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Strategies for the New Economy
Skills as the Currency of the Labour Market

in collaboration with Willis Towers Watson

January 2019
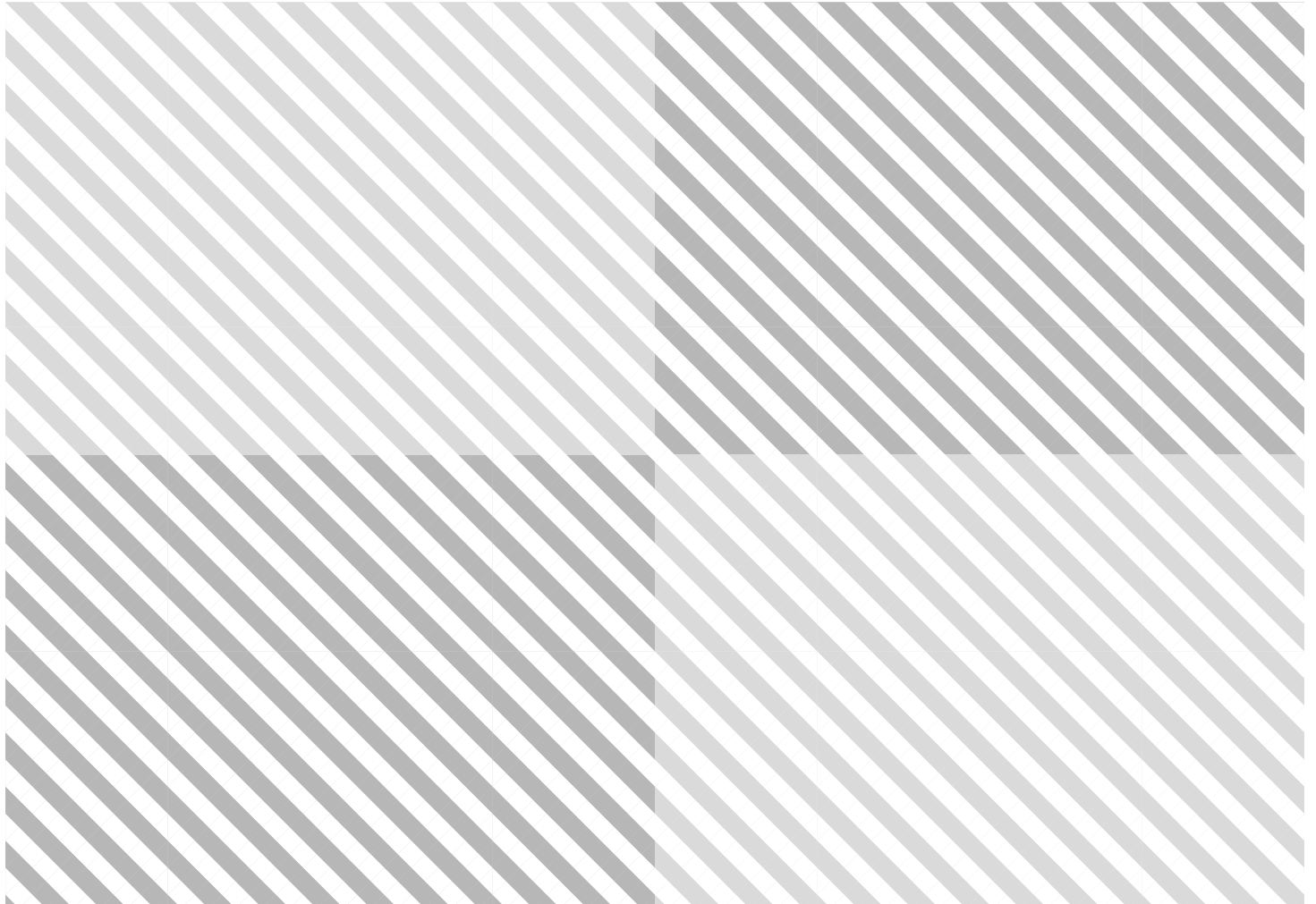
This white paper is produced by the World Economic Forum's Centre for the New Economy and Society as part of its Shared Vision for Talent project. For more information, or to get involved, please contact cnes@weforum.org.

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Introduction

The qualifications achieved in schools, colleges and universities, the brand of an educational institution or an employer, the social networks of a potential job applicant—all are signals currently used to indicate potential fit between individuals' capabilities and job opportunities in the labour market. These proxy signals have their origin in shortcomings in the capacity to measure and evaluate the actual skills, knowledge, behavioural qualities and abilities that individuals have gained throughout their lives.

An inefficient labour market

There are three key reasons why a suboptimal system of skills proxies tends to contribute to both labour market inefficiencies as well as social inequalities. First, learning and employment ecosystems are currently built for a world of work that is no longer a reality. They are premised on the assumption of linear careers largely using a traditional life model of 'learn, do, retire'. That outdated model is too rigid for the current and future needs of the labour market. It assumes that learners prepare for the future by gaining formal qualifications early in their life course and that their job-fit can be identified through those early formal qualifications as well as by steady progression through a traditional, linear career ladder. At best, employers—and employees—are imperfectly matched for roles; at worst, the fit results in financial and non-financial losses for both parties.

Second, large-scale changes to job and skill demand in the Fourth Industrial Revolution (4IR) are bringing fresh challenges to an already struggling system for identifying job-fit and matching individuals to opportunities. For example, by 2022, the core skills required to perform most roles will, on average, change by 42%.[1] Increasingly, a career for life is an artefact of the past, and this traditional mindset of 'learn, do, retire' mentioned above can no longer provide a future-proof approach. As automation and work converge, skills gaps are set to change at a faster pace and at a greater volume—leading to both talent shortages and job redundancies. To remain relevant and employable, workers are faced with the need to re-evaluate and update their skillsets; companies face a pressing need for innovative talent sourcing, matching and development strategies; and educators face pressure to update the focus of their courses and offerings. Consequently, there is a pressing need for more efficient proxies that can relay the skills that individuals acquire throughout their life course.

Third, today's proxy-based system of determining job-fit often exacerbates socio-economic inequalities. For example, success in primary, secondary and tertiary education remains one of the strongest predictors of long-term socio-economic inclusion[2] and has a demonstrable negative knock-on effect on social cohesion.[3] Across a number of countries, the educational background of one's family is a predictor of the educational outcomes of future generations.[4] Rewiring the skills ecosystem throughout an individual's lifecycle holds the potential to establish a fairer base for social mobility and a more level playing field for career progression.

Shifting to a system where skills are the core currency of the labour market thus has the potential to tackle existing inefficiencies in job-fit between employers and employees; help prepare for a near-future of greater volatility in the labour market; and enhance opportunity, prosperity and equality for workers. Such a shift would no doubt be challenging, requiring collaboration and coordination across multiple stakeholders. However, its potential returns are vast, for individuals, for business and for economies.

