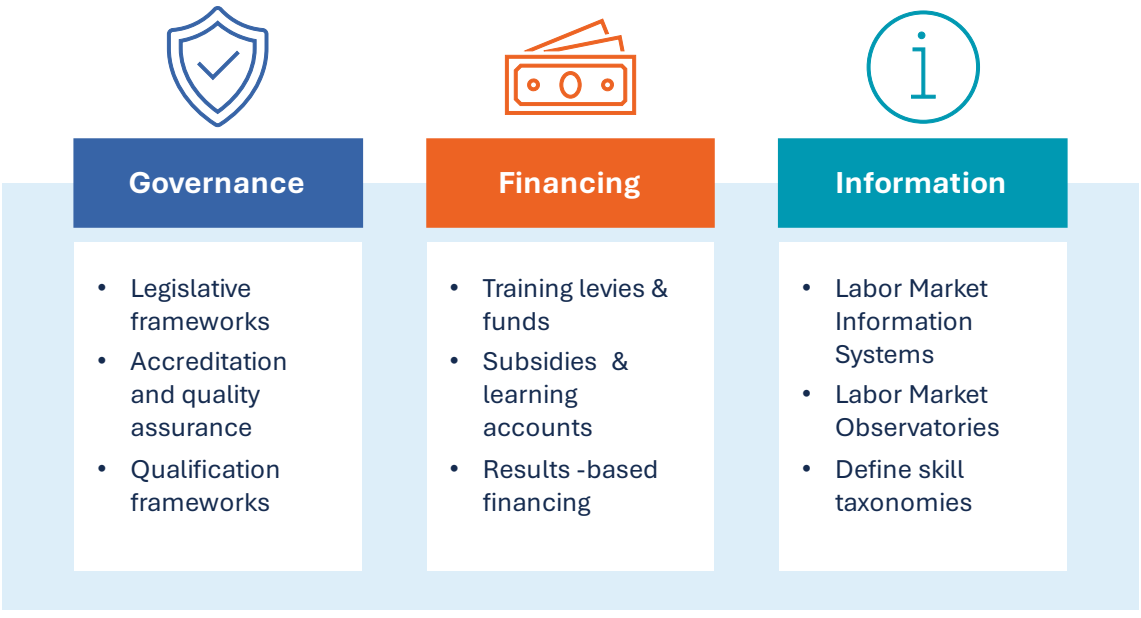


Like training, lifelong career guidance is provided by a range of providers including public employment services, private providers, education and training institutions, and employers. As with training, career guidance delivery can take advantage of the often-stronger employer linkages among private providers, as well as the extended scale and reach to underserved populations achievable through public and non-profit providers. For example, in Australia, the national public employment service contracts private providers for career guidance and

employment services with minimum service requirements, quality oversight, and performance-based financing. In Germany, on the other hand, employment services are provided by an integrated network of public agencies at the federal and municipal levels (de Moraes et al. 2023). Career guidance can be targeted to older workers – for example, the *Ontwikkeladvies* program in the Netherlands subsidizes career guidance for workers over age 45, allowing them to explore future prospects of their current job, give insight into their skills profile and career opportunities, and develop personal plans to ensure they remain employed until retirement age (OECD 2021a).

Career guidance can employ various strategies to reach the disadvantaged adults and OOS youth who need it most, including through employers and unions, one-stop shop service centers, social programs, community forums, and mobile or digital outreach. Career guidance should begin in formal schooling, where it can help students select academic programs, evaluate progress or potential program adjustment, promote a mindset for lifelong learning, and support the transition to work with awareness of future training opportunities (OED 2021a). After formal schooling, career guidance often reaches the unemployed through unemployment support programs. For current workers, and in L/MICs where there are high rates of informality and self-employment, it is often not obvious how to identify and reach those who can benefit from career guidance. Career guidance portals provide centralized information on jobs or training opportunities and can offer personalized recommendations. One-stop shop service centers are a primary contact point for access to multiple services and information and can be used to efficiently offer individuals career guidance while connecting them to needed employment services. Safety nets or other social support programs may also be a natural way to identify beneficiaries. Outreach can also occur through online or mobile platforms, through community leaders or forums, or in public locations such as bus stops or health centers.

Figure 8: Service delivery is supported by governance, financing, and information-sharing



The wide range of services, beneficiaries, and providers in the skills system, as well as the constraints that firms and individuals face in creating training opportunities, motivates a key role for government to regulate and support training providers through governance, financing, and information sharing (Figure *8*). These roles are equally important, if not more important, than the government's role in public education and training provision, and they help to increase access to skills training and improve their overall quality, sustainability, and equity.

First, on the governance side, robust accreditation and monitoring systems uphold quality standards in private training, while legislative frameworks define the institutional structure around lifelong skill development. Regulatory agencies are responsible for national accreditation frameworks and quality assurance of training providers and programs. For independent providers, fostering healthy market competition and providing transparent information on program opportunities, quality, and performance are critical. For employer-based programs, partnerships with industry associations can help ensure consistency and relevance. Regulatory agencies also define skill requirements and qualification frameworks in close coordination with industry bodies. More broadly, the legislative frameworks around lifelong skill development define the individual right to lifelong learning services and create the institutional structure which governs regulation, financing, and information-sharing.

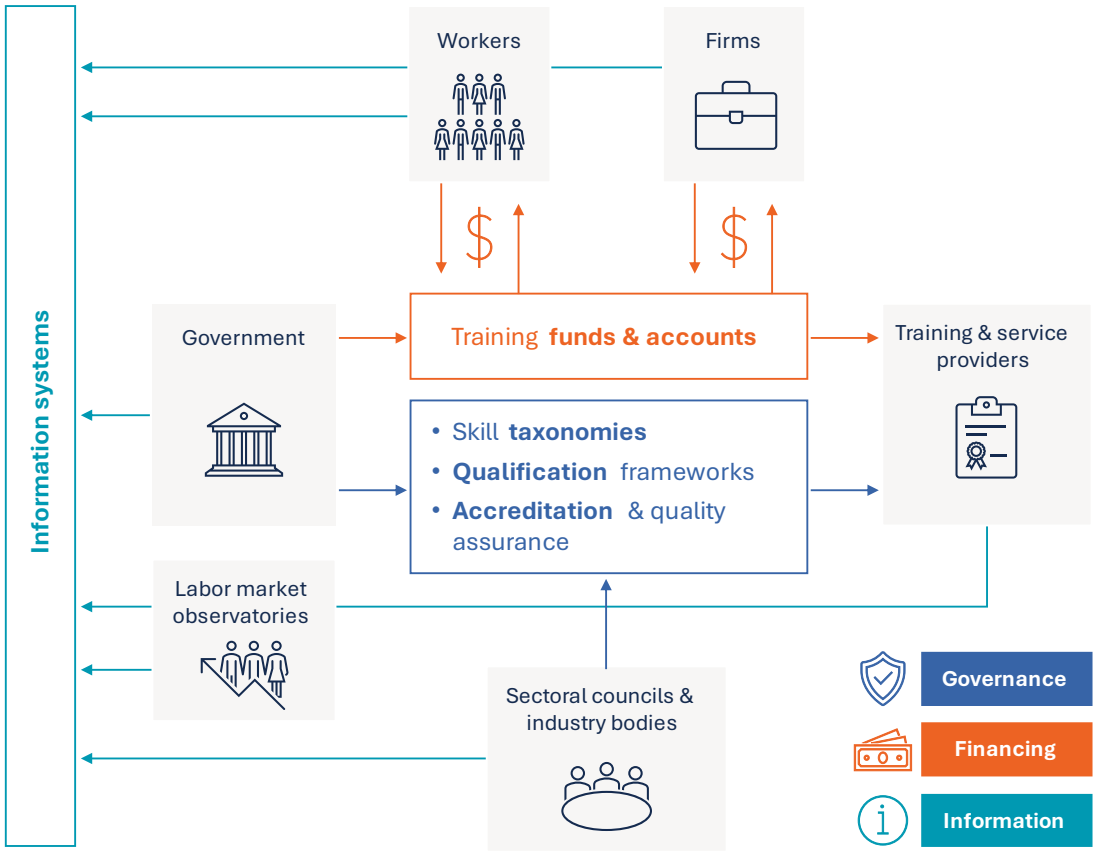
Second, government financing schemes affect incentives, are critical for sustainability, and ensure equitable access to private training opportunities. Governments alone are not responsible for financing training – both individuals and employers also play a role, and as mentioned above, employers in particular have large incentive to finance job-specific skills training. Governments can support financing by mobilizing private financing through training levies and using taxes to generate sustainable revenues for training. Financing can flow through training providers or employers, for example, with subsidies or results-based financing schemes tied to employment outcomes. Financing may instead go to individuals through transferable learning accounts, and these should include unemployed and inactive populations. Additionally, ensuring equitable access to private training opportunities through subsidies or financial aid programs is essential to include underserved populations in workforce development efforts.

Third, governments support labor market information systems which share labor market data and analysis between agencies, providers, firms, and individuals. Labor market information is essential for labor market actors to make informed decisions regarding career planning, skills development, and job search, thus increasing efficiency of training resources and worker productivity. Labor market information from various sources needs to be consolidated, analyzed, and made accessible to different actors in real time. A major challenge is to use projections of labor demand to anticipate the skills expected to be in high-demand and the workers at high risk of displacement by economic changes and new technologies, which can be used to effectively target training opportunities. However, this is challenging considering the inherent uncertainty involved in demand forecasting, and translating identified skills demands into effective education

and training curricula requires specialized expertise which is often lacking. Governments must also define skill taxonomies which inform certification requirements.

Figure *9* illustrates how each of these supporting elements work together in coordination with various labor market stakeholders. The government plays a central role in supporting all three elements, but other actors play a role as well. Sectoral councils and other industry bodies play a role in defining skill taxonomies and qualifications frameworks which ensure close alignment with industry needs. Labor market observatories are often made up of both public and private actors including sectoral councils. Financing for training can come from government, trainees, and firms, and financing can in turn be provided directly to individuals, firms, or training providers. Each element is made less effective without the presence of the other elements – governance and financing are needed together to support service delivery, while information is needed by all actors in the economy to maximize the effectiveness of program resources and to facilitate a well-functioning and adaptive labor market.

Figure 9: These supporting elements work together in coordination with various labor market stakeholders



Often, countries implement some or all of these elements in an ad-hoc manner, filling a short-term need but failing to build a system that functions without interruption in the long-term. Most countries, including L/MICs, have elements of the skills system for adults and OOS youth,

including governance, financing schemes, and elements of labor market information systems. In many cases, government programs are ad-hoc – for example, a one-time publicly-funded training program without a sustainable financing strategy, or a one-time labor market analysis – and are thus not sustainable in the long-term. Instead, countries should instead strive to build a continuously operating system of governing, financing, and information-sharing that supports sustainable service delivery.

