Key findings

Economic, health and geopolitical trends have created divergent outcomes for labour markets globally in 2023. While tight labour markets are prevalent in high-income countries, low- and lower-middle-income countries continue to see higher unemployment than before the COVID-19 pandemic. On an individual level, labour-market outcomes are also diverging, as workers with only basic education and women face lower employment levels. At the same time, real wages are declining as a result of an ongoing cost-of-living crisis, and changing worker expectations and concerns about the quality of work are becoming more prominent issues globally.

The fourth edition of the Survey has the widest coverage thus far by topic, geography and sector. The Future of Jobs Survey brings together the perspective of 803 companies – collectively employing more than 11.3 million workers – across 27 industry clusters and 45 economies from all world regions. The Survey covers questions of macrotrends and technology trends, their impact on jobs, their impact on skills, and the workforce transformation strategies businesses plan to use, across the 2023-2027 timeframe.

Technology adoption will remain a key driver of business transformation in the next five years. Over 85% of organizations surveyed identify increased adoption of new and frontier technologies and broadening digital access as the trends most likely to drive transformation in their organization. Broader application of Environmental, Social and Governance (ESG) standards within their organizations will also have a significant impact. The next most-impactful trends are macroeconomic: the rising cost of living and slow economic growth. The impact of investments to drive the green transition was judged to be the sixth-most impactful macrotrend, followed by supply shortages and consumer expectations around social and environmental issues. Though still expected to drive the transformation of almost half of companies in the next five years, the ongoing impact of the COVID-19 pandemic, increased geopolitical divisions and demographic dividends in developing and emerging economies were ranked lower as drivers of business evolution by respondents.

The largest job creation and destruction effects come from environmental, technology and economic trends. Among the macrotrends listed, businesses predict the strongest net job-creation effect to be driven by investments that facilitate the green transition of businesses, the broader application of ESG standards and supply chains becoming more localized, albeit with job growth offset by partial job displacement in each case. Climate change adaptation and the demographic dividend in developing and emerging economies also rate high as net job creators. Technological advancement through increased adoption of new and frontier technologies and increased digital access are expected to drive job growth in more than half of surveyed companies, offset by expected job displacement in one-fifth of companies. The net job creation effect places these two trends in 6th and 8th place respectively. The three key drivers of expected net job destruction are slower economic growth, supply shortages and the rising cost of inputs, and the rising cost of living for consumers. Employers also recognize that increased geopolitical divisions and the ongoing impact of the COVID-19 pandemic will drive labour-market disruption – with an even split between employers who expect these trends to have a positive impact and employers who expect them to have a negative impact on jobs.

Within technology adoption, big data, cloud computing and AI feature highly on likelihood of adoption. More than 75% of companies are looking to adopt these technologies in the next five years. The data also shows the impact of the digitalization of commerce and trade. Digital platforms and apps are the technologies most likely to be adopted by the organizations surveyed, with 86% of companies expecting to incorporate them into their operations in the next five years. E-commerce and digital trade are expected to be adopted by 75% of businesses. The second-ranked technology encompasses education and workforce technologies, with 81% of companies looking to adopt these technologies by 2027. The adoption of robots, power storage technology and distributed ledger technologies rank lower on the list.

The impact of most technologies on jobs is expected to be a net positive over the next five years. Big data analytics, climate change

and environmental management technologies, and encryption and cybersecurity are expected to be the biggest drivers of job growth. Agriculture technologies, digital platforms and apps, e-commerce and digital trade, and AI are all expected to result in significant labour-market disruption, with substantial proportions of companies forecasting job displacement in their organizations, offset by job growth elsewhere to result in a net positive. All but two technologies are expected to be net job creators in the next five years: humanoid robots and non-humanoid robots.

