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AI could be a basic job skill soon

AI has the potential to narrow the gap between the most proficient workers and those less skilled if training and manpower policies enable its widespread use.

Terence Ho

The implications of artificial intelligence go beyond its impact on job loss and creation, says the writer. By levelling up expertise, it may reduce the gap between the least and most proficient people in a given domain. As it becomes pervasive, it could change workers' relative productivity and pay. ST PHOTO: KUA CHEE SIONG

In May, MIT labour economist David Autor was in Singapore for the Asian Bureau of Financial and Economic Research (ABFER) and Asian Monetary Policy Forum (AMPF) conferences, where he conducted a workshop and delivered a keynote speech on expertise, artificial intelligence (AI) and the work of the future.

Professor Autor, most well known for his finding that technology had hollowed out middle-skill jobs in the US and other countries, is again in the limelight amid widespread concern about the impact of generative AI on jobs. The human-like capabilities of ChatGPT and other large language models have prompted AI pioneer Geoffrey Hinton to warn in 2023 of significant job displacement, with Tesla founder Elon Musk going further just last week to claim that all human jobs could eventually be replaced.

Prof Autor's take is more nuanced. He says that we should be concerned about job losses – not in aggregate, but in areas where AI or automation is poised to commoditise expertise that has thus far been rare and, hence, valuable.

At the same time, he observes that AI will create many new tasks for human workers and anticipates that labour demand will in fact increase as the global population ages. Furthermore, AI could be directed towards "moonshot" programmes to tackle the greatest challenges facing the world today, such as disinformation and climate change.

By levelling up human expertise, AI has the potential to narrow the gap between less-skilled and proficient human workers and those who are more highly skilled in particular domains of work or creative endeavour. This could give more workers access to rarefied professional jobs and mitigate inequality.

As AI will become a skill set required in nearly all jobs, labour, education and social policies must be refreshed to enhance the complementarity between man and machine, and keep society inclusive.

INNOVATIONS COULD COMPLEMENT OR DISPLACE HUMAN EXPERTISE

The work of Prof Autor and others in this field has encouraged closer examination of when technology innovations are likely to boost employment and wages, and when they are instead likely to dampen labour demand and wage growth. Central to this is whether an innovation complements or displaces human expertise, which Prof Autor defines as skills that are useful in completing a task and scarce.

There are complementary innovations that automate non-expert tasks, freeing up workers for more valuable tasks within their scope of work. An example is software that helps a secretary to optimise schedules, draft thank-you notes and record meeting minutes so that he or she can focus on relationship building and other interpersonal aspects of the job.

Then there are expertise-displacing innovations that make previously valuable skills or knowledge irrelevant. For instance, the most valuable part of London cab drivers' skill set used to be knowledge of the roads rather than the skill of driving, but this has been rendered largely redundant by the advent of the global positioning system (GPS). In some sectors, AI could force workers into manual tasks that command minimal skills-based wage premiums.

In many jobs, both productivity-enhancement and labour-displacement effects may be in play, so that the net effect of an innovation on employment depends on which effect dominates.

To stay relevant, workers in affected jobs must focus on tasks where they continue to outperform automation or AI, while leveraging technology to perform other parts of their work more efficiently. If the overall demand for these jobs falls, some workers would have to move into other occupations and sectors.

What should not be forgotten in this debate is that technological innovations create new demand for expertise. Just as there wouldn't be drivers without cars or social media professionals without the internet, many jobs of the future will owe their existence to generative AI. Prof Autor estimates that 60 per cent of US workers today are employed in occupations that didn't exist in 1940.

This suggests that generative AI is unlikely to reduce aggregate employment, even in the long term, although certain tasks performed by human beings today would become redundant. We should not think of technology as merely taking over tasks that humans are now doing, but as enabling entirely new tasks as well.

LEVELLING UP HUMAN EXPERTISE

By levelling up human expertise, AI has the potential to reduce the gap between the least and most proficient people in a given domain of expertise.

The implications of AI for the workforce go beyond its impact on job loss and creation. As AI becomes pervasive, it could change workers' relative productivity and pay.