In other cases, programs are specific to regions, sectors, skills, or populations, and are implemented in parallel without coordination and under the purview of different ministries. For example, the Ministry of Education may oversee lifelong learning programs in higher education institutions, while the Ministry of Labor oversees employment and workforce development. These systems may have separate and uncoordinated regulations, financing, and information portals, despite the fact that the same adults may be passing through these systems for similar types of training (OECD 2020). In such cases, programs can benefit from greater integration and coordination, both in terms of service delivery and governance, to better track beneficiaries, improve targeting, avoid duplicating efforts, and simplify administration, ultimately improving the accessibility, quality, and efficiency of service delivery. Skills and labor services should also coordinate with other social protection services including social assistance, insurance, and health services.

Singapore and Germany are examples of HICs which have developed advanced lifelong skills systems, though Singapore's is more comprehensive and centralized. Both countries have legislative frameworks which declare a commitment to lifelong learning, a range of regulations and financing mechanisms to support lifelong learning, and labor market information systems supported by designated statistical units. A key distinction is that Singapore has developed a centralized, entitlement-based approach, in which all Singaporeans over age 25 have access to training opportunities which are financed and accredited by a single agency. By contrast, Germany's system is decentralized and institutionally complex, covering different sectors and regions through programs implemented across various agencies and levels of government. While this fragmentation allows for more tailored regional solutions and strong stakeholder involvement, it may also make available opportunities difficult to navigate, hindering coherence and accessibility. The *Spotlight: Overview and comparison of the skills system in Germany and Singapore* summarizes and compares the skills system in each of these countries.

Coordinated, government-led action is required to develop skills systems in L/MICs which support adults as well as youth, and these countries can look to those with advanced skills systems for guidance and examples. In practice, a fully integrated skills system feels unrealistic for many countries. Where capacity for institutional coordination and digital infrastructure is lacking, the focus can be on making small steps towards integration of some programs with a view towards the gradual integration of other services. Countries which are now just starting to build systems for lifelong training and employment can avoid repeating errors made by more advanced economies and move more quickly towards fully integrated systems.

Section 3: Key lessons from the literature on skills training and career guidance

3.1 How effective is short-term skills training for adults and out-of-school youth?

Short-term skills training typically generates labor market benefits in line with what can be expected given their duration and intensity, and they are often cost-effective when well-designed and well-targeted. Whether skills training is cost-effective depends critically on program design and delivery, and effects vary heavily according to the types of skills, target population, and modality of training. Of course, short-term training must be complemented with other labor and development programs and policies when there are other structural barriers to employment, such as a lack of labor demand.

Vocational or technical skills: Recent reviews of short-term vocational training programs in L/MICs highlight that they are often cost-effective with effects in line with what is expected based on the typical returns to education and experience, which are in the order of around 10 percent per year (Carranza and McKenzie 2023, Agarwal and Mani 2024). 3-6 months of vocational training often results in around a 2.3 percentage point increase in employment and an 11 percent increase in earnings (McKenzie 2017a). Effects on employment are higher in more recent meta-analyses, on the scale of 5-6 percentage points, possibly reflecting improvements in training design and targeting in well-designed small-scale programs (Agarwal and Mani 2024, Kemper et al. 2024). These impacts are similar in magnitude to evidence from high-income countries (Card et al. 2018).

Foundational skills: Foundational skills training is often paired with other programs such as vocational training, entrepreneurship support, or cash transfers, and seen as an important component to build complementary skillsets and level the playing field for future skills training and career development. A consequence of delivery paired with other programs is it can be difficult to study the effects of foundational skills training alone. With this limitation in mind, foundational skills trainings are often found to increase labor market outcomes, though effects are often small, and generate other psychological benefits (Cabus et al. 2021). A recent meta-analysis found that, on average and controlling for training characteristics, vocational training programs for youth in L/MICs are slightly more effective when they include a foundational skills component, though this was not statistically significant (Kemper et al. 2024).[4]

[4] For example, vocational training in Colombia had larger effects on long-term employment and wages when complemented with a foundational skills component (Barrera-Osorio et al. 2023). On-the-job foundational skills training for female garment workers in India (including 80 hours of training over 12 months in communication, time management, financial literacy, task execution, and problem-solving) increased worker extraversion and communication and led to them being more productive and assigned to more complex tasks (Adhvaryu et al. 2018). The Economic Empowerment of Adolescent Girls and Young Women (EPAG) project in Liberia combined vocational and life skills training and had large effects on short-term employment and female empowerment outcomes (Adoho et al. 2014).

Entrepreneurship: Traditional entrepreneurship training of basic business practices (ex. financial management, marketing, accounting) has been found to improve business practices and outcomes in many settings, including among female-owned SMEs in Kenya (McKenzie and Puerto 2021) and large textile firms in India (Bloom et al. 2020). While earlier waves of randomized experiments often failed to detect benefits, evidence now shows that entrepreneurship training can have sustained positive effects on profits and sales, often in the range of 5-10% on average, which is in line with realistic expectations considering the typical duration and intensity of programs (McKenzie and Woodruff 2014, McKenzie 2021). Impacts depend heavily on what content and skills are being delivered and who is targeted, and they are often enhanced when combined with financing and credit. Smaller business owners may benefit more from personal initiative training and training based on heuristics or rules-of-thumb, while larger firms can benefit more from basic business training and/or customized consulting services (McKenzie 2021).[5] Targeting for entrepreneurship programs is essential – in settings with widespread "subsistence" self-employment, business training is usually most impactful for high-potential entrepreneurs.[6] As firms grow, it may also be more cost-effective to hire marketing and accounting experts rather than enroll in trainings to learn these practices themselves, and programs can instead help firms to hire these experts or support a functioning marketplace of business services and specialists (Anderson and McKenzie 2022).

Agricultural extension: Agricultural extension programs provide farmers with knowledge and technical assistance including modern farming techniques, crop selection, water conservation, efficient use of inputs, soil management, and pest management. Like entrepreneurship programs, they are often accompanied by finance and credit to invest in improved inputs like farming equipment, seeds, and fertilizers. Various randomized studies have found that agricultural extension programs can be effective in encouraging farmers to adopt new practices and technologies, especially when they work through social networks and community-centered campaigns, highlighting the value of peer-to-peer learning in this setting (Wellard et al. 2013). However, changing farming techniques does not always translate into improved farmer profits when they have not been tested in real farm settings, highlighting the importance of ensuring that skills are valuable for improved employment outcomes (J-PAL 2023). Importantly, agricultural training is not only for low-skill farmers – programs can also provide vocational training to higher-skilled individuals to foster innovations in agriculture, for example, through

[5] For example, assigning microentrepreneurs in Togo to a personal initiative training program emphasizing proactiveness and adaptability caused a 30 percent increase in profits after 2.5 years, compared to only 11 percent for a traditional business training program (Campos et al. 2017). Various other studies have found positive effects of personal initiative training for entrepreneurs, though typically not this large, and effectiveness often depends on the entrepreneurship experience of the trainer (McKenzie 2021).

[6] For example, among winners of the Youth Enterprise With Innovation in Nigeria (YouWiN!) business plan competition, training and a 50,000 USD grant generated large increases in firm profits, growth, and survival (McKenzie 2017b).

community colleges that also promote research and development in agricultural practices suitable for local conditions.

Achieving long-term effectiveness from training programs may be more challenging for large-scale government-implemented programs. For example, the Turkish National Employment Agency's vocational training program for the unemployed had only a small positive effect on employment that dissipated after three years (Hirshleifer et al. 2016). Large-scale government training programs in Ghana, the Ivory Coast, and the Dominican Republic all generated moderate employment gains within 1-2 years, and lower than effects estimated from meta-analyses including smaller-scale programs implemented by public, private, or non-profit sectors (Carranza and McKenzie 2023). This may reflect at-scale programs' difficulty in overcoming some of the challenges discussed in the following subsection, such as achieving quality delivery, demand-driven skill content, or avoiding unintended behavioral consequences such as creating unrealistic expectations among job-seekers. An example of a successful at-scale program is *Jóvenes en Acción* in Colombia, which contracted non-public providers to conduct vocational training and internships for poor unemployed youth. For the 80,000 students enrolled between 2002-2005, the program managed to create sustained gains in formal employment and earnings, possibly reflecting the program's focus on private-sector engagement while incentivizing and monitoring provider quality, including through performance-based financing which is discussed further in Section 4.2 on financing (Attanasio et al. 2017).

Vocational and foundational skills training can be just as effective, and often more effective, for women than for men. A recent meta-analysis finds that, on average, short-term vocational training for youth in L/MICs are more effective when trainees are all-female compared to when trainees are all-male, especially when it comes to increasing employment, though the most effective programs include both men and women (Kemper et al. 2024). Women often start from a lower baseline level of education or employment and face stigmas around work, which can increase returns to training. Importantly, women sometimes face a deficit in marketable foundational skills, increasing returns to foundational skills training and programs that emphasize confidence and overcoming stereotypes. Many studies find women benefit from adding socioemotional skills training and "empowerment" components to vocational training programs (J-PAL 2023b).[7] Apprenticeships can also help to increase female labor force participation by facilitating job search and eroding gender norms around employment.[8]

[7] The *Programa Juventud y Empleo* program in the Dominican Republic provided vocational and foundational skills training and a 2-month internship to youth without completed secondary, and this improved foundational skills, self-esteem, labor market outcomes, and job satisfaction for women but not for men. Benefits were equally large for women who received only the foundational skills training and not the vocational training (Acevedo et al. 2020). The *Nepal Employment Fund* provided vocational and foundational skills training and job placement assistance to youth without completed secondary, and it increased non-farm employment and earnings more for women than for men, driven largely by increased self-employment activities in the home (Chakravarty et al. 2019).

[8] When paid internships were added on to a vocational training and cash grant program for rural women in Bangladesh, women were much more likely to be employed in urban areas 18 months later (Shonchoy et al. 2018).

There is a large research gap on the effectiveness of skills training for adults compared to youth, but there are examples of effective adult training programs. There is a lack of systematic reviews of training programs for adults, and none of the meta-analyses included in this note discuss differences in effects of training for adults compared to youth. Training programs sometimes cover a wide age range, but program evaluations are typically not sufficiently powered to report differences in effects across age groups. In the case of the Turkish National Employment Agency's vocational training program for the unemployed, the modest benefits of training were not statistically different for older or younger trainees (Hirshleifer et al. 2016). Many of the papers cited in this section identified positive effects of training for adults – for example, of on-the-job foundational skills training for female garment workers in India (Adhvaryu et al. 2018), personal initiative training for entrepreneurs in Togo (Campos et al. 2017), or of vocational and socioemotional skills training in Colombia (Barrera-Osorio et al. 2023).