Employers anticipate a structural labour market churn of 23% of jobs in the next five years. This can be interpreted as an aggregate measure of disruption, constituting a mixture of emerging jobs added and declining jobs eliminated. Respondents to this year's Future of Jobs Survey expect a higher-than-average churn in the Supply Chain and Transportation and Media, Entertainment and Sports industries, and lower-than-average churn in Manufacturing as well as Retail and Wholesale of Consumer Goods. Of the 673 million jobs reflected in the dataset in this report, respondents expect structural job growth of 69 million jobs and a decline of 83 million jobs. This corresponds to a net decrease of 14 million jobs, or 2% of current employment.

The human-machine frontier has shifted, with businesses introducing automation into their operations at a slower pace than previously anticipated. Organizations today estimate that 34% of all business-related tasks are performed by machines, with the remaining 66% performed by humans. This represents a negligible 1% increase in the level of automation that was estimated by respondents to the 2020 edition of the Future of Jobs Survey. This pace of automation contradicts expectations from 2020 survey respondents that almost half (47%) of business tasks would be automated in the following five years. Today, respondents have revised down their expectations for future automation to predict that 42% of business tasks will be automated by 2027. Task automation in 2027 is expected to vary from 35% of reasoning and decision-making to 65% of information and data processing.

But while expectations of the displacement of physical and manual work by machines has decreased, reasoning, communicating and coordinating – all traits with a comparative advantage for humans – are expected to be more automatable in the future. Artificial intelligence, a key driver of potential algorithmic displacement, is expected to be adopted by nearly 75% of surveyed companies and is expected to lead to high churn – with 50% of organizations expecting it to create job growth and 25% expecting it to create job losses.

The combination of macrotrends and technology adoption will drive specific areas of job growth and decline:

- **The fastest-growing roles relative to their size today are driven by technology, digitalization and sustainability.** The majority of the fastest growing roles are technology-related roles. AI and Machine Learning Specialists top the list of fast-growing jobs, followed by Sustainability Specialists, Business Intelligence Analysts and Information Security Analysts. Renewable Energy Engineers, and Solar Energy Installation and System Engineers are relatively fast-growing roles, as economies shift towards renewable energy.

- **The fastest-declining roles relative to their size today are driven by technology and digitalization.** The majority of fastest declining roles are clerical or secretarial roles, with Bank Tellers and Related Clerks, Postal Service Clerks, Cashiers and Ticket Clerks, and Data Entry Clerks expected to decline fastest.

- **Large-scale job growth is expected in education, agriculture and digital commerce and trade.** Jobs in the Education industry are expected to grow by about 10%, leading to 3 million additional jobs for Vocational Education Teachers and University and Higher education Teachers. Jobs for agricultural professionals, especially Agricultural Equipment Operators, are expected to see an increase of around 30%, leading to an additional 3 million jobs. Growth is forecast in approximately 4 million digitally-enabled roles, such as E-Commerce Specialists, Digital Transformation Specialists, and Digital Marketing and Strategy Specialists.

- **The largest losses are expected in administrative roles and in traditional security, factory and commerce roles.** Surveyed organizations predict 26 million fewer jobs by 2027 in Record-Keeping and Administrative roles, including Cashiers and Ticket Clerks; Data Entry, Accounting, Bookkeeping and Payroll Clerks; and Administrative and Executive Secretaries, driven mainly by digitalization and automation.

- **Analytical thinking and creative thinking remain the most important skills for workers in 2023.** Analytical thinking is considered a core skill by more companies than any other skill and constitutes, on average, 9% of the core skills reported by companies. Creative thinking, another cognitive skill, ranks second, ahead of three self-efficacy skills – resilience, flexibility and agility; motivation and self-awareness; and curiosity and lifelong learning – in recognition of the importance of workers ability to adapt to disrupted workplaces. Dependability and attention to detail, ranks sixth, behind technological literacy. The core skills top 10 is completed by two attitudes relating to working with others – empathy and active listening and leadership and social influence – as well as quality control.

