Themed collection articles

ELRR

New technology and work: Exploring the challenges

The Economic and
Labour Relations Review
2020, Vol. 31(3) 310–323

DOI: 10.1177/1035304620944296
journals.sagepub.com/home/elra
SAGE

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Abstract

Investigations into new technologies, employment and working conditions are timeless and consequently have occupied research, public policy, and popular fiction for centuries. However, in addition to the uncertainty created by the introduction of new technologies, the current coronavirus pandemic, with its associated impact on health and the economy, has led to increased volatility across the globe. The global medical crisis arising from the worldwide spread of COVID-19 is predicted to lead to a global economic crisis and subsequent deep depression. The resultant economic, social and political repercussions are likely to be felt for years or even decades to come, equalling the great depression of the last century. Consequently, it is difficult to make long-term accurate predictions about the impact of new technologies on industry, society, and labour. In this context, the aim of this introductory article to the themed volume is to consider the potential challenges and opportunities associated with the Fourth Industrial Revolution technologies and potential impacts on work and workplaces. This introductory article comprises an international collection of research that examines the impact of technological change on employment and working conditions with consideration given to the additional impacts of the COVID-19 crisis.

JEL Codes: O14, O33

Keywords

COVID-19, fourth industrial revolution, new technology, work, workplaces

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Introduction

Technological change improves the quality of life; supports the development of new products, industries, opportunities and experiences; increases productivity and leads to increased wages. Last century saw the impact of steam power, electricity, the filament light bulb, radio, television, the telephone, aeroplanes and the telegraph. Over the last 32 years the internet, digitalisation, machine learning, robotics, big data and biotechnology have changed production and employment, while opening up new possibilities in communication, entertainment, education, research and work. Technology revolutionises, transforms and disrupts industries, work and skills while shifting the focus of commerce and industry. New industries replace old and thus new centres of production are created as a result (Chandler, 2005; Freeburg, 2013). The downside of technological change concerns those who lose their jobs, have their skills eroded or experience the decline of communities and regions, as industries cease operations, become extinct or relocate elsewhere (Bandura and Hammond, 2018). Du and Wei (2020) cited predictions concerning massive job losses in China associated with the automation of production. They refer to Frey and Osborne (2017), who estimated that around one half of jobs in the US are at risk of being automated. The World Bank (2016) proposes that even larger percentages (60%) of jobs are automatable across Organisation for Economic Cooperation and Development (OECD) countries.

So far an extensive literature has developed that theorises and measures the impact of technological change. Du and Wei (2020), identify two specific strands of research. The first strand considers the aggregate impact of technological change on employment and the various channels through which technology can impact jobs (Layard and Nickell, 1985). The second strand of research examines the impact of technological change on the skills and occupational employment structures across industries (Berman et al., 1998). It is proposed that the substitution of labour by new technology will be offset by an income effect, driving demand derived from new jobs, opportunities and investment, as well as a composition effect shifting the distribution of industries and skills. Systematic analysis of the impact of technological change has so far attempted to identify the different mechanisms through which change is occurring, taking into account other factors that may be moderating the impact – such as demographic change, economic shocks and changes in labour supply. Santana and Cobo-Martín (2020) set out to systematise and provide a structure for research into the Future of Work using the Web of Science database for article retrieval identifying 2286 documents published between 1959 and 2019. Four key themes emerged from their study: technological (automation, gig work, new forms of work and so on), political (industrial relations, labour markets, educational policy and so on), social (vulnerable workers, work-life conflict, job satisfaction and so on) and economic (employment, wage inequality, precarity). In keeping with this meta-analysis, many of these themes are covered in the five articles that follow in this issue.