Adult literacy and numeracy programs highlight the challenges that less-educated adults face in learning complex concepts and how these challenges can be overcome with proper program design. There is a lack of systematic evidence on the effectiveness of adult literacy programs in L/MICs. However, it is clear that they are often more effective at achieving emerging rather than fluent literacy, as achieving full comprehension of sentences and paragraphs is a highly complex cognitive task. Adult literacy programs require extensive hours and repetition, and they are often characterized by low attendance and high drop-out rates (Aker et al. 2024). ***Box* 3** discusses the challenges inherent in adult literacy and numeracy programs and how they can be overcome with a program design which considers the advantages and disadvantages faced by adult learners.

Box 3: Designing effective adult literacy programs

Adult literacy is a highly complex task and can be challenging considering the cognitive barriers that adult learners face. Literacy involves using multiple areas of the brain at various stages of learning, including learning to recognize letters and words (decoding), accessing their meanings sufficiently fast to read quickly and fluently (automaticity), and constructing and comprehending full sentences and paragraphs (comprehension) (Aker et al. 2024). For children, these tasks are taught over many years of intensive learning. "Decoding" can be particularly challenging for adults to learn, as brain entrenchment means that the area of the brain typically involved in letter recognition has not been used in this way for illiterate individuals (it is instead used mostly for facial recognition, and there is in fact evidence that learning literacy in adulthood can reduce ability for facial recognition). Adult learners also have to unlearn an important skill in object recognition known as "invariance" and this makes it difficult to distinguish similar letters, such as 'b' and 'd', leading to patterns of adult dyslexia that can be more challenging for some scripts (Thomas et al. 2020). As a result, adult literacy programs often focus on the "decoding" stage and tend to make more progress with decoding than with automaticity or comprehension (Aker et al. 2024).

Adult literacy programs should take these cognitive barriers into account and require extensive hours of instruction to create sustained literacy gains. Classes must move slowly

and devote sufficient time to each stage of literacy learning (decoding, automaticity, and comprehension) and follow up with additional practice. The Kha Ri Gude (Let us Learn) adult literacy program in South Africa involves 240 hours of training over 6 months, and many participants still felt this was not enough (McKay 2015). It is estimated that literacy training for youth takes a total of around 2,000 hours throughout primary and secondary school, and that for adults around 300-400 hours of instruction is needed to attain reading levels roughly equivalent to a 2nd or 3rd grader (National Research Council 2012). In addition to being sufficiently long, classroom learning should involve active engagement, and program materials should be designed to emphasize the concepts that adults will have more trouble grasping and use many types of examples and exercises that position literacy as relevant to daily life. As discussed in **Box 2**, program design can capitalize on adults' strengths such as the ability to focus, plan, and reflect on the learning progress (Aker et al. 2024).

Quality of teaching is a hugely important factor that typically determines the success of a program. Teachers of adult literacy are often volunteers who lack training, and salaries are typically lower than in other education sectors. Even when schoolteachers, who are trained in teaching methods more broadly, decide to participate in adult teaching, they lack knowledge of teaching methods specifically for adults (Thomas et al. 2020). In order to be successful, adult literacy programs should ensure that teachers are sufficiently compensated and receive training in adult teaching methods. When possible, teachers should also be drawn from the local community to improve teacher and program acceptance by the local community. This is often done in existing programs, for example, in the Agaahi Adult Literacy program in Pakistan and the Alfalit Adult Youth and Literacy Program in Liberia (Thomas et al. 2020).

Adult literacy must also be flexible around students' schedules and responsibilities outside of the classroom. This can be challenging given the amount of time required to learn literacy. Ideally, a program can have multiple-hour sessions multiple times per week. Courses should have flexible timing around work schedules (which may include the agricultural calendar or other seasonal work considerations) be supplemented with extensive practice outside of the classroom. To increase participation by women, programs could offer safe transportation or childcare services or hire female trainers from the community as was done in Saakshar Bharat Adult Literacy Program in India (Arias et al. 2019). As discussed in **Box 5**, mobile phone-based programs are a promising way to provide course flexibility and greater repetition of concepts, and they have shown encouraging results.

To increase attendance and reduce dropout, adults should also be motivated or incentivized to participate. Given the long-term time demands of literacy training and the high opportunity cost of adults' time, projects should pay particular attention to adults' incentives for learning and showing learners precisely how literacy and numeracy are relevant and useful in everyday life. Incentives can also help to ensure that adults join and complete programs. For example, in the ABC project in Niger, a monthly food aid ration was given to those who maintained 80% attendance, and this was perceived to increase attendance and reduce dropout (Aker et al. 2012). However, there is little rigorous evidence on the impact of incentives in adult education programs, especially in L/MICs (Aker et al. 2024).

3.2 What do we know about effective design of short-term skills training?

Lesson 1: All skills training – whether it is for foundational or specialized skills – must be demand-driven. While foundational skills are generally in-demand by most firms, but this is not true for all foundational skills in all settings. Training of foundational and specialized skills should be closely tailored to employer needs. In addition to labor market analysis of demand trends and projections for occupation groups, this requires involvement of employers, sectoral councils, or other industry bodies in course selection and design to inform the specific skills content of training. As discussed in Section 4.1 on governance, this can be facilitated by national qualification frameworks which are accurate and regularly updated. Alongside extensive anecdotal evidence of the importance of training in-demand skills, concrete empirical evidence comes from a nationwide vocational training program in Brazil, where the effects of training on formal employment doubled when courses were selected in consultation with employers (O'Connell and Mation 2021).

Lesson 2: On-the-job training and apprenticeships promote short-term employment and strengthen highly job-relevant skills but may not translate into long-term gains if the skills are not certified and applicable to other firms. For example, apprenticeships allow firms to train workers for their specific needs and screen the top candidates for hire, while apprentices gain the opportunity to demonstrate their productive potential and develop job-relevant skills. Many lower- and middle-income countries also have many elements of quality apprenticeship programs, and existing research in this setting also indicates that apprenticeships can create sustained productivity and wage gains (Saraf 2017). However, an experiment for unemployed youths in Uganda found that vocational training was more effective than apprenticeships in helping trainees transition into new jobs in the long-term, thus generating greater long-term employment and earnings gains and resilience to the Covid-19 labor market shock. This was attributed to the lack of skill certifications provided by the apprenticeships and the more firm-specific and less-transferable skills acquired through on-the-job training (Alfonsi et al. 2024, Alfonsi et al. 2020). In advanced economies, apprenticeship programs are more often successful at creating large returns on investment for apprentices and firms, and they often have strong employer engagement, quality-assurance mechanisms, and provide recognized industry certifications (Aggarwal et al. 2019).

Box 4: Strengthening informal apprenticeships

In many L/MICs, the most common type of employer-provided training are "traditional" or "informal" apprenticeships under a "master craftsperson". Though tricky to precisely define, these apprenticeships are "non-formal" in that they occur outside of recognized providers and firms and can be "informal" if they do not have structured curricula or learning goals. Informal apprenticeships are less likely to involve classroom-based training, written contracts or curricula, or formal assessments or certifications, and they are based on social custom rather than established legal frameworks. Informal apprenticeships make up the vast majority of

training opportunities in many developing countries (Hofmann et al. 2022; Arias et al. 2019; Adams et al. 2013). They face the precarious conditions of the informal economy, in which workers do not have worker protections or benefits and are often unaware of other available training opportunities. There is also little rigorous evidence on their effectiveness. Informal apprenticeships often result in high employment rates, either as entrepreneurs or wage workers, and some even transition to the formal sector or to formal training programs. However, there are large differences in outcomes across countries reflecting the large variation in how informal apprenticeships are structured (Hofmann et al. 2022; Adams et al. 2013). For example, in Benin, apprentices pay a fee up front and master craftsmen decide when they are ready to graduate often for an additional fee, leading some to be "trapped" as apprentices even after completing training, while in Senegal no initial fee is required and dropout rates are high (Arias et al. 2019).

Public policies can also help to monitor, strengthen, and regularize different aspects of informal apprenticeships. As with lifelong learning more broadly, many governments have recognized the importance of informal apprenticeships and placed them within their national skills development frameworks. Programs to monitor and strengthen informal apprenticeships include training trainers, introducing formal assessments and qualifications, encouraging use of written contracts and witnesses, creating monitoring systems to ensure safe working conditions, and cost-sharing mechanisms or performance-based subsidies (Arias et al. 2019). For example, since 2001, Benin has offered formal assessments and skill certificates for informal apprenticeships and channels funding from a national training fund to firms with traditional apprenticeships. In Tanzania, informal apprenticeships have gradually become recognized as part of the national TVET system, with competency-based occupational standards, assessment preparation and skill upgrading courses for apprentices, and committed funding from the central government. Niger has training support units that monitor informal apprenticeships and provide supplementary training to apprentices and master craftspeople (Hofmann et al. 2022). Each of these reforms required close dialogue with master craftspeople and their business associations.

There is evidence that these policies have been effective at improving employment outcomes for informal apprentices. In Niger, training provided to master craftspeople was found to improve training quality and employment outcomes for apprentices (Swisscontact Niger 2017). In Ghana, the National Apprenticeship Programme offers performance-based incentives to master craftsmen based on apprentices' performance on a skills assessment at the end of training, and this was found to increase training quality with long-term benefits for worker productivity (Brown et al. 2022). Evidence from Côte d'Ivoire shows that financial incentives can encourage workers to participate in formal rather than informal apprenticeships (as formal apprenticeships often pay lower wages and may involve greater additional fees or other costs to the participant), resulting in large benefits after the program in work task complexity and earnings (Crépon and Premand 2024). Despite this progress, attempts to modernize informal apprenticeships have remained small-scale.

Lesson 3: Productivity gains from training are often captured by firms, and additional labor market programs or reforms may be necessary to pass the benefits of training on to higher earnings. Even when skills training improves worker productivity, this may not translate into higher wages. A review of studies of on-the-job training found that wages often increase but the gains for firms are typically larger (Saraf 2017). For example, in the example of foundational skills training for female garment workers in India, productivity gains increased firm profits, but this did not pass on to higher wages (Adhvaryu et al. 2018). Additional labor market programs such as job search assistance, as well as structural reforms that reduce monopsonistic hiring practices, may also be needed to see improved skills translate into improved labor market outcomes.

Lesson 4: Digital and mobile phone-based skills delivery are a promising tool to provide course flexibility and concept repetition for adults, increases access, and reduce costs. Skills training programs for adults must combine extensive repetition and practice with course flexibility and, in some cases, part-time or after-work scheduling. The widespread availability of mobile phones in L/MICs makes digital delivery an increasingly feasible strategy to promote flexibility, increase repetition and practice, and reduce program costs and commuting. It can also help to increase access to educational program delivery in remote locations and facilitate inclusion of women who often face greater time constraints. Finally, digital training materials can be stored in cloud space and are thus easily reproducible at low cost, and content libraries could allow trainees to select content according to their customized needs. Mobile-phone based adult literacy programs have shown promising results, though more evidence is needed (**Box 5**).

