Human Skills & the AI COVID Challenge

Naeema Pasha
Henley Business School, University of Reading, UK

Abstract   This chapter examines the impact of both the COVID-19 pandemic and AI on the world of work. Both have created further uncertainty and ambiguity in the labour market landscape. In dealing with high uncertainty, developing both organisational and adaptability skillsets is critical to success, and a dynamic approach may be suitable to enhance skill-building.

Keywords   Pandemic. AI. Technology. Future of Work. Careers. Skills. Dynamic Capabilities.

Summary   1 Pandemic Economy and Work. – 2 History of Work, Careers and Skills. – 3 AI, Came Slow –Then Suddenly. – 4 A Pandemic World of Work. – 5 Skills Building – Adapting for Surviving and Thriving. – 6 What Does This Mean Next for Us?

1   Pandemic Economy and Work

From the industrial revolution to the present day, the global economy has expanded – albeit with peaks and troughs interspersed throughout – and created transformative innovations from the Ford motor car to the iPhone. However, the troughs are what we humans feel the most. We are still reeling from the last major recession in 2008, as global debt sharply increased, wages remained low and productivity stagnated. Yet, the recession caused by the coronavirus pandemic is different to previous downturns. This COVID-19 recession was not caused by flaws in the global financial system like in 2008, but instead it was the threat of illness and death on a global scale. The rapid and unprecedented worldwide shutdown impacted every human on the plan-

et, with countless deaths, jobs lost, and livelihoods uprooted. However, the COVID-19 recession has also coincided with the increased worldwide adoption of Artificial Intelligence (AI) and automation, a process that has already streamlined work patterns.

The pandemic has also enabled faster adoption of digital technology. In the familiar world of food retail, we've seen reduced human interaction with consumers turning to online shopping, supermarket scanners and even robot food deliveries.[1] The pandemic has also caused a shift in healthcare, from the use of robots, to GPs treating patients via WhatsApp video. We have also witnessed the worldwide shift of education from classroom to virtual learning which has allowed – broadly speaking – teaching to continue. Organisations are reconfiguring how 'work' can be done including balancing conflicting ideas that it does not need to happen in offices, against knowing that organisational culture is aided by face-to-face interactions. While we applaud technology for keeping work going, it indicates that more AI integration and automation will be adopted sooner and wider, carrying clear implications for work and workers.

2   History of Work, Careers and Skills

Whilst we are seeing the transformation of work, the recent history of work is worth reviewing. From the start to the middle of the last century, in the age of mass manufacturing, workers were recruited for similar skillsets to often work on identical jobs. Job roles were consistent, often not changing in scope over many years (Parsons 1949). During this period, firms operated in hierarchies and managed in tight boundaries. The watchword for this era was *steady-state*. Later in the 20th Century, flexibility in work grew. Organisations moved towards a more customer-centric operation and as such, systems were faster. Leaders were expected to head up workers with a range of skills and knowledge, which could be applied and re-applied to different scenarios – and so boundaries between jobs, roles and organisations blurred. The watchword thus became *boundaryless*, coined by Arthur (1994, 295-306). The 21st century saw another shift including upheavals bought by AI, and now COVID-19. Work is more uncertain, but hyperconnected, hypercompetitive and increasingly tech enabled. Companies and workers who display agility in either adapting or taking advantage of digital technology gain success. And so *adaptability* for this era is our watchword (LeBleu 2020).

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[1] "Robot Parcel Delivery Starts". *BBC News*, 31 October 2018. `https://www.bbc.com/news/uk-england-beds-bucks-herts-46045365`; "A New Kind Of Business". Starship. `https://www.starship.xyz/business/`.

3   AI, Came Slow –Then Suddenly

Interest in AI is at all time high and has fuelled investment in AI technology. For example, the European Commission's investment in AI has skyrocketed – with a 70% increase from 2017 to 2020, coming to €1.5 billion. However, even this investment appears small in comparison to the €12.1 billion investment in North America, and €6.5 billion in Asia (European Commission 2020). But, while AI seems like a new phenomenon, it has existed for over 60 years. The term was coined by a group of scientists who came together in 1956 to explore the deep potential of computers. AI systems developed by early creators looked at mimicking human intelligences – but through a machine (hence the term Artificial Intelligence). The following few years offered some exciting innovations, but AI development slowed, and it really was not until the start of the 21st century with the advent of immense computing power, and crucially, access to vast data, that AI really took off. Like some statistical methodologies such as regression analysis, AI and Machine Learning programmes could observe relationships, classifications and predictions in data, but as AI programmes can work 'unsupervised' and on vast datasets with many variables, the results were unparalleled. As a result, AI innovations have influenced our work and lifestyles, from Facial AI assessing our personality in recruitment, to Conversational AI in our voice assistants such as Alexa who we freely talk to at home but will soon join us in the workplace.