Shifting to a skills-based system

The need for such a system is becoming more urgent as the labour market demands both more digital and more 'human' skills in the midst of the 4IR. Understanding and meeting emerging skills demand and empowering individuals to learn, unlearn and relearn skills will need to form the basis of a new learning and working ecosystem—a shared vision for talent. The broad change that will be required in this new world of learning and work is to move away from traditional, front-loaded accreditation and siloed certificates to a system of lifelong learning infused with a shared set of skills-based indicators at its core.

In today's labour markets career paths are already seldom linear, and they will be less so in the future. As we shift to a model of 'learn, do, learn, do, rest, learn … repeat', a transparent and tangible approach to skills allows learners to prepare themselves for employment by understanding their own passions and motivations, and channelling those dispositions to developing work readiness through effective skills gain. It allows educators access to near real-time data on skills demand and to ensure the skills needed across the labour market are taught and certified.

Similarly, it allows businesses to understand—in real-time—skills gaps and skills strengths, and to develop better methods of staff collaboration, in-house training and talent deployment.

Such a system demands a common currency—one that can recognize, certify, reward and enhance skills, and create a common framework among individuals and national, sectoral and workplace actors.[5] For individuals, it holds the promise of professional fulfilment and well-being alongside the ability to better manage career transitions. Companies can expect to see efficiencies in sourcing and managing talent. Governments can expect more efficient labour markets, combined with the ability to more precisely provide education, retraining and income security support to those who need it.

In this white paper we suggest ten strategies to make this vision a reality, spanning across three types of interventions. The first type aims to integrate a skills focus in the learning ecosystem; the second aims to integrate a skills focus in the workforce ecosystem; and the third type aims to provide an enabling environment through alignment between different stakeholder groups.

10 strategies for building a skills-based labour market

Learning ecosystem strategies

1. Build, adapt and certify foundational skills

The set of required foundational skills commonly prioritized in today's education ecosystems are among the best-mapped to date, but will increasingly require further updating as core skills that can empower individuals for success in both education and in employment are in flux—with soft and technology-related skills rising in prominence.[6] Namely, there is a need for complementing the focus on basic literacies with a focus on socio-emotional skills such as emotional intelligence, as well as skills such as active learning, complex problem-solving, inductive and deductive reasoning and digital fluency.

While foundational skills are typically developed in education before age 15, a fundamental rethinking of those key skills provides a new imperative to extend opportunities for refreshing and adequately certifying those foundational skills across all age groups. Sometimes referred to as 'literacies', foundational skills are frontloaded in the early years education (typically ages 0–8) and further developed in basic education (encompassing primary and lower secondary education, typically ages 8–14). Early years education sets the foundation for learning and skills development [7], personal competencies, confidence and sense of social responsibility. This initial investment has significant repercussions on later stage educational attainment, employment and a range of social and economic outcomes.[8] Reform aimed at reframing foundational skills is already underway but remains at different stages of maturity. For example, Estonia and Finland have developed national curricula for foundational skills as well as a focus on lifelong education.[9] A notable effort focused on bringing greater coherence to foundational skills is the Organization for Economic Co-operation and Development's (OECD) 2030 learning framework which has set out to map the new set of skills that educators should look to teach in today's education systems.[10]

Within this strategy, a reframing of traditional approaches to learning foundational skills should also be considered and include new teaching approaches such as play and gamification.[11] While educationalists play a central role in developing foundational

skills, it is also worth noting the important role of family, peers and communities.[12] Finally, across today's education systems, there are few mechanisms for validating and assessing the attainment and the continued evolution of the foundational skills learned in the early stages of adult lives. There is a need for new tools that can validate foundational skills across the age range, identify variation in proficiency and assess the need for further upskilling among the population.

2. Build, adapt and certify advanced skills

Initially developed in the transition from basic education to the first point of employment in one's career, advanced skills can be built through vocational courses, tertiary education or as part of the initial phase of on-the-job learning. In this proposed strategy, traditional education across secondary, tertiary and vocational courses is reframed from assessing the completion rate of credit-based courses to innovative methods for certifying advanced skills and enhancing access to re-skilling and up-skilling for individuals. Rather than assessing the acquisition of a skill based on credits completed, the use of competency-based models is proposed as an alternative.[13] Measuring skill acquisition thus moves from assessing completion rates to measuring demonstrated proficiency. Such a re-orientation towards enhancing and communicating the skills content of education courses focused on preparing young learners for their first entry into the labour market also requires attention to codifying the skills content of existing curricula.[14]

The system of credit-based course certification systems remains focused on learning performed in fixed time periods according to largely rigid curricula. The opportunity to take continuous periods of time out to learn among adults is limited. To truly scale adult learning, more needs to be done to enable flexible learning trajectories that blend everyday responsibilities with lifelong learning. Despite some reform of secondary and tertiary education systems, which has introduced greater choice and opportunities for customizing course trajectories, reforms have broadly remained limited in scope. Educational technology can offer new ways to move beyond assessing the acquisition of advanced skills based on time spent in courses, credits completed or exams, toward iteratively measuring and developing proficiency and identifying both skills and subject area knowledge in tandem. One such example is Coursera, an online learning provider that

uses a tagging system to identify the skills acquired through online courses on their platform.[15]

Enhancing the skills content of courses, particularly in tertiary education, has the potential to empower individuals with the ability to communicate the relevance of their education to potential employers and will enable educators to monitor the translatability of their courses to the demands of the labour market. Inspiration can be taken from vocational education, which has been more broadly successful in infusing skills acquisition into the curriculum of courses through expert consultation and close collaboration with sectors.[16] Another example is provided by Viridis Learning, an education technology company that uses new data analytics to compile a skills map of community college learners and provide direct routes into employment by pre-qualifying learners for relevant employment through these new skills profiles. In addition, innovative reforms have been introduced in specific geographies, such as at the City Colleges of Chicago, that can serve as inspiration for local governments looking to reframe their local education system with a mind to current and future changes to the labour market, and the fresh demands on educators that follow.

3. Build, adapt and certify skills among the adult workforce

Limited coordination across company reskilling and upskilling efforts as well as poor public-private collaboration is contributing to labour market inefficiencies and excess costs associated with adult learning. Given the broader changes to value creation in the economy and the rapid expansion of new technology, in-demand skills will remain in flux for the foreseeable future. The scale of the reskilling and upskilling challenge requires better collaboration between businesses alongside a shift away from the traditional delineation between government-funded education and employer-funded education. Renewed adult training systems need to strike a more effective balance between public and private responsibility for financing skilling, greater agility to labour market demands and greater comparability of learning content across companies.[17]

Beyond school and university-level education, a range of opportunities are currently available to workers looking to iteratively expand and renew their skillset and knowledge throughout their careers. However, the investment in such re- and upskilling remains under-developed and the current system for updating skills across the adult workforce lacks coordination and common standards. For example, businesses commonly create bespoke upskilling and reskilling programs. To reduce costs and achieve scale across adult learning frameworks, there is an urgent need for mechanisms and incentives for refining and aligning the skills content of adult learning programmes while maintaining some competitive advantage for companies that develop bespoke programmes.