Box 5: Digital delivery of skills training and career guidance

Digital and mobile phone-based skills delivery can be a valuable way to provide course flexibility and access for adults, increases concept repetition, and reduce costs. Skills training programs for adults must combine extensive repetition and practice with course flexibility and, in some cases, part-time or after-work scheduling. The widespread availability of mobile phones in L/MICs makes digital delivery an increasingly feasible strategy to promote flexibility, increase repetition and practice, and reduce program costs and commuting. It can also help to increase access to educational program delivery in remote locations and facilitate inclusion of women who often face greater time constraints. Finally, digital training materials can be stored in cloud space and are thus easily reproducible at low cost, and content libraries could allow trainees to select content according to their customized needs.

Mobile phone-based programs have shown encouraging results for adult literacy and numeracy, where it is particularly important to have frequent practice and repetition. Adult literacy programs typically require multiple-hour sessions multiple times per week with flexible timing around work schedules. Here, mobile SMS texting can be used to complement classroom learning with extra practice and examples outside the classroom or after a course is over. The *Alphabetisation de Base par Cellulaire* project is an adult literacy and numeracy program in rural Niger that offered mobile phone-based practice outside the classroom to a random subset of learners, and this was found to marginally boost literacy and numeracy (Aker

et al. 2012). A subsequent RCT in Niger found that mobile phone-based monitoring, in which teachers and students were called to discuss their progress, led to large improvements in literacy and numeracy (Aker and Ksoll 2019). More recently, a literacy program for low-income Spanish speakers in Los Angeles was entirely mobile phone based, and it created substantial reading gains and boosted participants' self-esteem (Ksoll et al. 2015). The program had no teachers, and instead consisted of pre-recorded audio lessons, text messages, and text quizzes delivered over the course of over 400 micromodules. Tracking data shows that learners participated at all times of the day and the week. Only a simple phone (not a smart phone) was required.

Online or mobile phone-based programs could be used to cost-effectively scale-up entrepreneurship training. In various cases, entrepreneurship training programs have been complemented with regular SMS notifications or voice messages of simple business rules and heuristics. These have sometimes led to moderate improvements in business practices but no effects on profits or sales, though these would likely be too small to detect in most randomized studies (McKenzie 2021). A more intensive online business training program would have the potential to reach large numbers of trainees, to include personalized and interactive content and feedback, and to allow for flexibility in participation or repetition of modules. A promising example comes from Guatemala – a mobile-based business training for small franchise store owners composed of pre-recorded lessons, quizzes, exercises, and virtual one-on-one consultations improved business practices, sales, and profits. The program was more successful for those who received one-on-one consultations and could only be taken up by those with broadband internet access or a smartphone data plan (Estefan et al. 2023). This is a relatively new area and much remains to be learned about the effectiveness and optimal design of remote entrepreneurship training programs. It is also notable that mobile phones have been highly effective in the agricultural extension setting, as they allow organizations to send text message with tailored information about agricultural practices at specific points in the growing season and to provide information on crop prices (J-PAL 2023).

Digital delivery and online learning can also be blended with classroom-based vocational training, though more evidence is needed on how to effectively design such programs. Traditional remote learning has tended to be a weak substitute for the experiential learning so central to vocational training (World Bank, UNESCO, and ILO 2023). However, there are many examples of vocational training programs that include online or mobile components. In the "flipped classroom" approach, students review required readings or digital multimedia before class time, which is then used for active learning such as discussions and problem-solving. Mobile phones allow class content to be supplemented with interactive practice and remote support from teachers. So far, there is little systematic evidence on the effectiveness of online or remote learning in vocational training, and more evaluations are needed to inform the design and delivery of programs that combine in-person and virtual components.

Lesson 5: Training can sometimes generate incorrect beliefs around job availability or affect other psychological factors that affect job search behavior, and this can be addressed with improved program design, career guidance, and job search support. Job-seekers can have high

expectations for their wages or job quality, and this can be exacerbated as an unintended consequence of training programs. For example, in Uganda, vocational training graduates overestimated how much they can expect to earn in their first job, but also underestimated expected wage growth over the career. As a result, they turned down jobs excessively, and a mentorship program to help them form more realistic expectations led to more job acceptance and actually to higher wages (Alfonsi et al. 2022). As discussed in the following subsection, a new wave of research is beginning to evaluate behavioral and psychological interventions to increase job search.

3.3 What evidence do we have on the effectiveness and optimal design of career guidance?

The effects of career guidance and other job search interventions are often small but cost-effective considering the low cost of delivering these programs. Surveys across OECD countries identify substantial demand among adults for lifelong career guidance services (OECD 2021b). In addition to basic career guidance, supporting programs often include providing information on job openings, job matching and placement, resume and interview preparation, and job fairs. Programs that facilitate job search, such as skill signaling, transport subsidies, or behavioral interventions, often increase short-term employment. For example, a program in South Africa to help workers set plans and goals for job search increased job search activity and subsequent employment (Abel et al. 2019). These effects often dissipate over time as workers leave the initial job, but they can lead to long-term benefits if they reduce time out of the workforce or teach permanent lessons about job opportunities and search strategies (Carranza and McKenzie 2023).

Providing information on training and career pathways is particularly helpful for women and disadvantaged groups who often face greater information asymmetries. Women, ethnic minorities, and other marginalized groups are often segregated into lower-paying occupations and excluded from high-quality training opportunities. Improving information provision can help them to overcome these gaps. For example, in Kenya, providing more accurate information on earnings led women to switch from traditionally female-dominated to traditionally male-dominated vocational training programs (Hicks et a. 2016).[9]

In addition to career guidance websites, phone-based outreach and delivery can help to scale-up access to career guidance and skills assessments at low cost. Career guidance websites provide information and resources on career pathways and education and training opportunities and may provide a range of automated personalized experiences or connection to other services. Existing studies have observed the benefits of career guidance websites for career readiness and job search confidence (Vigurs et al. 20117). However, they are often less accessible for people with lower digital literacy or internet access, and in some contexts this can be overcome with

[9] In the context of a mobile job matching platform in urban Pakistan, simplifying the application process and using phone calls to encourage matched workers to complete an application created large increases in realized applications and interviews, likely by reducing the psychological costs of initiating applications (Field et al. 2023).

phone-based outreach and delivery. An interesting example is the open-source digital tool *SkillCraft*, which uses a combination of engaging games and quizzes to provide career guidance, foundational skill assessments, and recommendations for occupations and training opportunities based on assessed strengths and weaknesses. The app is accessible through a computer, tablet, or mobile device. For disadvantaged youths in slums in South Africa, *SkillCraft* was found to provide reliable skill assessments and increase participation in training and job search activities (World Bank 2022).

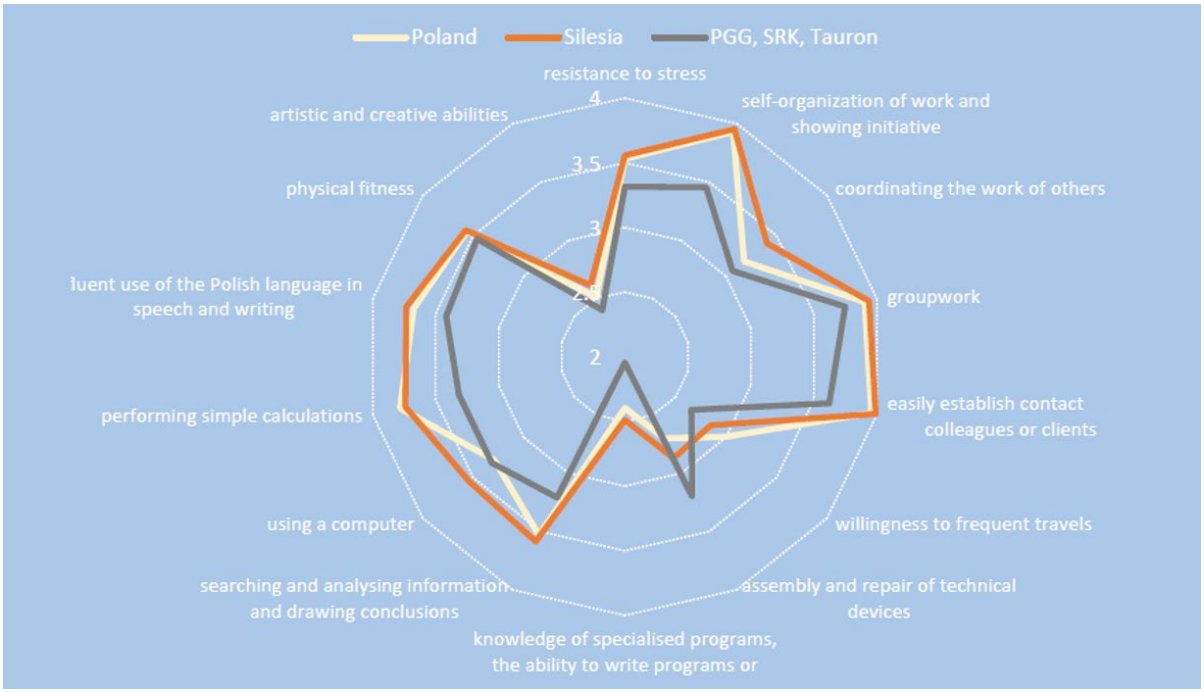
To be cost-effective, career guidance and employment services must profile beneficiaries to tailor services and service intensity to beneficiary needs. Dropout rates are often high for employment services and career guidance programs. Sometimes, this reflects a need for complementary services such as income assistance or behavioral counseling. In other cases, beneficiaries may simply require more intensive follow-up, while for other beneficiaries it is sufficient to receive a lighter intervention through phone-based and online services. Candidate profiling helps identify the right intensive and variety of services to offer. Profiling can occur through statistical profiling based on characteristics such as ethnicity or employment history, or it can happen via caseworker discretion.

In many cases, beneficiaries can be referred to recognition of prior learning (RPL) programs which evaluate skills for adults who may have experience but lack formal credentials. RPL schemes validate professional knowledge acquired informally, on-the-job, or through non-formal trainings. Certifications can come in the form of skill certifications according to qualifications frameworks or equivalency diplomas. Thus, RPL increases access to formal work and higher-level schooling opportunities and can identify technical skill gaps to inform training needs. RPL is especially important in settings where a large share of people entered the informal workforce without completing high levels of formal education or training. For example, an analysis of a large-scale rollout of RPL assessment centers in Bangladesh found that RPL increased employment rates, wages, job formality, and worker confidence, especially for women (Nakata et al. 2021). Many LICs and MICs, such as Nepal, South Africa, Brazil, and India, have made recent efforts to provide recognition of prior learning in various sectors (World Bank, UNESCO, and ILO 2023).