Modern iterations of AI do not need to use the old model of copying humans. Instead, machine learning algorithms learn in an altogether different way to us humans. Some AIs can bypass human skills, for example, a system developed by Google Health was able to find cancerous cells in mammograms more accurately than the radiologists it was tested against. In fact, the system detected 90% of cancerous cells compared to 78% by radiologists. AI systems like this can help speed up diagnosis and allow for treatment to start faster (McKinney et al. 2020, 89-94). A question arising from this is the role of doctors. Some suggest that the patient relationship part of a doctor's role is to be amplified – as the machine is giving better data and at a faster rate to patients. But this process raises questions about all our jobs. In the next ten years, we can expect greater AI job integration. Take accountancy, the role of *Financial AI* will do all the back-breaking work of analysing numbers, and by using Machine Learning with sophisticated Data Science, it will sync with consumer data and predict trends faster. What then does this leave the accountants to do? Possibly do more human tasks such as building customer relationship. However, will companies need many accountants? (World Economic Forum 2916). 'Automation' technology underpins many of the predictions of jobs disappearing (ONS 2019), specifically tech such as Robotic Process Automation (RPAs), where

'RPAs' will whizz round a system of routine processes and complete tasks that take humans days and weeks to do in days and minutes. And the RPA will complete with fewer inaccuracies.

Although there is no argument that the adoption of AI technologies will create new jobs, it does raise the issue of automation of current jobs and the potential negative impact upon society. In 2017, the Office for National Statistics analysed the jobs of 20 million people in England (ONS 2019) and concluded that 7.4% are at high risk of being automated. In addition, it highlighted that women, part-time workers and younger people in elementary occupations are most likely to be affected – many doing the jobs RPAs are primed for. A Universal Basic Income (UBI) has been put forward as one possible solution to the loss of jobs and the impact of automation upon the working population. It is claimed that a UBI would allow some security to workers, would contribute to limiting involuntary debt, and lower stress levels. However, the UBI does equate 'work' to 'money' in its simplest terms, negating the social aspects of work including personal value, relationships, a source of self-esteem, citizenship, and role in society (Meyer 2019). It may also increase inequality. UBI, whilst useful, could render the unemployed 'the left behind', creating a social underclass.

4 A Pandemic World of Work

The pandemic has made us re-think our work – and many jobs might be done with a mix of home and office work. For those employers looking to keep the traditional office space many will look for technology solutions to minimise spread of disease, such as:

- track and trace software to see who might be sick;
- Wristband sensors to alert workers if they cross set boundaries;
- sensor tracking of small changes in body temperature or voice signatures to see who is ill;
- facial recognition software used to open doors reducing the need to touch surfaces;
- robots emitting UV light to kill viruses.

Ahead of us further technological advances are likely to enable further changes to work. For example, the development of 5G is expected to have an enormous impact on businesses – especially so for a post-pandemic economy as it will enable extraordinarily fast networking and connectivity. Workers wanting to maintain a home-based work lifestyle could use Virtual and Mixed Reality devices like Microsoft's HoloLens that would add imaging in video conferencing. 5G will enable faster and clearer connection, creating a far more personal experience. 5G, coupled with growth of AI will fuel development of the

Internet of Things (IoT) which is expected stimulate the growth of Smart Cities, Smart Healthcare and Smart Work. Current planning on 5G + IoT adoption is intended to reach more deprived areas and reduce digital differences in access – with many health commentators believing it could even reduce health inequality and even manage pandemic outbreaks better.[2] The transformative potential of 5G cannot be underestimated.

> By 2025, IDC [2018] estimates that around 1.5 billion 5G connected devices will produce more than 175 zettabytes of data each year. A zettabyte is the equivalent of one trillion gigabytes. This rapid increase in data production through connected 5G devices is known as the massive Internet of Things (mIoT), which will accelerate the drive to digitalisation. Many of these 5G connected devices will use Edge Computing to deliver super-fast, low latency, AI powered data services directly on the device without needing to access the cloud. 5G is so much more than just faster 4G. Together with mIoT and 'AI on the Edge', 5G is the gateway to autonomous systems at scale and human-machine collaboration that will make pre-connected human beings look like dinosaurs. (Richard Foster-Fletcher, Digital Strategist, Boundless Podcast)[3]

However, critics of AI voice fears over privacy and cybersecurity with 5G and IoT having prompted governments to develop a stronger stance on AI governance. The European Union (EU) released guidelines for regulating AI in a white paper, applying to 'high-risk' technologies with high privacy concerns, such as healthcare, transport and surveillance. For example, the impact of certain AI is deemed "high risk" by the EU – such as AI tools used in recruitment, as it may affect workers' rights. They acknowledge that AI has a huge impact on society, and EU citizens must be protected in order to keep trust high. In doing so, the EU has pledged to create an 'ecosystem of trust', ensuring that tech firms comply with EU regulations and allowing citizens to adopt AI technologies with confidence. These governance plans are promised to be embedded into 5G planning – even to the extent of re-evaluating political and country affiliations of network providers.