Education technology provides a range of new opportunities to develop cross-applicable skillsets among adult learners at lower costs and greater scale. Using the Coursera learning platform, Google developed a new IT Support Professional reskilling programme. A consortium of 30 companies such as Walmart, Intel, Hulu, and Sprint have agreed that the content in a new IT Support Professional Certificate is appropriate to their needs and have committed to considering hiring learners who complete courses for entry-level positions in IT support. JFF, a leading non-profit organization focused on workforce development in the United States, has extended that consortium to small- and mid-sized businesses. An alternative approach is taken by General Assembly, which provides reskilling programmes focused on new, in-demand roles such as data scientists to a range of companies. Standards boards compiled of leading industry experts define and validate the skills taught in General Assembly courses. But not all potential avenues for developing skill-focused adult learning are driven by technology. One area of opportunity could be to expand the model of apprenticeship programs, a model which has proved to be a successful vehicle for developing skills among students and working professionals.[18]

4. Realize the potential of educational technology and personalized learning

As in-demand skills continuously evolve, educators and businesses have an opportunity to adapt curricula and learning, introducing needed reforms alongside greater efficiencies of scale though educational technology (edtech) that encompasses web-based learning, virtual reality and smart systems powered by artificial intelligence.[19] Edtech is able to provide skilling content with a lower resource base, delivering learning at greater speeds, and varying duration—adaptable to both the provision of short- and long-cycle courses. With its full potential yet to be realized, education technology holds the promise to broaden access to learning through open-source courseware and better opportunities to reskill through micro credentials. However, the potential of these new technologies to address skills gaps has not been fully realized. This reflects a need to reframe current edtech solutions away from methods for delivering isolated solutions and towards alignment with comprehensive skills frameworks.

Edtech is the umbrella term for a set of methods to deliver or augment learning and content that have large-scale potential to transform the fabric of learning ecosystems. According to one prediction, by 2020 the market for edtech is set to grow by 17% per annum to $252bn.[20] The use of edtech to build foundational skills is well established. Yet uptake of edtech solutions across the learning ecosystem and labour market remains slower than initially expected. It has been suggested that businesses lack a clear understanding of the value and proficiency level of the learned skills and knowledge on such platforms and there are concerns about low completion rates of courses on edtech platforms.[21]

Edtech tools vary in their approach to delivering learning and content. Among those new tools are a range of approaches to delivering blended learning, such as flipped learning and adaptive learning, as well as Massive Open Online Courses (MOOCs), learning management systems, gamification and microlearning. Examples of such providers include the Khan Academy, Knewton and Smart Sparrow.

The edtech sector has historically been disproportionately focused on leveraging technology to enhance the accessibility of content and placed less emphasis on aligning content to existing education standards or using content to advocate new standards. Some

edtech providers are rolling out efforts to bridge that gap; among them, EdX, General Assembly and Coursera, which offer courses in partnership with educational institutions and businesses. As edtech solutions mature, a focus on skills-based credentialing, labour market relevance and testing of the effectiveness and viability of reskilling using edtech solutions promises to incentivize uptake of those solutions among businesses.

Workforce ecosystem strategies

5. Map the skills content of jobs

As jobs are augmented by technology, the tasks performed by a range of workers across the labour market are evolving at an unprecedented pace, driving demand for new skillsets. A dynamic system for mapping skills to tasks and jobs will enhance the signalling of skill needs between education systems and the labour market today and in the future.[22] Currently, descriptions of the same role can vary significantly across organizations. Given the rapid evolution of today's labour markets it is more likely this reflects lack of coordination and definition than disparate variance in demand. Better signalling to learners of high-value and in-demand skills can support broader recognition of job opportunities in the labour market and the pathways to leveraging those opportunities through effective reskilling. It provides a base for career management, articulating training and recruiting needs, and empowering career transitions.[23]

National frameworks highlighting required competencies already exist, but are currently labour-intensive to create and update, requiring broad expert consultations in addition to gathering and analysing large numbers of job descriptions.[24] This is exemplified by the O*NET portal, which maps and presents job requirements to jobseekers and career services within the United States. A range of such frameworks are also being developed within organizations using similar methods but localized to specific enterprises.[25]

Potential approaches to aligning and enhancing those current systems include: making use of new technologies to map job requirements faster and at greater scale with fewer resources, developing measures of skills adjacency and networks of connected skills[26] as well as focusing efforts on cross-functional skills and skills adjacency. For example, the Foundation for Young Australians has developed an approach to planning and matching skills to jobs, highlighting adjacent skills and potential job transition pathways in the Australian economy. Burning Glass Technologies has used innovative methods to map large quantities of job advertisements and convert that insight into information about job content, demand and skills requirements.

Expanding efforts to map the skills needed for jobs and identify jobs with similar skills can effect greater transparency across the labour market and enable economies to be proactive in skilling, reskilling and upskilling as jobs continue to evolve and workers face greater need to transition between declining and emerging opportunities.

6. Design coherent and portable certifications

Qualifications—and particularly, certificates—are a central marker for job-fit, yet the skills acquired and the comparability of qualifications remain unclear due to a lack of broad standards and principles of portability across different granting institutions, bodies and economies. Without common standards, individuals are unable to signal competencies that they currently possess, and employers are unable to validate job applicants' claims without further primary assessment. Under such circumstances, the brand value of any formal qualification and previous work experience become proxies for the skills held by individuals. Such proxies will continue to dominate judgement of role suitability and mobility within and between labour markets without coherent approaches to certification. The resulting friction points create additional inefficiencies when matching supply to demand in the labour market, making it difficult for workers to signal the skills they currently possess at all times—particularly in periods of career transition or when moving to new geographic locals. A closer focus on inter-operable skill certification alongside more broadly aligned standards for proficiency and assessment has the potential to empower individuals by enhancing their awareness of the extent and value of their skillset. This requires a broader shift away from the traditional delineation between government-funded education and employer-funded education to a model of greater collaboration between government and business on agile training systems that strike a better balance between public and private responsibility for financing and provide ongoing learning and certifications to workers.[27]

Closer collaboration and stronger agreement on cross-applicable certification—and on the measures of proficiency across educational institutions—can be incentivized through: clearly defined skills that are taught in each course mapped to a shared skills taxonomy, efforts at recognizing prior learning[28] and new methods of logging qualifications such as a distributed ledger (blockchain). Some experiments in aligning education frameworks are already underway, such as the European Qualifications Framework, which aims to connect the qualifications recognized between European Union countries. In addition, MIT's Digital Certificates Project has experimented with approaches to provide skills certification through badging, leveraging the capabilities of blockchain technology.[29]

7. Rethink organization and talent management processes

Human resource policies and processes play a vital role when sourcing and developing relevant talent for companies looking to fulfil their strategies and goals.[30] Existing talent management processes are typically predicated on individuals filling roles calibrated to a fixed job architecture. Job requirements commonly list traditional degrees and established certificates. This model no longer fits: the current marketplace demands that businesses operate with greater agility than is afforded by these legacy structures and recognize a range of potential skilling trajectories.