Foundational skills assessments can help job-seekers become aware of their strengths and weaknesses, identify skills that need to be strengthened, and understand their fit for certain types of occupations. An example comes from research on the coal transition in Poland, where coal mine closures risked displacing almost 50 percent of workers in some municipalities (Christiaensen et al. 2022). An assessment covering a range of foundational skills, technical skills, and preferences helped to inform pathways for these workers, either to upskill within the downsizing firms or transition to a different occupation (**Figure *10***). This information can be complemented with occupational task mappings, which identify the degree of overlap in the tasks implemented in different occupations. In such cases where a specific group of workers are at risk of displacement, these assessments can be used to understand the range of services that

need to be provided and to design appropriate individualized career guidance, employment services, skills training, and job placement.

Figure 10: Skills assessment for secondary-educated coal miners across different regions of Poland to inform their fit for alternative occupations



Source: Christiaensen et al. (2022)

Section 4: The role of government in supporting a functioning skills system

Governments play a key in regulating and supporting skills systems for adults and OOS youth with governance, financing, and information-sharing. These roles are equally important, if not more important, than the government's role in public education and training provision. Together, these elements allow institutions, training and service providers, and the private sector to coordinate and share information to improve the overall quality, efficiency, and sustainability of skills programs.

4.1 Governance

4.1.1 Legal frameworks

Many countries have declared a commitment to lifelong learning and/or created a legislative framework for lifelong and adult learning. For example, Ethiopia's 2020-2025 Education Sector Development Plan includes a component on adult and non-formal learning with the goal: "To build a learning society linked to a lifelong learning opportunity that meets the diverse learning needs of young people and adults". This document discusses various programs to improve literacy, numeracy, life, foundational, and vocational skills for adults, highlights challenges such as the limited quality and capacity of training programs and low female participation, and provides a list of policy goals, strategies, and monitoring indicators for the Adult and Non-formal Education Sector of the Ministry of Education (Ethiopia Federal Ministry of Education 2021). In Namibia, there is a Department of Lifelong Learning in the Ministry of Education, alongside a national policy to promote adult learning and provide access to education. In Vietnam, the Education Development Strategy for 2001–2010 envisioned "a chance for everyone at all levels, of all ages and in all locations to pursue lifelong learning suitable to their conditions and contributing to improve people's knowledge and human resources quality", and the Ministry of Education and Training has since worked to establish continuing education and community learning centers across the country, eradicate illiteracy, and develop learning materials for adult education (ILO 2020). Examples of frameworks in HICs are seen in the Republic of Korea and Japan – two of the world's fastest-aging societies. The 1990 Lifelong Learning Promotion Law in Japan established lifelong learning councils at national and regional levels, and Article 3 of the Republic of Korea's Framework Act on Education states "every citizen shall have a right to learn through life and to receive education according to his or her abilities and aptitudes". Across the EU, many "National Skills Strategies" have been established over the past decade, helping to elevate skills development as a priority policy goal, improve coordination across bodies, and identify key policy reforms (OECD 2024b).

Once a national strategic framework for lifelong skills development is in place, the real challenge is to go from strategy to implementation. Many countries, especially in L/MICs have strategic frameworks in place but lack the ability to implement them. For example, the Systems

Approach for Better Education Results (SABER)–Workforce Development initiative found that, across 28 countries, workforce development institutions (including both initial and continuing education and TVET) tended to score higher on strategic frameworks than on actual system oversight and service delivery (Tan et al. 2016).

Some HICs, such as France and Singapore, have gone farther by declaring *entitlements* to lifelong learning opportunities, strengthening the commitment to public financing for lifelong education and training for all. Training entitlements may target specific groups or regions – for example, Scotland has launched individual training accounts but with a fixed budget and limited to certain priority sectors, while in Vietnam the 2013 Employment Law entitled funding for vocational training and career guidance for unemployed as well as rural populations, disabled, military veterans, and other groups. In Japan, the unemployment insurance system has long included training support among the benefits offered to laid-off workers (ILO 2020). France and Singapore have perhaps gone the farthest by establishing programs that guarantee access to lifelong learning for all, leading to universal personal training account schemes funded by training levies (discussed further in Section 4.2 on financing). In this way, entitlements guarantee funding for the development and continuity of large-scale skill development programs, but this level of commitment is rarely seen in developing countries.

4.1.2 Accreditation, quality assurance, and national qualification frameworks

Accreditation of providers and quality assurance mechanisms contribute to bringing consistency and quality in training provision. Training providers must be made accountable by a combination of market competition and government regulation and oversight. An essential function of government is both accreditation of providers and regular monitoring through reporting requirements and inspections to observe and check compliance, both in the classroom and the workplace. Quality assurance may involve standards regarding trainer experience, length and content of training, available facilities and equipment, learning outcomes, and on-the-job working conditions for apprenticeships.

Performance indicators should be based on learning and employment outcomes rather than training inputs. In many L/MICs, TVET institutions are monitored according to budget and administrative inputs rather than actual program performance (World Bank, UNESCO, and ILO 2023). This can create the wrong incentives for training providers to develop larger programs that are less successful in terms of graduate learning and job placement.

National qualification frameworks (NQF) are a powerful tool to increase consistency in training provision, recognize non-formal education and training, and facilitate transitions between training, higher education, and employment. NQFs help to standardize the training and certification of skills across training institutions and are useful tools for validating qualifications awarded outside of the formal education and TVET system. They reduce the relevance of formal vs. non-formal learnings by focusing more on the content of learning and less on the provider and target population, though in many countries NQFs still do not include TVET qualifications

offered outside the formal education and training system (Cedefop 2019). NQFs also facilitate transitions between different types of training opportunities and between training providers and higher education.

At the same time, regulations and NQFs can be resource-intensive to develop and sustain, and they can place a burden on training providers if they are insufficiently flexible and poorly designed. Drafting competency standards and NQFs can outstretch and implementation capacity and budget of TVET administration. While some L/MICs have been able to establish and enforce TVET accreditation standards, most struggle with incentivizing providers to deliver quality training. This is made more difficult by fragmenting of government agencies and oversight systems. In some cases, developing competencies can take so long that they become severely outdated by the time they are implemented (World Bank, UNESCO, and ILO 2023). The implementation and adoption of NQFs can be challenging given that firms often have their own qualification ladders, and NQFs must be updated regularly to ensure that qualifications are flexible and adaptable to changing skills demand.

Thus, in setting of low capacity, regulations and NQFs should begin with priority sectors and occupations, avoid excessively rigid requirements, and coordinate closely with industry bodies. Regulations and NQFs can be developed step-by-step to gradually incorporate additional sectors and skills. Regular dialogue and feedback from trainers, firms, and industry bodies is important to monitor the perceived impact of regulations.

4.2 Financing

4.2.1 Training funds and levies

Training funds, often funded through firm levies, are a platform to fund and organize training systems. Training funds are most commonly collected through payroll levies on firms, though they can also benefit from donations and public financing. They can be national, regional, or sectoral, and may be governed by a combination of government representatives, employers, workers, training institutions, and civil society. In HICs, they are mostly used to fund training incentives for levy-paying firms, while in L/MICs they often also provide incentives for non-levy-paying or informal firms or to directly fund public TVET systems (World Bank, UNESCO, and ILO 2023). A prominent example is the Brazilian *National Service for Industrial Training* (SENAI), which is a network of secondary-level professional schools maintained by the Brazilian Confederation of Industry and funded by a 1 percent payroll tax on all industrial companies.

To be effective, training funds must generate demand-driven training opportunities and ensure that funds are being used for their intended purpose. Over time, SENAI in Brazil has shifted to also implementing or supervising employer-funded training, perceived as making training more market-relevant compared to levy-financed national training centers which tend to offer more standardized training. Another important challenge in L/MICs is reducing operating costs, corruption, and diversion of funds to non-training related activities. In several countries in Africa,

only a small share of levy funds makes it back to levy-paying firms. Some countries have made improvements in recent years, either by ensuring the levy pays into the training fund (ex. Senegal) or broadening the funding source when a wide range of activities are being financed (ex. Colombia and Bangladesh) (World Bank, UNESCO, and ILO 2023).

Levies may be less appropriate in low-income settings with large informal sectors where they risk becoming a tax on formal employment. In settings of high informality, funding for general training opportunities, for example, for vulnerable populations or informal firms, ideally does not come from levies on formal firms. This is not only about identifying a sufficiently large tax base to fund training, as levies can end up becoming a tax on formal employment, resulting in more firm informality. Instead, training funds can come from general taxation or other sources.

4.2.2 Incentivizing on-the-job training

Employer subsidies or tax incentives can be used to promote on-the-job training, but they are often expensive, difficult to design, and finance training which firms would have conducted otherwise. A major challenge is to minimize the "deadweight loss", or the financing of training which firms would have conducted anyway. In many cases, employers are already providing training to their workers, and a training subsidy will finance this training in addition to any new training incentivized by the subsidy. In HICs, this deadweight loss is frequently higher than 50 percent, which means that often more than half of the training financed by a subsidy would have occurred otherwise (Black et al. 2023). Similarly, employers may shift training away from casual, informal training towards training programs recognized by the subsidy, which may be an accredited external provider, but without changing the content of the training. Thus, training subsidies should be carefully targeted towards firms and sectors where the subsidy can create a large increase in training relative to the training already being provided, and this can be difficult to evaluate in practice (Saraf 2017). In most cases, they should provide co-financing rather than fully fund training. Finally, employer subsidies can give a boost to the private market for training provision, but excessive subsidies can also distort this market and reduce the overall quality or inflate costs of training provision by independent providers.

Management training and information provision can also play a role in supporting on-the-job training and apprenticeships among employers. As discussed, firms sometimes have poor awareness of available training programs. Even when information on training opportunities is widely available, firms may falsely believe that they will not benefit from offering training, in part because they compare themselves with other similarly unproductive local firms (Bloom et al. 2013). Recent research highlights that workers and managers in large firms often do not take advantage of firm-provided training and identifies the role of quality middle managers for increasing worker participation in training (Diaz et al. 2025). The growing role of apprenticeship intermediaries in some countries also highlights the barriers employers often face regarding lack of knowledge and experience in initiating an apprenticeship program (**Box 6**). All-in-all, before

subsidizing on-the-job training, the first-order policy goal should be to address firm-level constraints that limit demand for training despite it being a profitable investment.