Already, my faculty colleagues at the Lee Kuan Yew School of Public Policy have noted the general improvement in writing and presentation standards among students in courses where the use of generative AI is permitted. The best students receive little boost from AI, but weaker students, particularly those who are less proficient in English, benefited considerably.

A 2023 study by economists Erik Brynjolfsson, Danielle Li and Lindsey Raymond found that access to a generative AI-based conversational assistant increased the average productivity of customer support agents, measured by issues resolved per hour, but the impact varied considerably across workers. The tool improved the performance of novice and low-skilled workers by 34 per cent but had little impact on experienced, highly skilled workers.

Prof Autor notes that AI could make a significant contribution by enabling people to take on roles that would previously require many more years of specialised training.

For instance, doctors could delegate certain diagnosis and prescription responsibilities to nursing professionals aided by technology. AI could also widen access to jobs such as software development and graphic design. To the extent that this reduces pay differentials within and across occupations, it may help to mitigate income inequality.

IMPLICATIONS FOR LABOUR, EDUCATION AND SOCIAL POLICY

As I see it, Prof Autor's work has several implications for public policy.

The first takeaway is the criticality of training for new AI-enabled job roles, as AI is set to become a basic skill requirement for many jobs. An effective system to support lifelong learning and reskilling, comprising institutes of higher learning, private sector and industry-led training institutes, is vital for Singapore's competitiveness and workers' employability.

As the demand for skills is fluid, Singapore must have the capacity to launch new training courses quickly and nimbly. We may have to accept a higher failure rate – courses where take-up is low or employment outcomes poor – as the price for innovation and a faster response to changing market demand.

Just as people must retrain to use generative AI, jobs too will morph. Hence, there is a concurrent need for job redesign that is informed by new technological capabilities. This could entail unbundling and rebundling work tasks in a way that best makes use of human skills and expertise.

The jobs of the future will likely integrate "head skills" that leverage cognition and experience with "hand" skills that entail manual dexterity as well as interpersonal or "heart" skills where human beings retain an advantage over automation.

Job redesign is crucial, given Singapore's priority to turn every job into a good job where work is meaningful and satisfying. Companies and industries that do this best would reap the reward of stronger toplines, higher productivity and a happier workforce.

In our education and reskilling agenda, we must train people both in foundational skills without reliance on AI, and the use of AI to augment their expertise. Just as computers do not render mathematics education redundant, generative AI should not detract from the need to learn the elements of good writing, music composition or graphic design.

Deep understanding of a domain enables human beings to design systems and innovate, whether as software developers, engineers or research scientists. In many jobs, an understanding of basic principles is also a necessary safeguard against technology failure: A pilot, for instance, must know the basics of flight to be able to land a plane safely in the event of engine failure or loss of flight navigation instruments.

Moving upstream, we should be deliberate about training students from an early age in the use of generative AI for writing, coding and other creative tasks to prepare them for the workplace. AI can help to reduce the drudgery of routine tasks, facilitate brainstorming as well as improve the quality of output.

Methods of assessing students will have to evolve in tandem. In an elective course I teach, I set a written essay test where students have to convey their ideas cogently without access to the internet, as well as a take-home test where they are permitted to use AI to facilitate research and writing.

Still, we need more research on how AI can be best used to support human professionals in tasks that require judgment and how it influences human decision-making. A 2021 study published in Digital Medicine found that reliance on AI may sometimes impair radiologists' judgment by anchoring them to particular diagnoses or priming them to seek confirmatory evidence.

Finally, we need to review social policies to ensure that the benefits of AI are equitably distributed. If we get our economic and labour policies right, the job market will hopefully continue to provide the majority with access to good, well-paying jobs.

Even so, stronger social safety nets may be needed to strengthen financial assurance and mitigate inequality. OpenAI CEO Sam Altman recently suggested a "universal basic compute" which would give everyone an ownership share in a large language model that powers generative-AI applications.

Such social policy innovations may be needed alongside technology innovations to keep the Singapore economy and society inclusive in this brave new world.

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