In a world that requires agile and fast leadership, there is an increasing need to move from a hierarchy to a network of jobs.[31]

Today, talent is typically hired, developed, deployed and remunerated in line with a rigid job architecture and narrow pay bands. In tandem, organizational structures are based on jobs which are clustered based on function and arranged in a hierarchical manner. Each higher level has greater scope, impact and responsibility. Employees tend to perceive promotion to the next level in the defined career path as 'differentiation', leading to less incentives for lateral mobility.[32]

The move required is one from a talent management system of organizing and filling jobs to a system that adapts to changing work and skills, meaning seamless and continuous matching of clusters of skills to evolving work requirements. A common definition of skills and process for logging them will create transparency and allow individuals and businesses to articulate priorities and organizational structure on that basis. Smart software and data analytics can support this shift in workforce planning through performance monitoring and prediction of resource requirements.

This shift can empower business agility through better re-deployment of skills, matching the unique skills of each individual to successfully carry out work. However, caution must be exercised to balance the idea of 'plug-and-play' with skills and a needed human-centric approach to talent management that takes into consideration an individual's well-being.

Enabling environment strategies

8. Drive momentum around the concept of skills

Across education and training systems, as well as among employers, there is an urgent need to move beyond the practice of learning bodies of fact and refocus on building the behaviours and skills to apply knowledge to tasks.[33] Such a shift will be especially conducive to adding granularity and aligning the language of job-fit between employers and educators as skills remain the most common markers of competency within the labour market. A shift to a focus on skills will support all learners' ability to signal their competencies to the labour market and allow greater collaboration between employers and educators.

Historically, the education system has maintained a disproportionate focus on knowledge and facts in tuition and assessment. Yet this is just one of the three pillars of the competency system, which is composed of not just skills and knowledge, but also attitudes and values.[34] There is mounting evidence that too many individuals enter the labour market without the skills or mindset for success.[35] To compound the shortcomings of the education system, employers often view the matching of skills to work as a static one-to-one relationship between degrees and certifications to a position.

Skills can be split into cross-functional and specialized skills—where the differentiation refers to the frequency with which those skills occur across all industries as opposed to an industry or profession. Skills can be further differentiated into technical and soft—the ability to use and develop technology versus working within the realm of human interaction. More recently, the newest in-demand skills are often referred to as emerging skills. Cognitive skills commonly cover conceptual thinking and the ability to process thoughts and perform various mental activities, and are most closely associated with learning, reasoning and problem-solving.[36]

Complementary to skills, experts are increasingly looking to attitudes as a key ingredient of the competency model, moving away from the more static and deterministic nature of knowledge and abilities. Attitudes are consistent behaviours, emotional intelligence traits and beliefs that individuals exhibit that influence their approach to a variety of things such as ideas, persons and situations. Attitudes are learned and often a big part of the driving force of learning and the approach to doing tasks.[37]

Each individual builds a unique basket of competencies throughout their life. Having competencies to successfully perform daily tasks depends on the interaction of knowledge, skills and attitudes that empowers the successful completion of the work at hand.[38] Within this framework, knowledge is the body of facts, principles and theories that are related to a field of work or study and can be further split into dependent knowledge (practical and procedural) and context-independent or theoretical knowledge. Complementary to knowledge are the range of physical, psychomotor, cognitive and sensory abilities that are required to perform a job role. They are sometimes referred to as innate and are harder to shape, requiring early-life targeted investment.[39]

9. Align skills taxonomies

A range of inefficiencies and collaboration costs are driven by persistent differences in the language and definition of skills among stakeholder groups. It is becoming increasingly evident that the labour market must establish skills as a common currency to support collaboration between employers and educationalists. Consideration should be given to a common method for updating and consolidating skills nomenclature, skills clustering and skills definitions. Such a shift has the potential to establish a foundation for a more effective marketplace for upskilling and reskilling. Today, new efforts aimed at aligning skills taxonomies across labour markets are urgently needed.

The most-commonly used broad-based skills taxonomies are national or regional, and include O*NET, developed by the US Department of Labour and ESCO, developed by the European Commission. Definition of skills, among other elements such as knowledge and attitudes, are the result of consultations with local experts, periodic surveys and, broadly, crowdsourcing efforts. A range of skills taxonomies have also been developed by professional service providers and exist in tandem with talent assessment frameworks, job descriptions and titles. In the course

of working with clients, consultants extract relevant information from their existing taxonomies, reformulate, then combine with additional research and business intuition to varying effects.[40]

The majority of skills taxonomies in use across labour markets are bespoke, seldom shared and often considered proprietary.[41] Bespoke taxonomies are tailored to the competencies required for specific business needs, values, strategy and vision. As jobs and skills shift in relevance at an unprecedented pace, questions have been raised about the ability to update and innovate within this system. Among the known drawbacks of bespoke taxonomies are the cost and speed of keeping definitions current and their tendency to be conservative rather than innovative. The skills taxonomies used across the public and private sector remain siloed, and this contributes to the rift between employers and educators.

New systems are currently in trial. Two prominent examples include Nesta's data-driven skills taxonomy for the UK, and the University of Chicago Open Skills Project, which crowdsources skills through public-private partnerships building on O*NET. Such efforts need further elaboration and new trials. Fresh efforts to map out best practice approaches for aligning skills taxonomies across the labour market are urgently needed. Potential design principles include an open-source architecture that would allow various stakeholders to 'plug in' and align their taxonomies, and embedding of those new taxonomies across talent firms, employment and career agencies.

10. Shape culture, mindsets and mechanisms for lifelong learning

Skillset relevance promises to be a key pillar of stability in today's labour markets.[42] Shaping a culture of lifelong learning will be essential across education and training systems, across businesses and more broadly across society.[43] Signalling and embedding this change requires more than individual will; it requires investment of time and money alongside thoughtful design of incentives to adapt for individuals. As the shelf-life of skills decreases, prioritizing a shift in mindsets, culture and mechanisms for lifelong learning will empower individuals to continue retooling businesses to better equip and deploy employees, and encourage the labour market to stay agile as jobs and business needs continuously evolve. The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.[44] As the labour market shifts from a mindset of 'learn, do, retire' to 'learn, do, learn, do, rest, learn…repeat', disrupting job security, the need to continually add to one's skillset and the imperative of lifelong learning will become increasingly important levers for success.

Business and education leaders are facing a pressing need to consider the tools at their disposal to encourage a mindset of continuous retooling and development. Business culture is anchored in the values of a business, but even when values reorient, it is important to signal those values with appropriate investment. Today, investment in education and training is concentrated in the first quarter of an individual's lifecycle, which does not yet signal that lifelong learning is a priority.[45] A more

even distribution of funding will incentivize lifelong learning and the notion of continuously shaping one's skillsets, benefiting both employers and employees. Businesses must understand such benefits in a macro sense, but also at an organizational level, with a focus beyond attracting and retaining top talent, but also ensuring that employees have the skills needed to attain organizational goals.[46] Some change is already underway among businesses, with organizations offering workers new, targeted learning paths. For example, Infosys promotes a culture of lifelong learning and dynamically invests in programmes to develop skills that match the company's latest business strategy.