Box 6: Apprenticeship intermediaries

There may be a role for government to support a market of apprenticeship intermediaries who help reduce fixed costs and encourage apprenticeship take-up by firms. Intermediaries can be public, private, non-profit, industry association-led, or union-led actors that design, implement, and market apprenticeship programs to firms. Active intermediaries directly approach firms and potential students with their apprenticeship services, increasing apprenticeship participation especially by smaller firms or disadvantaged students. They reduce the up-front costs associated with setting up an apprenticeship and can help improve the match between firms and apprentices. In many cases, the intermediary hires the apprentice instead of the firm. In settings where industry associations, unions, or non-profits are not independently serving as intermediaries, public intermediaries or publicly subsidized private intermediaries can be used to keep training costs low for firms. For example, over the past few decades, the UK and Australia have subsidized thousands of private intermediaries, with subsidies tied to the number of apprentices placed, enabling a vast growth in the number of apprenticeships. However, there are concerns that public support in the UK has led to low-quality intermediaries and apprenticeships, highlighting the dangers of over-subsidizing and the importance of quality regulation. An example from a developing country is India's recent introduction of "Third Party Agencies" as apprenticeship intermediaries accredited by the Ministry of Skill Development and Entrepreneurship. There is little existing research on apprenticeship intermediaries in developing countries.

Source: Smith, E. (2019). Intermediary organizations in apprenticeship systems. *International Labour Orgazation*; Craig, R. (2023). Apprentice Nation: How the" earn and Learn" Alternative to Higher Education Will Create a Stronger and Fairer America. *BenBella Books.*

4.2.3 Individual learning accounts

Individual training vouchers and learning accounts follow workers across employers incentivize people to seek training for skills with are relevant to their career in the long-term. Learning accounts allow individuals to accumulate personal training funds over time, and they can be a powerful tool provided they offer sufficient resources alongside access to career guidance and information on training opportunities. This can help incentivize training investment in settings where workers frequently change employers, such that employers have little incentive to invest in long-term skills, or where many people are self-employed or working informally. They can be used to guide people towards training in sectors that face growing demand.

Experiences with individual learning accounts in France and Singapore highlight that, to be successful, they must provide sufficient information on training opportunities, have simple user interfaces, and assure career-relevance of training. In both France and Singapore, individual

learning accounts have been introduced over the past decade, and they have faced some overlapping challenges **(Box 7)**. Complex program interfaces, which can involve scrolling through many training programs and require independent research on each program and provider, can hinder take-up, especially for less-educated people. In many cases, individuals have taken courses which are not directly relevant to their career. While such leisure courses may or may not be undesirable, they use resources which could otherwise support career-relevant training. Whether or not a training is career-relevant is not always easy to determine – for example, a person may take an Italian language or baking class, which could be directly relevant to their primary profession, relevant to a secondary profession, or an opportunity to experiment for a potential new profession.

Learning accounts must choose between universality and targeting to increase available resources for trainees. Like employer subsidies, universal learning accounts face a similar challenge of high costs while financing training which many people may have otherwise paid for on their own. In providing training resources to the entire population, they may only be able to provide sufficient financing to cover smaller short-term training courses which are less likely to be impactful for a person's career development (OECD 2019). Instead, like with employer subsidies, learning accounts can consider targeting individuals or sectors where training is less likely to occur on its own, individuals who are more vulnerable or disadvantaged, or workers or sectors which face greater risk of displacement or need for skill upgrading.

Box 7: Individual learning accounts in France and Singapore

In France, the personal training account scheme (*Compte Personnel de Formation*, CPF) offers each person 500 euros per year, with a cap of 5,000 euros, so long as they are active in the workforce. The scheme is financed through a compulsory training levy on firms. The accounts are virtual, meaning they do not mobilize resources unless training is actually undertaken (OECD 2019). In a 2017 review, the OECD highlighted that use of the CPF was low and mainly restricted to higher-income individuals, in part due to the complexity of the program and the limited list of training programs available. Since then, the CPF has sought to improve take-up by simplifying the program, improving connections to career guidance and counselling services, and including different types of training such as virtual and on-the-job learning (ILO 2020).

In Singapore, the *SkillsFuture Credit* provides all Singaporeans over age 25 with credits for work-related training. The learning account, launched in 2015, aims to create more self-directed training and mobility in anticipation of an increasingly rapidly-changing labor market driven by technological change and other global trends (ILO 2020). Like the CPF, the scheme is financed by a training levy on firms and is offered to all Singaporeans over age 25 including those currently employed, unemployed, out of the labor force, or retired. Initially, all individuals over age 25 were offered a S$500 (USD 372) credit, and additional top-ups were offered after 2020. By 2019, almost 50 percent of the working population had used the fund to participate in training, with 49 percent of surveyed participants reporting that the training had improved their productivity at work and 30 percent indicating it had improved their

general employability (UNESCO 2022). There is no strict requirement that training is career-relevance – the credit may be used for areas of personal interest and covers retired populations. For further discussion, see the *Spotlight: Overview and comparison of the skills system in Germany and Singapore*.

4.2.4 Results-based financing of service providers

Results-based financing (RBF) increases accountability of providers for training, career guidance, or employment services by disbursing payments conditional on completion of pre-defined milestones. For training providers, conditioning on outcomes such as employment and employment retention creates strong incentives to improve training quality, build linkages with employers, train skills that are in-demand, and support graduates with job placement. RBF pushes providers to independently design high-performance programs, especially when providers have flexibility in terms of training content and delivery. RBF is particularly appropriate for short-term skills training, since these outcomes can materialize fairly quickly, and it requires robust systems for monitoring the learning and job placement of graduates (World Bank 2020).

Payment conditions must align with program goals and avoid perverse incentives. For example, when payments are tied to passing a learning exam, training providers may respond by lowering test standards (Instiglio 2018). If too much payment is granted at graduation, providers may not be properly incentivized to ensure graduates' employment. To align with the goal of long-term employment gains, payments should be conditioned on job retention in high quality jobs rather than simply job placement.

At the same time, RBF transfers risk to the training provider, and payment conditions should be carefully designed to prevent excessive risk for providers. Graduate employment depends in part on factors which are out of the training providers' control, such as trainee effort and economic conditions. This burden on training providers may mean they require additional compensation (in other words, a "risk premium" in their payment). These risks can be managed by spreading payments across multiple stages – for example, at recruitment, training completion, job placement, and job retention – such that not all payment depends on employment. Payments can be conditioned on short-term retention (such as 3-4 months) rather than long-term retention, alongside performance indicators such as learning outcomes which are predictive of long-term employment. Payment conditions should be carefully designed, ideally in coordination with training providers.

RBF incentivizes providers to select candidates who they believe will succeed, and additional incentives can help to increase participation of marginalized groups. RBF incentivizes providers to more carefully select candidates, improving the match between providers and trainees. However, this can also lead to "cream skimming" in which only the best-prepared trainees are recruited, potentially excluding those who are most in need of training services. Many RBF programs offer additional incentives to training providers to recruit marginalized groups, which

might include women, refugees, or people with disabilities. When providers face excessive risk, for example, due to demanding employment requirements or unstable economic conditions, they are more likely to rely on cream skimming to ensure profitability.

Providers may also benefit from support to build their implementation capacity or to offer additional services to risker trainees. Additional support may include curriculum design and training for trainers. It may also include support with local demand assessment and job placement, which are areas where training providers may have limited experience. Providers can also be supported to offer additional services such as transportation, childcare, or stipends, which are important to increase participation of vulnerable populations.

A growing pool of successful programs indicates the potential for RBF to improve training performance. A notable example is *Jóvenes en Acción* in Colombia – a youth training program which contracted for-profit and non-profit providers to conduct a 3-month vocational training and organize 3-month internships for poor unemployed youth, with payment provided at enrollment, internship placement, and employment. 80,000 students were enrolled between 2002-2005, and the program improved long-term employment and earnings (Attanasio et al. 2017). As another example, the *Nepal Employment Fund* contracted public and private training providers to offer 1- to 3-month training, including vocational, socioemotional, and life skills, followed by 6 months of on-the-job training. Payment was partly conditional on income and employment but did not require formal employment, with additional incentives for lower-income, disadvantaged, and female beneficiaries. It generated large increases in employment and earnings, driven in particular by female household-based self-employment (Chakravarty et al. 2019). Recent reviews highlight additional examples from countries such as Chile, Grenada, and Liberia (World Bank 2020). These programs were successful because they took steps to manage the risks discussed above – in particular, the financial risk burden on training providers and the danger of excluding marginalized groups. They also took steps to manage operational risks, such as robust verification to avoid fraud via false reporting and collusion with employers.

However, there is limited evidence on the effectiveness and optimal design of RBF contracts for training providers. In their meta-analysis of training and employment program evaluations in developing countries, Kluve et al. (2019) find that providers generally perform better when they are contracted using performance-based incentives. However, existing evaluations do not isolate the value-added of incorporating RBF into program design. There is some evidence on the benefits of using RBF to support apprenticeships – performance-based incentives to master craftsmen in Ghana, based on a skills assessment at the end of training, increased training quality with long-term benefits for graduates' productivity (Brown et al. 2022).

4.3 Information Systems

Labor market information is essential for individuals, firms, counselors, providers, and policymakers to make informed decisions regarding employment and skills development in a rapidly-evolving economy. Labor market information includes broad sectoral demand and

supply trends, labor market statistics such as wages and vacancies, skill taxonomies and occupational license requirements, and information on the quality and performance of education and training providers. This information is necessary to ensure people are directed to high-quality and relevant skills development opportunities, maximize the efficiency of training resources, and reduce job search costs. Employers and industries rely on labor market information for decisions about hiring and workforce development. Individuals, training providers, and guidance counselors require labor market information to inform decisions regarding skills training and program referrals. Finally, policymakers require labor market information to inform national policies and strategies for education, workforce development, and the labor market. In a rapidly-evolving economy, labor market information helps these actors to adapt to the emergence and decline of occupations and the evolution of skill needs within occupations.

Labor market information systems (LMIS) are the set of institutional arrangements that collect, process, store, retrieve, and disseminate labor market information to labor market actors, as defined in Testaverde and Posadas (2021) and Sorensen and Mas (2016). Many actors in an economy, including government agencies, firms, universities, providers, and online job portals, produce large amounts of data which are typically stored in different places and used for different purposes. Labor market data can also come from censuses, national accounts, household and enterprise surveys, or job matching portals. The vast array of information can be overwhelming, difficult to access, and lack interoperability. Raw labor market data also often requires additional analysis, for example, to identify and forecast skill shortages and surpluses. A LMIS allows individuals, firms, providers, and policymakers to access labor market data and analysis and to track them in real time, which in turn allows them to make informed and evidence-based decisions. All-in-all, a LMIS includes the actors and users, the technology infrastructure – typically a central repository or data warehouse where labor market data from different sources is stored – and an analysis and dissemination instrument (World Bank 2024).