There have been many national and international reports that assess the impact of new technology on skills and the labour market. The McKinsey Global Institute (2018) forecasted that automation will change the skill mix required in industry with a shift toward technological skills and away from basic cognitive skills. Through a literature review on the impact of robotics, automation and artificial intelligence (AI) in the health care and

https://doi.org/10.1177/1035304620944296 Published online by Cambridge University Press

transport sectors, the UK Chartered Institute of Personnel Development (2017) indicated that skills are being augmented rather than substituted. Others have argued that automation is not necessarily displacing labour but decreasing labour's contribution in added value (Autor and Salomons, 2018). Arntz et al. (2016) proposed that there is often an overestimation of job automatability, as occupations labelled as high-risk frequently comprise a substantial share of tasks that are difficult to automate. Using a task-based (rather than occupation-based) approach across 21 OECD countries, they found that 9% of jobs were automatable, concluding that the threat from technological advances seems much less pronounced using a task-based rather than an occupation-based approach. As AI and computerisation leads to the automation of tasks, rather than jobs, the nature of jobs is likely to change in terms of autonomy, control and the type of skills required to conduct the work (Susskind, 2020). Thus, while new technologies have led to increased productivity and skills, there are anticipated negative consequences of new technologies. To date, these include: threats to labour markets, workplaces (automation, control and work intensification) and jobs (both quantity and quality), as well as employee de-skilling (Bandura and Hammond, 2018).

New technologies have impacted on work processes, work identity and the workplace – particularly new ways of working (i.e. mobile and homework; Ross et al., 2017). This has led to shifts from geographical proximity to technological proximity and a relocation of work and workplaces. This has led to opportunities for web-intermediated work (such as gig work), on-demand work with the possibility for both greater flexibility over hours and the erosion of work-life balance, the creation of collaborative work teams through co-working and support for global work through online work for international clients. Ross et al. (2017) argued that technological developments have not only impacted job and skill profiles, but also potentially where, when and how work is conducted as well as for whom the work is performed. Clearly, Internet technologies support the reconstruction and changing nature of the workplace, working time and the employment relationship among other aspects.

The Reserve Bank of Australia has conducted several studies focusing on long-term industry, skills and structural change in Australia. Adeney (2018) suggests that it is important to examine changes not only between industries, but within industries considering a combination of structural, competitive and technological forces that may lead to the shifting of production from goods and distribution to service production within the same industry. Such changes have resulted in a significant shift in skill requirements across the economy toward business and professional skills within sectors. Research also indicates that the changing composition of jobs can be partitioned into routine and cognitive work with the latter – entailing non-routine and cognitive attributes – being the jobs that are increasing (Heath, 2016; Du and Wei, 2020; Ubalde and Alarcon, 2020 in this issue). Routine jobs involve repetitive tasks and require limited training, whereas cognitive jobs involve complex and multiple tasks, require autonomy and the need for extensive training.

Balliester and Elsheikhi (2018) refer to the importance of anticipating future skill needs and development to assist transitions, for example, moving from the informal to the formal economy or from the manufacturing to the services sector. These factors are also important to enable school-to-work transitions as well as in identifying occupations

where reskilling is needed and more. That said, the potential for job automation does not necessarily mean it will occur. For human jobs to be substituted for machines there are several aspects that need to be considered. These include: economic factors, for example, changes in the production mix must be more profitable for firms than previous labour-intensive production processes and preferences for human interaction in certain sectors, such as the 'caring professions' and elder care might prevent automation (Balliester and Elsheikhi, 2018).

Thus, context and institutions matter when assessing the impact of technological change. In this regard, government policies especially those linked to training and education, the support of research and development, the provision of infrastructure to support digital technology and integrated supply chains become crucial. The COVID pandemic highlighted the different abilities across countries to effectively support and coordinate effective responses (Navarro, 2020). Infrastructure support is required to deliver the internet and the sophisticated logistics are necessary to support global supply chains. Access to quality training and education facilities have an impact on the supply of skills to support new technologies, and recruiting skilled labour through migration depends on sourcing skilled migration and the programmes that support it. Ayentimi and Burgess (2019) consider the relevance and impact of the new technologies in the context of developing economies where there are large supplies of surplus labour, poor infrastructure, an extensive informal economy and skills shortages. For many developing economies, the challenges are those that were familiar to advanced economies in previous technological epochs – large agricultural workforces with low productivity, low skill and educational attainment, a dependence on commodity exports and limited infrastructure.