The efforts of business leaders can be complemented by a broader cultural shift across society, anchored in a widely shared understanding of the continuous need to update skillsets across the lifecycle as well as the more micro but not insignificant change in mindset among individual workers and learners. In a skills-based labour market, faced with a range of essential skillset adaptations, individuals will increasingly need to adopt a growth mindset throughout all stages of their life.[47]

Emerging initiatives for creating a skills-based labour market

A series of case studies are outlined below, describing the emerging, relevant initiatives that exemplify the approach to creating a skills-based vision for talent.

Learning ecosystem strategies

1. Build, adapt and certify foundational skills (3 case studies)
2. Build, adapt and certify advanced skills (5 case studies)
3. Build, adapt and certify skills among the adult workforce (6 case studies)
4. Realize the potential of education technology (6 case studies)

Labour market strategies

5. Map the skills content of jobs (8 case studies)
6. Design coherent and portable certifications (6 case studies)
7. Rethink organization and talent management processes (5 case studies)

Core enabling strategies

8. Drive momentum around the concept of skills (8 case studies)
9. Align skills taxonomies (5 case studies)
10. Shape mindsets, the culture and mechanisms for lifelong learning (4 case studies)

The Real Play Coalition promotes play-based opportunities to grow and learn, preparing children with skills for the future[48]

Related to strategies: 1, 8, 9

Playful learning remains under-used across early years education, yet research has shown that play is a fundamental part of skill development. The Real Play Coalition—made up of IKEA, the LEGO Foundation, National Geographic and Unilever—are working to create a movement towards building a wide range of skills through play. The skills that can be developed through play are varied and include early literacy and numeracy, as well as skills such as creativity and problem-solving. Play, if used effectively, poses an innovative way to advance skill development, and different types of play can be utilized to develop different types of skills. But making use of such new approaches requires further

training. In Cotlands, South Africa, the Lego Foundation, Unicef and the Department of Basic Education developed a professional development programme for pre-school practitioners and primary school teachers that emphasizes methods for creating more playful learning experiences. The course utilized online courseware to reach rural teachers.

Chicago, USA: City Colleges of Chicago and Chicago Apprenticeship Network focus on the job readiness of learners, partnering businesses with educators to build future talent pools

Related to strategies: 2, 8

Across the United States, around a quarter of the students who enrol in higher education do not return in the second year.[49] In addition, researchers have commented on the difficulties faced by graduates in translating their acquired skills and the subsequent effects on their ability to transition from learning to work. To address these issues, there are two notable initiatives based in Chicago. The City Colleges of Chicago is a group of seven community colleges focused on building talent through formal degrees, while the Chicago Apprenticeship Network uses a combination of classroom learning and on-the-job training to fulfil the same aims. The Chicago Apprenticeship Network partners with community colleges, such as the City Colleges of Chicago, with the purpose of developing skills targeted to a range of middle-skilled jobs, such as roles in IT, insurance and cybersecurity. The college network aims to foster improvements in course retention and completion rates, shorten time to graduation, and ensure students can leverage the education they receive to pursue their own life goals.[50]

The approach of both initiatives is explicitly student-focused, with an emphasis on developing skills that are work-ready and easily understood by employers. Within the City Colleges of Chicago, task forces composed of faculty, staff and students integrate and execute projects that support students' decision-making process through better information, and incentivize course completion and effective transitions into the workforce. Partnerships with industry experts in growing fields and alignment of the curriculum with

expectations of industry support the effective transition of students from college to work. The college network has partnered with 10 relevant industries, including Advanced Manufacturing, Healthcare and Construction Technology; identified 'college-to-career' routes across leading local employers; and utilized a blend of classroom learning and on-the-job training in apprenticeship programs.

In 2013, approximately 700 students secured employment through 'college-to-career' routes at the City Colleges of Chicago. As a result of these shifts, the college network has reported improvements in graduation rates and an update in enrolment relative to neighbouring states.[51]

Finland infuses skills acquisition and targets increased motivation for lifelong learning in the national education curriculum
Related to strategies: 1, 2, 8, 10

Despite being one of the most innovative and highly-ranked education systems globally, faced with demand for shifting competencies, Finland continues to focus its education reforms on furthering quality and equity.[52] Recent reforms focused specifically on lifelong learning, with an emphasis on three pillars: knowledge, skills and motivation. Cross-functional skills and competencies were set to be embedded across every subject area, and while students were taught and assessed as part of that subject, the education they received also focused on broader skills such as critical thinking, learning to learn, digital fluency and entrepreneurship.

The principles that guide the new Finnish curriculum emphasizes the school as a learning community.[53] Multidisciplinary learning is encouraged by asking students to complete one module per academic year that combines the content of different subjects under a selected umbrella theme and a module that provides a context for developing cross-functional competencies.[54] Students are encouraged to apply their knowledge and skills to real-world phenomena, to deepen their understanding by exploring relationships and interconnectivity between various phenomena and their own lives and broader community.[55]

Foundation for Young Australians shapes mindsets to enable successful transitions from school to employment among young people
Related to strategies: 1, 2, 5, 6, 8

The Foundation for Young Australians (FYA) aims to encourage ownership of future career trajectories and proactive skills development among young people. The foundation has published a series of toolkits and reports that detail necessary changes in mindset and skilling for young people. Through those publications, the FYA aims to shape the mindsets of educationalists and young people.

The FYA calls for a focus on a sub-section of cross-functional skills sometimes referred to as enterprise skills such as communication, project management, digital literacy and financial literacy, and for pedagogical methods focused on inquiry-based or experiential learning.[56] It also emphasizes the successful adoption of a skill-focused approach in Singapore. The organization advocates for a range of new approaches to guiding young people from education

to employment across the Australian education system. The FYA places particular emphasis on the power of data to identify successful skilling objectives among young people. In particular it identifies seven job clusters and the skills associated with them, and proposes that young people still unsure in their career trajectories can gain focus by targeting such job clusters and the skills associated with them.

Burning Glass Technologies delivers job market analytics that empower labour market stakeholders
Related to strategies: 5, 8, 9

Burning Glass Technologies (BGT) uses advanced data analytics to distil information from job postings found across a broad range of sources. The organization is able to create granular and dynamic datasets mapping occupations against skills and qualifications, and provides local governments, educators and employers with the insights necessary for enhanced data-driven decisions based on tangible labour market insight about skills supply and demand.

Higher education institutions such as Lone Star College have used this new source of labour market data to ensure that the skills taught throughout the curriculum meet employer demand. Such efforts ensure successful transition for students from school into the labour market, and increase the efficiency of local labour markets.[57]

BGT maintains a skills and occupation taxonomy mapped to the American O*NET taxonomy. Its Occupational Skills Framework,[58] clusters skills under three groupings: necessary, defining and distinguishing. Necessary skills are job-specific and form the foundation for what is required to perform the role. Defining skills are day-to-day skills that are needed to perform tasks and responsibilities successfully. Lastly, distinguishing skills are technical proficiencies that allow workers to differentiate themselves in the labour market.

Credential Engine: creating transparency in credentialing marketplace
Related to strategies: 2, 3, 6

Credential Engine is a US-based not-for-profit organization that provides greater credentialing transparency, empowering informed decision-making and increasing credential literacy within the US labour market. The Credential Engine is an outcome of the Credential Transparency Initiative and is supported by the Lumina Foundation, JP Morgan Chase & Co, the Microsoft Corporation and the Walmart Foundation.