Studies of labor demand trends requires combining multiple quantitative and qualitative data sources and should be implemented regularly rather than as a one-off exercise. Studies of demand trends require combining multiple quantitative sources each with advantages and disadvantages. For example, household survey data may cover a representative sample but lack detail, while administrative data, firm surveys, or job portals may only cover a subset of the labor market. Furthermore, qualitative data is critical to validate the information collected from quantitative data sources, which may also be at a higher occupational level and thus miss trends at the job title level. For example, a 5-digit occupation code may be “therapist” and not distinguish between the type of therapist (occupational therapists, physical therapists, etc.) which have different skill and qualification requirements. Thus, labor demand assessments also require regular consultations and feedback from firms and other industry bodies on workforce and hiring needs.

A labor market observatory (LMO) is a formal body which collects, organizes, analyzes, and disseminates labor market information. In doing so, LMOs become the backbone of a

functioning LMIS. In some countries, the LMO is a dedicated government unit within relevant ministries. In other countries, it may involve a combination of statistical agencies, think tanks, universities, and specialized research groups (World Bank 2024). For example, in Australia, Germany, Singapore, and the UK, a single agency leads the official organization and dissemination of labor market information, while in Malaysia, Korea, and the US this is implemented by different agencies with different areas of expertise (World Bank 2024).

Greece is an example of a country which has recently developed a public digital platform to provide labor market analysis and trends to a wide audience of labor market actors. As a part of Greece's broader strategy for labor force upskilling and connection to the labor market, the Ministry of Labor and Social Affairs was tasked with analyzing labor data and developing a labor market diagnostic to inform the design of targeted and effective labor and skills policies and programs (Greek Public Employment Service 2023). This public online platform provides real-time growth statistics for variables such as employment, wages, vacancies, unemployment, entrepreneurship, and other job characteristics, broken down by gender, age, education, sector, occupation, and region of the country (**Figure *11***). While the focus was initially on occupations and sectors, it has expanded to also identify the skills and competencies used in occupations facing the fastest demand growth. The Ministry of Labor and Social Affairs cross-checks quantitative information through focus groups with Greek companies and other industry bodies. In this way, the platform combines multiple data sources and makes this information available and user-friendly to a wide audience of labor market actors.

Figure 11: Employment trends in Greece's online Mechanism of Labor Market Diagnostics

Sector code (1st level of classification)	Sector (1st level of classification)	Code (3rd level of classification)	Occupation (3rd level of classification)	2015	2016	2017	2018	2019	2020	2021	2022
Total				3,610,693	3,673,559	3,752,674	3,828,021	3,911,030	3,875,479	3,927,980	4,140,633
G	Subtotal			660,818	657,914	679,219	688,526	691,888	713,717	696,843	716,670
	Wholesale and retail trade; repair of motor vehicles and motorcycles	522	Shop salespersons	359,653	364,697	365,417	364,069	362,725	369,478	351,146	346,317
		723	Machinery mechanics and repairers	30,336	28,935	29,988	34,079	36,849	39,154	47,645	46,038
		523	Cashiers and ticket clerks	17,824	18,665	19,540	18,981	23,303	28,711	33,547	32,987
		411	General office clerks	15,728	18,226	23,931	23,875	22,858	26,633	24,780	32,077
		432	Material-recording and transport clerks	19,211	18,493	17,488	22,336	25,300	23,175	24,643	22,941

Source: Greek Public Employment Service (2023), accessed in December 2024 at https://mdaae.gr/en

A well-functioning LMIS requires strong institutional, technical, and statistical capabilities. Institutional requirements include the ability to dedicate sustainable funding, support cross-institutional coordination, and private-sector linkages. Technical capacity includes adequate technological infrastructure for secure data integration, big data storage, and management. Statistical capabilities include the ability to analyze labor market data to produce statistically-robust and relevant labor market information (World Bank 2024). Some data activities, such as web-scraping online job postings or building digital platforms for data sharing and exploration, may require more expertise, and public-private partnerships can help to support these advanced technical tasks.

In some cases, an existing service such as a job matching platform can evolve to also perform the functions of a LMIS. An example of a LMIS that evolved from an existing service is The Republic of Korea's Work-net system (Testaverde and Posadas 2021). Work-net began as a basic job matching platform and evolved to offer all the functions of a LMIS, including tracking current and expected skills demand and supply, tracking education and training sought by employers, advising on personal fit to specific careers and vacancies, and making referrals to training and labor market programs. Thus, Work-net is both the backbone of a LMIS and a public portal for career guidance and referrals. This evolution involved integrating Work-net with other online systems, including social security, and registration is required to be eligible for unemployment benefits (Testaverde and Posadas 2021).

Alternatively, a LMIS can develop from a LMO which gradually improves the quality, frequency, coverage, accessibility, and inter-operability of data collection and analysis. Countries may begin by publishing basic descriptive labor market data, but over time they must provide more targeted information to benefit individuals, firms, and providers (Sorensen and Mas 2016). This requires moving beyond broad labor demand trends and including information on the specific skills demanded by employers through qualitative data collection and private-sector engagement, for example, through industry councils.

In many lower and lower-middle-income countries in Africa, the process of producing basic labor market data and analytics is underway, but the LMIS is not yet useful for most labor market actors. The African Union (AU) has promoted the benefits of LMIS in Africa for over a decade, and international technical assistance has focused on establishing common goals for developing a LMIS and building up statistical, technical, and integration capacity. Yet, for the most part, LMIS in Africa have focused on developing macro-level performance indicators and broad trends in demand and supply but have yet to systematically incorporate qualitative industry data or integrate with services such as career guidance or job-matching. As a result, they are infrequently used by firms, individuals, or service providers (Sorensen and Mas 2016). The challenge of developing LMISs in Africa is also related to the large size of the informal sector, which requires incorporating labor market data from the informal sector and making labor market data and analysis available and useful for informal workers and firms.

Section 5: Conclusion

This technical note highlights why L/MICs must step up their investments in skills systems for adults and OOS youth in light of recent global trends. These trends include rapid technological changes occurring in the labor market as well as a growing young adult, middle-aged, and older workforce. Employer surveys and job vacancy data show that foundational and digital skills are also becoming increasingly essential across many occupations. Individuals require a combination of training and labor market programs to help them maintain up-to-date and marketable skills and to effectively use these skills to achieve lifelong productivity, income, and well-being.

In a comprehensive skills system, different types of providers must deliver a wide range of services to workers and non-workers in different career stages, and this requires sustained institutional support and oversight. This note highlighted the important role of both public and non-public providers and the role of government to regulate, support, and incentivize them. Legislative frameworks provide institutional structure and committed funding mechanisms, while financing schemes influence who pays for training and how providers and incentivized. Labor market information and analysis is necessary to ensure that these resources are used effectively. The government's role is also key for incentivizing training where it is not occurring due to market failures, including by extending training opportunities to vulnerable and disadvantaged populations and covering basic foundational skills which might be neglected by the private training market.

This note highlights the need for more rigorous evidence on skills training for adults, including the prevalence and financing of adult learning across L/MICs and lessons for effective training design. While there is a growing body of research on skills training for youth in L/MICs, as well as a large scientific literature on adult cognition and learning, we have relatively little evidence on the effectiveness of training programs for adults and how they should be optimally designed in a developing country context. We also know relatively little about the extent of adult education and training programs across L/MICs, who provide them, and how much they cost.

There is also a lack of evidence from L/MICs on policies to support on-the-job training. This note documents the frictions which lead employers to underinvest in training for their employees, motivating a role for government to incentivize and support on-the-job skills training. Yet, research from HICs highlights the challenges with targeting employer training subsidies, which often result in large inefficiencies. A growing body of research is exploring the importance of management decisions and incentives in supporting on-the-job training, but evidence from L/MICs is scarce.

Most L/MICs are new to the policy challenge of creating a comprehensive skills system which benefits adults as well as youth, and they can look to the experiences of countries who have developed more comprehensive adult learning systems. The focus of national policies and international development institutions is typically on supporting basic education, the school-to-

work transition, and youth employment. As L/MICs develop cohesive skills systems which benefit adults as well as youth, they can learn from other countries. For example, the experiences of France and Singapore in launching universal individual learning accounts provide valuable lessons on the challenges and requirements needed to make individual learning accounts successful. Much can be learned from other countries' experiences implementing effective national qualification frameworks, training levies, results-based financing, and labor market information systems. Knowledge exchange with these countries will be key to avoid past mistakes as countries gradually develop education, training, and labor market institutions which provide quality lifelong employment opportunities to all.

Spotlight: Overview and comparison of the skills systems in Germany and Singapore

Germany's Skills System

In response to rapid technological advances, digitalization, climate change, and demographic shifts, Germany has made a strong commitment to promoting further education and vocational training as a strategic investment in a resilient workforce. Realizing this vision requires broadening access to career counselling, increasing public awareness about the importance of lifelong learning, and offering tailored support to employees, employers, and the unemployed.

Germany's continuing education and skills landscape is highly diverse, encompassing a wide range of providers. These include adult education centers and other municipal institutions, private training providers, trade unions, chambers of commerce, and specialized vocational schools, among others (Eurydice 2025). The Federal Employment Agency (BA) plays a central role as a self-governing public corporation with over 2,800 voluntary representatives from employees, employers, and public bodies. The BA offers financial support such as unemployment benefits and a broad range of training and career services including career guidance, job placement, information services, and self-employment support (BA n.d.-a).

Germany has established various frameworks which seek to ensure access to skilling and re-skilling opportunities. These include the *Skills Development Opportunities Act*, the *Work of Tomorrow Act*, and the *Act to Strengthen the Promotion of Vocational Training and Skills* (BMAS n.d.-a). The foundations of this framework lie in the German Social Code, which governs social security and employment support. Under Books II and III of the Social Code, the BA promotes continuing vocational education and training (CVET) through public funding targeted at unemployed individuals, those at risk of unemployment, and certain employed people. CVET is also targeted towards individuals without formal qualifications, those who have been out of their learned profession for four or more years due to reasons such as unemployment or caregiving, and those who require reorientation due to health or labor market shifts. Public funding can be used to finance training from both public and private providers.

Under the 2019 *National Skills Strategy*, Germany has committed to increasing participation in continuing education to 65 percent through improving access to career counseling and training opportunities. In 2022, the Federal Government adopted a cross-ministerial *Skilled Labor Strategy* to guide future policies and regulations on securing skilled labor. The strategy reinforces the importance of vocational education and training, especially the dual system, and calls for the modernization of training content. The government is working to broaden participation in continuing education and training more broadly by providing transparent information on training options, expanding opportunities for career transitions and ongoing training, and introducing incentives for participation. These include a legal entitlement for funding for second-chance

training to obtain a recognized qualification, which also be used to ensure that foreign professional qualifications are recognized (BMAS 2022).