Technology and the fourth industrial revolution

The current phase of technological developments has been referred to as the fourth industrial revolution (4IR). Klaus Schwab (2016) proposed the term 4IR to highlight a range of new technologies that are transformative and distinctive in their ability to change production, consumption, employment, industry structure and living standards (see review by Abhishek, this issue). In Schwab's technological typology, there is a clear progression from steam power, to electricity, electronics and information technology; then the fourth revolution that encompasses a fusion of digital, biotechnical, AI and engineering technologies. The result is the transformation in communications, information storage and processing, in robotics, machine learning, nanotechnology, energy generation and entertainment. Schwab (2016) argues that the points that distinguish the 4IR from earlier technological phases are the velocity, breadth and depth of transformative change. New industries and new jobs will be generated, mobile and homeworking, online diagnostics, big data, high-speed processing and globally connected workforces are all likely to increase or be affected.

The optimistic view of the 4IR sees endless possibilities and opportunities for new industries, jobs, occupations and entrepreneurial opportunities, as well as improvement in living standards (World Economic Forum, 2016). However, there is another view that recognises that new technologies may undermine labour standards, create short-term and insecure jobs, increase inequalities, erode business and tax regulations and

https://doi.org/10.1177/1035304620944296 Published online by Cambridge University Press

concentrate power within global tech multinationals (De Ruyter et al., 2019; Stanford, 2017; Rainnie and Dean, 2020). There is a certain degree of hyperbole around Schwab's predictions, his assumptions about the inevitability of the process and there is also an absence of critical analysis of the impact of the changes in terms of its distributional consequences and its impact by gender, age and minority groups (Howcroft and Rubery, 2019; Rainnie and Dean, 2020). In this article, the gender dimensions of linguistic apps in the US are explored and found to be under-valued in the contribution by Ubalde and Alarcon (2020). Similarly, the article by Artero et al. (2020) on the links between education and online activities in the EU, indicates that access to new technology is determined by education levels, thus advantaging the more educated and reinforcing existing inequalities.

Filling the expected demand for professional and cognitive skills associated with 4IR technologies presents another potential obstacle, and accessing the supply of labour to meet these skills comes up against the contradictions present in the labour market for young persons, especially graduates. Across the world, there are high rates of youth unemployment, graduate unemployment and underemployment (International Labour Organization (ILO), 2017; Searle, 2019). The most highly educated generation who have the most know-how regarding the use of new technologies, find themselves on the fringes of the labour market. Research indicates that there are several problems associated with graduate transitions into full-time employment. These include mismatches between graduate education and the skills employers want (Prikshat et al., 2019) and the 'family work history legacy' concerning the influence of parental employment or unemployment. Mainstream theory argues that youth wages are set above the market clearing rate – other barriers include a lack of transitional support mechanisms, such as apprenticeships, traineeships (Dhakal et al., 2018: 112) and credentialism. In the UK, one estimate suggests that over one-third of graduates are overqualified for their jobs (Office of National Statistics, 2017). Labour market mismatches and overqualified graduates or graduates with the wrong skillsets to access jobs have also been widely reported in other countries (Prikshat et al., 2019).