Facing an expanding number and type of qualifications, the Credential Engine has set out to create more efficient means to log, compare and value existing credentials using new technologies. The Credential Engine is composed of a Registry and a Credential Transparency Description Language. The Registry houses the library of credentialing information the Description Language (CTDL) establishes a common language around credentialing. The Credential Engine has harmonized its model with other international standards.

A CTDL profile can include an array of information such as the author or certifying body and the complexity level of the certification. The profile only establishes a common nomenclature around credentials, clarifying information such as the competencies taught in certifications. The quality of a credential is separately defined by the credentialing bodies and quality assurance groups.

Coursera builds data-powered skills signals to increase equality of opportunity
Related to strateies: 3, 4, 6, 8

Coursera, a leading learning platform for higher education, applies machine learning across 38 million learners and 127 million enrolments to assess each learner's skill proficiency. Learners are able to identify and communicate what they already know and use that insight to plan further learning or orient themselves in the labour market. Coursera provides granular, transparent and near real-time signals of skill proficiency. Traditional resume and credential-based signals rarely meet this need.

To guide its measurement efforts, Coursera has developed a Skills Graph, which maps a hierarchy of over 40,000 skills to the content on the platform, as well as to the career trajectories, employers and, more broadly, industries that require them. In addition, there is a new tool, Skills Benchmarking, trained on data from Coursera's large learner and content base. Skills Benchmarking creates an individual and aggregate view of a workforce's core capabilities, empowering companies to identify and reward internal talent for their demonstrated skills. For example, Adobe Inc. has used Skills Benchmarking to assess internal talent, particularly among remote employees. Companies have also used the platform to identify potential talent. Yandex has used Skills Benchmarking to find and hire entry-level software engineers from among Coursera learners, with a special focus on identifying strong talent from non-traditional backgrounds.

European Qualifications Framework for lifelong learning
Related to strategies: 5, 6

The European Qualification Framework (EQF) is an instrument developed by the European Commission that aims to enhance the comparability of nearly all levels of national qualification frameworks across EU member countries.[59] At its core, the EQF requires qualifications to make explicit the skills and knowledge that have been acquired, and advocates comparability of those competencies among European Union countries.[60] It is the first regional reference framework[61] and is expected to play a key role in introducing greater labour market synergies across the Eurozone by enhancing a shared language around skills and a common prioritization of lifelong learning strategies.

EQF has been a catalyst in the development of a range of comprehensive national qualifications frameworks, and is linked to the majority of those frameworks in Europe.[62] In some countries, EQF has been used to integrate private sector qualifications into national qualification systems or has supported validation of non-formal and informal learning.[63]

JobGetter: using technology to optimize the talent management process and efficiently match jobseekers to work
Related to strategies: 5, 7

JobGetter offers a suite of recruitment and talent management services with a broad national focus on increasing workforce participation and sustainable recruitment practices in the Australian labour market. It draws on publicly available information and workforce analytics to generate transparency in the recruitment process, with an objective to improve unemployment and underemployment in the economy. Data and analysis of the national job market allows JobGetter to provide insights on skills demand and hiring trends, employability, as well as approaches to hiring. The service uses that base to provide bespoke, automated feedback to jobseekers in order to assist displaced employees in migrating to new roles, and has developed the functionality to pre-match candidates to roles.[64]

JobGetter has built a database of 220,000 real-time data points that include titles, skills, qualifications and location, among others. The company measures job and skills demand across over 50 industry sectors and in over 9,000 roles throughout Australia.

The service has invested in a range of research and analysis to understand supply and demand across the labour market, such as a Workforce report on the Aged Care Industry targeted to predicting shortfall in the industry and strategies for improving retention and attraction, as well as an annual Job Seeker Survey that focuses on the most current job-seeking challenges.

Open Badge: an innovative way to recognize lifelong learning beyond formal credentialing systems
Related to strategies: 2, 3, 4, 6

Open Badge is an initiative by Mozilla that aims to create a badging system that can act, supplement or replace traditional certificates, and enable the portability of skills and knowledge. Anyone can issue a badge at any point in time against skills or knowledge gained. Individuals can gather those tokens of their qualifications across a range of contexts (tertiary education, on-the-job learning etc.) and at various stages of life.

Each badge communicates a qualification, skill or achievement by providing a visual symbol with verifiable data and evidence that can be shared digitally for employment and learning. However, to safeguard the value of each badge, requirements were defined for what a badge must represent for both issuers and earners. To verify a badge, an array of criteria must be met. These include the name of the issuing organization, the requirements to earn the badge, the criteria for assessment, issuance of the badge, and date of issuance, among others.[65]

The initiative integrates a wide range of stakeholders with an aim to define and develop shared standards and advancing acceptance of badges broadly in the labour market. Mozilla is funded by the MacArthur Foundation. A Badge Alliance made up of 13 working groups guides the initiative. IMS Global Learning Consortium, a large community of educational institutions, suppliers and government organizations aiming to advance technology to scale

and improve education attainment and participation, leads the project and is tasked with driving adoption and portability.

There are now thousands of organizations that issue Open Badges,[66] and there are many programmes that use Open Badges as a base, customizing approaches co-designed with specific institutions. For example, the Open Badge for Adult Education, co-funded by the Erasmus+ programme of the European Union, aims to create a portfolio of badges that includes a range of forward-looking cross-functional competencies.[67]

Ernst & Young prepares for the future of work through skills-based digital credentials
Related to strategies: 3, 4, 8

In the face of accelerated changes to jobs due to technological advances, EY implemented a programme in 2017 to change the processes and tools around career development and performance management. EY encourages employees towards a path of lifelong learning by recognizing the opportunity and value behind earning digital credentials in skills through their global program, EY Badges. The programme was developed as a vehicle to offer workers further insights into how they can develop and grow to remain relevant for the needs of tomorrow, and in tandem provides EY with an opportunity to build a more agile and flexible workforce model that has the capability to scale their global talent base faster and more effectively.[68]

Using an online learning catalogue, employees earn EY Badges through internal achievement criteria structured into four levels of achievement. The entry level badge corresponds to learning completed while more advanced badges certify that employees have experience in applying that learning or that they have started to coach other professions in those skills. The badges then provide opportunities to further develop future-focused skills and be matched with relevant projects.[69]

EY has equipped individuals with tools to foster success and democratize learning. However, building a learning catalogue is not sufficient. Incentivizing learning among employees is critical as employees face competing priorities and essential day-to-day tasks. This requires a change both among individuals need to be aware and prioritize learning while managers need to enable their employees to learn, even if the learning may not be directly related to their current role.[70]

Starbucks and Arizona State University's EdPlus partner to scale blended online learning
Related to strategy: 4