Accreditation and quality assurance of education and training providers is carried out by different parties, while the *German Qualifications Framework for Lifelong Learning* (DQR) further helps to maintain consistency in training and recognition. Before offering publicly funded training, providers must first be certified by an independent accreditation body. Regional offices oversee the implementation of training measures and are responsible for ongoing quality assurance, while regional purchasing centers manage procurement and ensure contractual compliance. Additionally, a designated audit service reviews the quality and effectiveness of providers by examining documentation, conducting staff interviews, surveying participants, and inspecting facilities (BA, n.d.-b). The DQR, established in 2013, classifies academic and vocational qualifications into eight levels and supports lifelong learning by facilitating qualification recognition and informed decision making (BMBF n.d.-a).

Skills training and lifelong learning in Germany is financed through a mix of public funding, social insurance contributions, individual contributions, and tax incentives. For instance, social insurance contributions from employers and workers that fund unemployment insurance also support active labor market policies, including career guidance and training for the unemployed.

A variety of voucher programs and funding instruments support lifelong training for specific groups. The *Bildungsprämie* (active from 2008 to 2021) was a voucher program that subsidized job-related training, particularly for lower-income workers. Funded jointly by the German Federal Ministry of Education and Research (BMBF) and the European Social Fund, the program provided training vouchers that covered 50% of training fees, up to a maximum of €500 per voucher. However, the *Bildungsprämie* faced challenges with high deadweight loss (it was estimated that up to 90 percent of training would have occurred without the program) and administrative costs since each voucher required career counseling and individual approval (Oosterbeek 2013). Although this program was discontinued, the BA continues to issue training vouchers when further qualifications are needed to overcome or prevent unemployment. Support is also available for unemployed individuals to obtain additional or supplementary qualifications, or who need to strengthen basic skills such as literacy, numeracy, and digital competencies to enhance their employability. The agency may also fund travel expenses, childcare during training, and accommodation and meals. The *Further Training Assistance Act* provides grants and loans, irrespective of age or income, for employed individuals working towards advanced vocational qualifications such as master craftsmen, technician, business administrators, or teachers. Finally, since 2024, the *Skills Development Benefit* supports workers at risk of losing their jobs to participate in training to retain employment at their current company, by covering 60 percent of the net salary during training while employers cover the cost of training (BA 2024).

Certain industries and federal states have also implemented their own initiatives to support skills development among employed individuals. For example, insurance brokers and advisors, as well as other employees within insurance companies, are subject to a mandatory training

obligation of 15 hours per calendar year (BaFin 2023). At the regional level, the federal state of Brandenburg offers training vouchers of up to €3,000 twice a year to both employees and volunteers (ILB 2024). Finally, lifelong training is supported indirectly in various states through tax deductions on training expenses and paid leave for education and training (BMBF n.d.-b).

The BA's statistical department acts as a labor market observatory, providing user-friendly labor market information tools with inputs from the Federal Statistical Office, the Institute for Employment Research, and other actors such as research groups and TVET associations. The statistical department of the BA is required by law to monitor labor market trends by occupation, economic sector, and region. It disseminates information through data portals, interactive dashboards, and newsletters with information on employment, wages, worker mobility, and apprenticeship opportunities. For example, the *Labor Market Monitor* offers interactive visualizations and regional analysis of labor market trends by occupations, industries, and demographics (World Bank 2024). The BA is also developing the online continuing education portal *meinNOW*, which helps individuals and companies find education and funding opportunities. The platform offers career guidance services, skills assessments, and connections to free virtual and in-person counselling services, such as those offered by the BA and job centers.

Singapore's Skills System

Singapore, in response to a shrinking labor force and anticipated technological changes, has made it a strategic priority to increase productivity with workforce upskilling, improved business processes, and technology adoption. With no natural resources, the nation's economic success relies heavily on continuous skills development and lifelong learning. Engaging economically inactive segments of the population, who typically require significant reskilling to confidently enter or re-enter the evolving labor market, is another priority (Fung et al. 2021). These challenges have shaped Singapore's skills policies, driving a shift from employer-sponsored training towards a more individual-centric model.

The training landscape in Singapore features a combination of public and private education and training institutes. The higher education landscape includes public Technical Education and Polytechnics offering vocational and skills-based education, applied universities such as the Singapore Institute of Technology and the Singapore University of Social Sciences, and more academically oriented universities (Fung et al. 2021). The private sector also plays a significant role in providing training, often with government support and accreditation. Many institutes of higher learning have established dedicated continuing education and training mechanisms, and universities have introduced initiatives such as alumni credits to encourage graduates to upskill throughout their career (Fung et al. 2021).

The *SkillsFuture Initiative* (SFI), launched in 2015/6 and administered by *SkillsFuture Singapore* (SSG), is the central pillar of the legislative framework supporting adult skilling and reskilling. *The SkillsFuture Singapore Agency Act* of 2016 formally established the SSG and its mandate to

coordinating and fund adult education and training responsive to industry needs, covering both employed and non-employed people (ILO 2020).

SSG is the primary agency responsible for accreditation and quality assurance of adult education and training and supports the development of qualifications frameworks. To assess training effectiveness, SSG conducts regular audits and surveys with both participants and employers, focusing on outcomes such as skill application, work performance improvements, and employer satisfaction. These insights guide funding renewal decisions and reinforce an outcome-oriented approach to training (Singapore Ministry of Education 2020). Moreover, in 2024, SSG introduced a tiered funding structure linking course subsidies to training outcomes. Programs that demonstrate strong employment outcomes or address strategic challenges like structural unemployment or industry stagnation receive the highest subsidy tier (Singapore Ministry of Education 2023). SSG also coordinates with industry councils, employers, and training providers to develop and manage the Workforce Skills Qualifications system, which is the national credentialing system for education and training of skills aligned with industry needs.

SSG absorbed the Skills Development Fund (SDF) which finances training and education with a mandatory tax on employers. This mandatory contribution by employers amounts to 0.25% of employees' monthly wages, with a minimum of S$2 and a maximum of S$11.25. The SDF is used to provide grants and subsidies to employers and individuals for upskilling and reskilling activities. Funding is available for individuals preparing to join the workforce, re-joining the workforce, and employers to offset the costs of training for current employees.

SSG also manages the *SkillsFuture Credit* – an individual learning account which provides training credits to all Singaporeans aged 25 and above. A cornerstone of Singapore's lifelong learning strategy, the *SkillsFuture Credit* provided all Singaporeans aged 25 and above with an initial credit of S$500 to pursue further training and skills development. In 2020, the government introduced a one-time top-up of S$500, valid until the end of 2025, for use on a wide range of approved courses. Additionally, Singaporeans aged 40 and above receive a Mid-Career Tier *SkillsFuture Credit*, which is a S$4,000 top-up that can be used for courses focused on up- and re-skilling (SSG 2025). Individuals over 40 are also eligible for subsidies covering up to 90% of course fees at approved education centers or for certifiable skills-based training (SSG 2025). Notably, in addition to providing job-relevant training, the *SkillsFuture Credit* can be used to explore new areas of interest and personal development and is available to retired individuals.

The Manpower Research and Statistics Department (MRSD) within the Ministry of Manpower (MOM) serves as the main agency managing and coordinating labor market data. The MSRD collects, organizes, and analyzes data from across Singapore's decentralized statistical system, in which different government agencies maintain their own specialized statistical units. On its website, the MSRD shares labor market indicators and tools where users can compare wages, employment conditions, and staff turnover rates across industries. In-depth information on labor supply, wages and benefits, working conditions, productivity, and training is shared through reports, infographics, and short articles (World Bank 2024). Furthermore, the *MySkillsFuture* web

platform, managed by SSG, serves as a central hub for individuals to access information on available training courses, utilize their *SkillsFuture Credit*, and explore career pathways.

Singapore also offers a comprehensive range of education and career guidance services for both students and adults. These services are primarily delivered through SSG and Workforce Singapore (WSG), a statutory board under the MOM that oversees workforce development and industry transformation. Services include online job portals, career development resources, coaching workshops, and virtual and in-person appointments for personalized advice. Individuals can also use their *SkillsFuture Credit* to accesses career guidance programs endorsed by the MOM. In addition, WSG provides targeted support such as career advisory programs for former offenders and persons with disabilities, short-term career trials to assess job fit, and financial assistance for low-wage workers pursuing training that enhances employability.

Conclusion and Comparison of Skills Systems in Germany and Singapore

Both Germany and Singapore recognize lifelong learning as crucial for helping individuals adapt to an evolving labor market and for maintaining economic competitiveness. Both countries have systems for regulating and financing lifelong learning opportunities which are based on comprehensive legal frameworks. Well-developed labor market information systems are supported by designated LMOs which coordinate across a range of statistical units and actors and disseminate user-friendly data and tools to inform labor market and training decisions, paired with accessible career guidance services.

A key distinction between the two countries lies in their degrees of centralization. Singapore has adopted a centralized system in which the core features of the skills system are managed by a single agency, including a mandatory training levy and fund, employer training subsidies, an individual learning account, accreditation of education and training providers, and provision of information on training opportunities. This allows for a coherent and accessible framework that centers around the *SkillsFuture Credit*, which offers near-universal access to individual learning accounts. Governance, financing, and information systems are closely aligned. By contrast, Germany's skills system is decentralized and institutionally complex, implemented across various levels of government, ministries, and agencies and with programs, funding, and regulations typically targeting specific sectors, regions, or populations. While this allows for tailored regional solutions and strong stakeholder involvement, it may sometimes hinder accessibility or make it difficult for individuals and organizations to navigate the system (OECD 2021b).

Another fundamental distinction lies in the purpose and universality of the lifelong training entitlement. Both systems serve both employed and unemployed people. However, Germany takes the more traditional approach of emphasizing vocational training closely tied to employment outcomes and employer needs, while Singapore adopts a more individual-centric approach, supporting both job-related upskilling and broader personal development, including for older adults beyond working age (OECD 2019).

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ABSTRACT

Amid rapid labor market changes and aging workforces, countries need institutionalized programs and services that support lifelong skill development and utilization, from the school-to-work transition through adulthood. This technical note presents a conceptual framework for building skills systems that promote lifelong learning and employment for adults and out-of-school youth, alongside a review of relevant literature and examples from countries at varying stages of economic development. The framework emphasizes the need for flexible, modular training pathways—including short-term, on-the-job, and foundational skills training—as well as career guidance and recognition of prior learning. It highlights the roles of diverse public and private training providers, employers, and government actors in financing, coordinating, and delivering services aligned with labor market needs. Effective systems tailor interventions to individuals' career stages and profiles, leveraging labor market data and employer input. Governments play a key role in ensuring governance, sustainable financing, and labor market information systems. Many low- and middle-income countries are still in the early stages of developing lifelong skills systems and can leapfrog existing models by learning from global examples, including those from high-income countries, and adapting them to local contexts where private sector involvement is often more prominent. Institutionalizing adult training as a permanent function, rather than an ad hoc intervention, can enhance workforce adaptability, social mobility, and economic resilience in an evolving labor market.

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KEYWORDS

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