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2 AT&T Business Editorial Team. "5 Ways 5G Will Transform Healthcare". *AT&T*. https://www.business.att.com/learn/updates/how-5g-will-transform-the-healthcare-industry.html.

3 https://boundlesspodcast.co.uk/.

5 Skills Building – Adapting for Surviving and Thriving

It is only through understanding the realities of any climate, both internal and external, and adapting effectively, that most creatures survive. We are experiencing a new reality shaped by a major shift that is impacting jobs from both AI and the pandemic, and we need to push our minds further, understanding that we will need a mindset for constant 'adaptability' to build the relevant skills to thrive. Stimulus in skilling from the UK government comes from the UK Office for Artificial Intelligence (OfAI), which has three main aims: ensuring that AI has a positive impact on society, enabling adoption of AI across industries, and upskilling and investment. Key policies include increasing investment in R&D to 2.4% of GSP by 2027, investing £406 million in STEM education, and an additional £64 million for a National Retraining Scheme, enabling lifelong learning in digital and construction industries. In addition, the EU has developed an 'ecosystem of excellence' with small and medium-sized enterprises (SMEs) to boost innovation and the economy. This is an attempt to attract investment in European AI, and in turn stimulate the job market. The EU Commission is also developing a Skills Agenda with the goal to upskill everyone within Europe – with a specific effort on women to enter technology.

> Josie Cluer, EY's lead partner on skills and learning, argues for a "skills-led recovery". She says "skills is a key driver of growth, productivity, and the government's levelling up agenda. So the Prime Minister's plan to 'build build build' has to be underpinned by investment in 'skills skills skills'. Organisations too, need to invest in the skills of their people, because the capabilities they need will be different to those pre-COVID. And last, individuals themselves, wherever they are in the labour market, will need to invest in their own skills, for employment and progression".[4]

Essentially at the core of any governmental role on re-skilling is encouraging both organisations and individuals to have a 'learning orientated' mindset. This supports the underlying theory and applications in the *dynamic* approach to both individual and organisational development. Two 'dynamic' approaches show key skills to survive – and thrive. The first is Dynamic Capabilities, which offers a methodology for organisations to gauge changes and adapt to volatile and complex challenges (Teece 2019) and the second is Career Dynamism (Pasha 2020), which offers a career delivery model that enables people to develop adaptive qualities for career uncertainty. The concept of dynamic capability suggests it is organisational

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[4] https://www.henley.ac.uk/articles/why-we-need-a-skills-led-recovery.

adaptive skills that enable "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, Shuen 1997). Dynamic Capabilities methodology suggest AI offers firms competitive advantage through creating *efficiencies* (such as RPAs, voice assistants, blockchains, and bots) and *innovations* through 5G and IoT. Career Dynamism showed those people best at managing chaos and uncertainty have demonstrable 'future of work' skills for work that is both uncertain and volatile in nature (Pasha 2020). Abilities such as 'career-resilience' enables people to be both adaptive and pro-active, by demonstrating capabilities such as *self-reliance* and *motivation to learn* as well a *positive self-concept* by truly valuing their personal abilities. Career Dynamism highlights critical qualities such as human skills of *creativity*, *openness* and an ability to *build positive relationships*. These are crucial skills, because robots will undertake routine, data-heavy, mundane and dangerous work, leaving the possibility of unknown new jobs which will unquestionably be focused on such human qualities.

6 What Might a 'New Normal' Mean for Us?

> No man ever steps in the same river twice, for it's not the same river and he's not the same man.
> Heraclitus

We are in a 'new-normal', despite so many things looking similar. We have shared experiment of living and working through COVID-19. At the same time, major activist movements occurred during the pandemic, such as the Black Lives Matter movement, resulting in companies examining their diversity and inclusion culture – asking if they really do offer parity and equality. It is essential, therefore, that AI development is aligned to societal norms. Thus, software used in monitoring employee experience must ensure ethical diversity and inclusion practices, and be mindful of privacy needs of employees. For example, ensuring transparency in extracting building usage data and personal information from wearable tech, such as Fitbits and Apple watches. The role of 'Responsible AI' (Zhu 2019) will increasingly be a core activity that most tech producers are placing into their build strategy. Many firms are now using a multi-stakeholder approach to consider wider implications of AI, to ensure good governance, diversity and social impact. In building more ethical and responsible AI strategies, companies should build AI to align with the 'meaning and purpose' of corporate strategy – and both organisations and individuals will need to consider dynamic capabilities to achieve sustainable growth (Harreld, O'Reilly, Tushman 2007).

The pandemic has forced huge changes in the world of work, a world that was also starting to experience dramatic change from AI. If we can adapt well and evolve to the changes the pandemic has caused, and adopt AI effectively, firms are likely to see better levels of productivity and growth. And with it, they may see their employees being happier, better skilled and have more adaptability and resilience to withstand future challenges.

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