In 2014 Starbucks launched the Starbucks Global Academy Plan in partnership with Arizona State University's EdPlus, offering online bachelor's degrees to eligible employees. Approximately 70% of their employees are students or aspiring students; however, only 50% of Americans who begin college typically complete their education, largely due to financial and work-life barriers. The Starbucks Global Academy provides opportunities to staff who want to keep out employment beyond front-of-house responsibilities in the hospitality sector in their future careers.[71]

The courses are provided in a digital format and allow the company to scale the offering for the business. The online curriculum gives employees the flexibility to integrate learning into a busy schedule. The more easily accessible path of beginning and pursing learning goals is complemented with incentives and support for the more challenging aspect—completion. These range from concrete, quantitative incentives to human-centric support to tackle the common issue of low retention and completion rates for online courses.[72] Financial aid is provided when credits are completed. Learners are equipped with individualized guidance to support them in their journey, including enrolment counsellors, financial aid advisors, academic advisors and success coaches who help connect individuals with university resources to troubleshoot problems.[73]

MIT Digital Certifications Project pilots new approaches to storing and verifying certificates
Related to strategies: 3, 4, 6

The current, mostly analogue, system of issuing, storing and verifying certification is not efficient—it can be slow, complicated and unreliable. In adult training, many certification initiatives exist with little harmonization. The outdated technologies that dominate traditional certification systems entail limitations in verifying certificates and making certificates portable across borders. The MIT Digital Certifications Project aims to tackle these limitations.[74] To create a more transparent and easily verifiable system, MIT Media Lab released in 2016 the first version of a set of tools to issue, display and verify digital credentials using distributed ledger technology and Open Badges specifications.

While such approaches hold much potential, there are certain limitations that were identified through this initial pilot. The most critical ones are privacy, curation of one's experience and lack of markers for the actual value of accrued certificates. The inherent nature of blockchain will allow complete transparency of the content, meaning the track record of past learning cannot be erased. However, further safeguards can empower individuals to protect their privacy. Curation of certifications and experience is typically a feature of seeking employment. Questions remain on how blockchain certification systems can allow for this type of curation. And lastly, a shared understanding of the value of certifications will empower individuals on career management.[75] The project seeks to work with corporations and enterprises to address many of the obstacles outlined earlier in this paper in creating transparency between and within sectors on skills qualifications and valuing accomplishments to enhance portability and mobility.

MIT: Skillscape explores skills transferability[76]
Related to strategies: 5, 7

The MIT Media Lab constructed the Skillscape portal to house an analysis of the connections between jobs on the basis of skills requirements. Skillscape highlights opportunities for job mobility and skills complementarity across roles in the US labour market. The analysis, based on data from the US Department of Labour, shows the relevance of different skills across occupations, as well as the likelihood that skills are typically required together—identifying skill connection and therefore 'bundles of skills'. The

analysis highlights two general categories of skills: sensory-physical and socio-cognitive. These skills are more likely to be respectively employed in jobs that are associated with lower and higher income households, as well as with lower and higher educational outcomes. The resulting visualization of the network of skills shows the polarization of sensory-physical skills and socio-cognitive skills in the labour market and highlights that skill polarization underlies job polarization. The analysis found that the bipolar nature of the current skills landscape suggests significant challenges in the transition from lower paying jobs to higher paying jobs

The Skillscape analysis and data portal indicate the deeper understanding of the jobs and skills landscape that should be the prerequisite in designing training programmes aimed at upskilling individuals across the labour market.

General Assembly's Standards Boards aim to inject more transparency into the skills content of jobs by mapping skills and career pathways
Related to strategies: 4, 5, 8

General Assembly, a global education technology company recently acquired by The Adecco Group, offers a variety of skill development opportunities—online, full-time, and part-time. General Assembly provides tools that can support faster recruitment in roles with shifting skills requirements. These tools provide greater transparency into the skills required for a range of roles and into career progression pathways in changing professions. A key instrument for those efforts are Standards Boards tailored to expertise within specific professions. The Standards Boards bring together experts who are able to define and validate skills requirements across a set of in-demand roles and identify career progression opportunities. The issues facing each Standards Board vary. For example, the Data Scientists Standards Board was created to infuse transparency and add specificity in what it means to be a Data Scientist, as the job label is currently nebulous, creating inefficiencies in matching skills required to jobs.[77] The Marketing Standards Board aims to create transparency about skills demand shifts and broaden the related skills from the narrow tactical focus it has today to a much-needed blend of skills to solve complex problems that span across more than one specialized domain.[78]

These career frameworks outline foundational skills, skills in specialized areas and leadership skills. The frameworks are broad and highlight the skills for entry-, mid-, and leadership levels, as well as opportunities that can be pursued. Each framework helps employers pinpoint the level of candidates and skills needed without relying on resumes. In parallel, individuals are empowered with a clear understanding of potential career paths and a map which defines skill requirements. General Assembly provides tailored services to individual companies, but also shares these frameworks publicly to support the development of a 'common language' for specific professions.

JD: embraces technological advances and adapts changing job requirements and skills[79]
Related to strategy: 7, 10

JD is a Chinese retailer with significant e-commerce logistics. The operation of infrastructure networks, logistics, sourcing and customer service are pivotal to ensuring JD's unique value proposition. New technologies are offering fresh opportunities to manage operational complexity and increase operational efficiency. JD has designed a programme, Project Z, to create insights about emerging technologies and in-demand skills, as well as to monitor and forecast the resulting requirements on talent needs and working models. Project Z has set in place a practice of categorizing technological advances that are set to be adopted across JD's operations according to their speed of arrival and potential impact on work. In this initiative the impact of technological adoption on jobs is mapped and work responsibilities are reclassified. In some cases, new roles are created while in others, jobs are reinvented with a new set of required skills. Employees are provided with upskilling pathways coordinated to those new roles. In cases where rapid technological expansion has led to significant role augmentation and is set to have a large impact on the workforce, JD has developed and implemented comprehensive skill enhancement plans. In other cases where there has been rapid role automation but only a small impact on the workforce, JD designed new job levels and career development paths.

AT&T: Reskills its workforce with a focus on emerging jobs and interchangeable skills[80]
Related to strategy: 7

AT&T redesigning its approach to talent as a means to adapt to the accelerating changes to jobs brought about by technological advances. A programme entitled Workforce 2020 (WF2020) sets out to reskill the workforce for newly created roles, with a focus on instituting a culture of lifelong learning, enhancing job mobility and developing skills with a focus on those skills that are interchangable. A new career profile tool showcases relevant insights about potential career development trajectories for workers, highlighting new-job requirements and relevant reskilling opportunities. Through the portal employees are provided with better transparency on the internal job and skills market and the range of possible career trajectories within AT&T. The programme is not limited to providing information on potential career trajectories but complements those insights with relevant reskilling opportunities, online courses comprised of both short-cycle duration (nano) degrees as well as longer-cycle reskilling opportunities (online masters programmes). AT&T worked in partnership with online learning providers such as Udacity to create relevant course materials and design appropriate pay plans.