Employers estimate that 44% of workers' skills will be disrupted in the next five years. Cognitive skills are reported to be growing in importance most quickly, reflecting the increasing importance of complex problem-solving in the workplace. Surveyed businesses report creative thinking to be growing in importance slightly more rapidly than analytical thinking. Technology literacy is the third-fastest growing core skill. Self-efficacy skills rank above working with others, in the rate of increase in importance of skills reported by businesses. The socio-emotional attitudes which businesses consider to be growing in importance most quickly are curiosity and lifelong learning; resilience, flexibility and agility; and motivation and self-awareness. Systems thinking, AI and big data, talent management, and service orientation and customer service complete the top 10 growing skills. While respondents judged no skills to be in net decline, sizable minorities of companies judge reading, writing and mathematics; global citizenship; sensory-processing abilities; and manual dexterity, endurance and precision to be of declining importance for their workers.

Six in 10 workers will require training before 2027, but only half of workers are seen to have access to adequate training opportunities today. The highest priority for skills training from 2023-2027 is analytical thinking, which is set to account for 10% of training initiatives, on average. The second priority for workforce development is to promote creative thinking, which will be the subject of 8% of upskilling initiatives. Training workers to utilize AI and big data ranks third among company skills-training priorities in the next five years and will be prioritized by 42% of surveyed companies. Employers also plan to focus on developing worker's skills in leadership and social influence (40% of companies); resilience, flexibility and agility (32%); and curiosity and lifelong learning (30%). Two-thirds of companies expect to see a return on investment on skills training within a year of the investment, whether in the form of enhanced cross-role mobility, increased worker satisfaction or enhanced worker productivity.

The skills that companies report to be increasing in importance the fastest are not always reflected in corporate upskilling strategies. Beyond the top-ranked cognitive skills are two skills which companies prioritize much more highly than would appear according to their current importance to their workforce: AI and big data as well as leadership and social influence. Companies rank AI and big data 12 places higher in their skills strategies than in their evaluation of core skills, and report that they will invest an estimated 9% of their reskilling efforts in it – a greater proportion than the more highly-ranked creative thinking, indicating that though AI and big data is part of fewer strategies, it tends to be a more important element when it is included. Leadership and social influence ranks five places higher than suggested by its current importance and is the highest ranked attitude. Other skills which are strategically emphasized by business are design and user experience (nine places higher), environmental stewardship (10 places higher), marketing and media (six places higher) and networks and cybersecurity (five places higher).

Respondents express confidence in developing their existing workforce, however, they are less optimistic regarding the outlook for talent availability in the next five years. Accordingly, organizations identify skills gaps and an inability to attract talent as the key barriers preventing industry transformation. In response 48% of companies identify improving talent progression and promotion processes as a key business practice that can increase the availability of talent to their organization, ahead of offering higher wages (36%) and offering effective reskilling and upskilling (34%).

Surveyed companies report that investing in learning and on-the-job training and automating processes are the most common workforce strategies which will be adopted to deliver their organizations' business goals. Four in five respondents expect to implement these strategies in the next five years. Workforce development is most commonly considered to be the responsibility of workers and managers, with 27% of training expected to be furnished by on-the-job training and coaching, ahead of the 23% by internal training departments and the 16% by employer-sponsored apprenticeships. To close skills gaps, respondents expect to reject external training solutions in favour of company-led initiatives.

A majority of companies will prioritize women (79%), youth under 25 (68%) and those with disabilities (51%) as part of their DEI programmes. A minority will prioritize those from a disadvantaged religious, ethnic or racial background (39%), workers over age 55 (36%), those who identify as LGBTQI+ (35%) and those from a low-income background (33%).

Forty-five percent of businesses see funding for skills training as an effective intervention available to governments seeking to connect talent to employment. Funding for skills training ranks ahead of flexibility on hiring and firing practices (33%), tax and other incentives for companies to improve wages (33%), improvements to school systems (31%) and changes to immigration laws on foreign talent (28%).