Infosys promotes a culture of lifelong learning to adapt business strategy to changing market needs and fuel growth
Related to strategies: 3, 7, 10

Infosys is an IT consulting firm headquartered in India which has focused on coupling changes in business strategy with mechanisms for developing an agile workforce through a culture of

lifelong learning. That culture is supported by strong support from the management team and by appropriate investment in reskilling and upskilling opportunities for learners.[81] With changing client needs, and a workforce that will be augmented by automation, Infosys faces a need to expand its talent base, developing a broader range of niche and emerging skills.[82] Infosys has made financial investments in continuing education to fill both the short- and long-term skills need, co-developed learning programs with both Purdue University and Cornell University, and taken advantage of the benefits of MOOCs and its learning centre in Mysore. Infosys has built in-house tools that incentivize employees to learn critical skills and enhance an appetite for lifelong learning. Infosys's efforts are complemented by a skills map that identifies not just foundational skills for IT enterprises but also requirements for emerging skills and the connection between different skills, namely relevant skills bundles. One notable change in Infosys' approach to skills has been to conduct an extensive review of its future service delivery and subsequent shift from process-oriented skills requirements to a complex mix of both cognitive and 'soft' skills. As part of this change, Infosys has trained half of its 200,000-strong employee population on design thinking—which is now its core capability around improved problem-solving.

Nesta builds a data-driven skills taxonomy for the UK
Related to strategy: 9

To address the need to have a more concrete and consistent method of measuring skills shortages in the UK, Nesta developed a data-driven skills taxonomy of the UK which signals real-time jobs and skills information to stakeholders across the labour market. Nesta partnered with Labour Market Information firm Burning Glass Technologies to identify 10,500 unique skills and used machine learning to group those skills into hierarchical clusters on the basis of the frequency with which two skills appeared together. The resulting skills taxonomy has three layers and six clusters of broad skills based on occupational groups. These in turn can be further organized into 143 clusters of specific skills. The demand for each skill cluster was indicated by the number of times it appeared in job advertisements. Nesta has provided evidence that this taxonomy can be valuable in comparing skills demand among employers to current skill supply among workers and the potential skills supply that will result from courses and learning programmes, demonstrating how such accepted methods of grouping skills in a taxonomy will enable a coordinated approach to measure skills supply and demand.[83]

Data at Work develops a consistent language around skills and a framework to improve the skills data ecosystem in the US
Related to strategy: 9

Data at Work, a University of Chicago-led initiative, aims to enhance labour market information. The approach promotes collaboration with major stakeholders, transparency, simplicity, web orientation, and a focus on reusing and integrating existing tools, and is independent of any existing tool or project. By offering open data and open-source tools, Data at Work hopes to inject fluidity and consistency into getting, sharing and validating labour market information. The aim is so that labour market stakeholders can benefit from the wealth of data and services available on skills, jobs, and training.

At the heart of Data at Work is the Open Skills Project, which is dedicated to improving machine learning algorithms for translating workforce data. The project includes a national taxonomy of skills and jobs in the US developed through private-public collaboration. It is a normalized taxonomy that expands on O*NET data and enables more consistent and granular language around skills for labour market stakeholders. The taxonomy is available for use through Skills-ML. As an open-source library of code to extract and analyse skills and competencies from text, Skills-ML can be used by developers when building applications to identify, relate and translate competencies. For example, it can be used to extract the skills and competencies in a set of unstructured job postings. An applicant can find the competencies that are currently not covered by their occupation and that will be needed in their desired job(s).[84]

The project has seen much interest and has developed partnerships focused on research and development, data cooperation, and software and data users. These partners span government, business and education. At the end of 2018, active work was transferred to the T3 Innovation Network, a network of over 150 participating organizations launched by the US Chamber of Commerce Foundation and the Lumina Foundation. The network has eight guiding principles, including fostering open collaboration and utilizing open competency frameworks, taxonomies, and ontologies to improve development and comparison of competencies. The network has also established four working groups, one of which has created next steps that include developing a pathway for applications across the talent marketplace to exchange data with full data harmonization.[85]

SkillsFuture, Singapore transforms delivery of services and collaboration between the public and private sector to ensure sustainable workforce development
Related to strategies: 5, 10

In the ongoing planning for the development of its economy, Singapore is designing a flexible labour market through the measurement of emerging skills and definition of reskilling pathways as a means to increase the visibility of individuals within the labour market who hold relevant skills, as well as to identify developmental opportunities for workers. At the end of 2015, the country set up the Committee on the Future Economy to investigate future areas of growth and job creation, as well as support companies' workforce planning efforts. It is committed to keeping the labour market flexible, tight and responsive to changes.

A statutory board governed by the Ministry of Education— SkillsFuture Singapore—drives and coordinates the implementation of the national SkillsFuture movement, promotes a culture and holistic system of lifelong learning through the pursuit of skills mastery, and works to strengthen the ecosystem of quality education and training throughout the country. At the intersection of jobs and skills are the Ministry of Manpower and its statutory

board, Workforce Singapore, which match individuals with the right skills to the right jobs. SkillsFuture Singapore leverages Industry Transformation Maps, created as part of the Future Economy Initiative, and partners with corresponding agencies, sectoral representatives and professional service firms to co-create Skills Frameworks that are industry-relevant.

SkillsFuture Singapore is supported by numerous initiatives, with a specific focus on employers and training providers, as well as individuals across different life stages.[86]

ESCOs creates a common language between European countries

Related to strategies: 5, 9

In response to the need to meet the challenges presented by large-scale changes to jobs, the European Commission has developed a new framework, European Skills, Competences, Qualifications and Occupations (ESCO)—a multilingual digital tool to connect people with jobs across Europe. It is a classification language designed to enhance transparency, mobility and the collection and exchange of data between stakeholder groups in the European labour market.

ESCO is organized under three interconnected pillars—skills, occupations and qualifications. The skills pillar includes 13,485 elements categorized under knowledge, skills and competencies. Skills are defined as the means to use a method or instrument in a setting, while competence is defined as the ability of a person to use and apply knowledge and skills. For each skill, knowledge or competency, the database provides definitions of their scope, and differentiates between transversal, cross-sector, sector-specific or occupation-specific entities. This same language is linked to occupational classifications of 2,942 sets of jobs whose main tasks and duties are characterized by a high degree of similarity.

Conclusion

The education and learning systems of today have helped empower the expansion of the middle class across a number of developed and developing economies. But they lack the features to achieve the scale and speed needed in the new world of work. In the midst of the 4IR, which is characterized by swift and unexpected change across economies and labour markets, a new shared vision for talent is needed to ensure current and future social mobility.

Closer collaboration between individuals, educationalists, education innovators, policy-makers, and businesses can introduce greater efficiency and allow for the scaling of re- and upskilling efforts. A programme of updating work, talent frameworks and certifications, with a focus on skills as the core currency of the labour market, has the potential for wide-ranging positive consequences on how we learn and earn, with positive repercussions for business, individuals, economies and societies. The ten strategies outlined in this white paper identify a range of efforts that will be critical to effecting systemic change. We invite a broad range of stakeholders to join the Forum platform to generate new ideas, share best practices and collaborate for action.

Notes

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The World Economic Forum would like to thank the Partners of the System Initiative on Shaping the Future of Education, Gender and Work for their guidance and support to the System Initiative and this white paper.

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