Another challenge related to 4IR projections is that they fail to take into account the short-term focus of many organisations (Bali et al., 2020, in this issue), as well as the conservatism, inertia and resistance of managers with regard to operating outside the comfort zone of current technological and workforce arrangements. There are also organisational, cultural and policy obstacles to the 4IR agenda. The Economist Intelligence Unit (EIU, 2018) developed an Automation Readiness Index (ARI) that surveyed and ranked 25 countries according to their status of 'readiness' to adopt automation. The concept of readiness incorporates the ability to develop and apply automated solutions, the capacity to support innovation through education and translate it into programmes that support workplace adjustment and upskilling procedures. The ARI incorporates three policy areas: innovation policy (government and industry), education policy (secondary, vocational and higher education systems) and labour market policy (government, industry and educational systems). The country sample includes G20 countries as well as five additional nations that represent diverse regions of the world (EIU, 2018). South Korea was ranked first on the index, as it scored highly across all the three categories (innovation policy, education policy and labour market policy). Germany,

https://doi.org/10.1177/1035304620944296 Published online by Cambridge University Press

Singapore and Japan ranked next – all countries that have demonstrated strong leadership in relation to industry digitisation and have developed forward-looking industry and education programmes in anticipation of technological change (see the discussion by Bali et al., 2020 in this volume).

Linked to location in terms of the 4IR technological roadmap, Nankervis et al. (2020) conducted a survey to determine the extent to which key stakeholders (employers, government and agencies) in the Asia Pacific region were prepared for the opportunities and impact of the 4IR and found divergence across the different countries. Across the 10 countries studied, 1690 survey responses were analysed. The findings suggest that all but four countries considered their organisations were still in the automation stage 3 phase of the 4IR (computer and automation), with only China, India, Thailand and Singapore reporting 'significant progress' or 'evidence of momentum' toward the 4IR (cyber physical systems) fourth stage.

A related study surveyed members of the Australian Human Resources Institute (and included focus groups) to determine their organisations' level of preparedness for accommodating the impact of the 4IR on organisations, workplaces, jobs and skills as well as the impact on their own professional roles and competencies (Nankervis et al., 2019). This study found that human resource professionals reported that 4IR technologies would be useful for their organisations, and assist with improving job performance, increasing productivity and making jobs easier for employees. Despite these positive expectations, few of the surveyed organisations intended to use 4IR technologies in the near future. Reasons given for this reluctance included a lack of employee acceptance of such processes, conceptualised as resistance to change. Focus group findings also indicated that most respondents were unimpressed with a perceived lack of 4IR-related strategies on the part of governments, with few policies in place to support new technology adoption.

The emergence of gig work, enabled by 4IR technologies, reflects the ambiguities and contradictions of the 4IR and its impact on work. Gig work builds upon the ambiguities and gaps around employment regulation that are present in many advanced economies (Stewart and Stanford, 2017; Van Barneveld et al., 2020). Many platforms are available to deliver services, from transport through to home and care services. Well-known examples include Uber, Task Rabbit and Deliveroo. Gig work is said to provide opportunity for employment with few entry conditions, flexibility in work schedules and the ability to mesh work with other activities. However, Stanford (2017) identified the negative aspects of gig work. It builds on available and surplus labour and entails contingent employment conditions with ambiguity over employment status. Ambiguity over the identification of the employer creates lack of accountability, eroding labour standards and rights. Research on the conditions of gig workers in Australia (Mcdonald et al., 2019) revealed that assignments are short term and sporadic, moreover gig jobs tend to be second jobs (see also Glavin, 2020, this issue, reporting on multiple job holding in Canada) with hourly rates of pay below the national minimum wage. Although gig work can be considered sub-contracting via an app, the app generates 'vast amounts of data on the economic processes they coordinate' (Fernández-Macías, 2018: 16). Access to such data led Deliveroo to sack a courier in April 2020 as data indicated he was too slow; he in turn, is making a case for unfair dismissal via the Fair Work Commission (FWC;

https://doi.org/10.1177/1035304620944296 Published online by Cambridge University Press

Chau, 2020). For the case to succeed, the courier will have to persuade the FWC 'that he was an employee and that Deliveroo had engaged in 'sham contracting' – while this may be considered a test case for gig workers who want more rights, it may cause the collapse of the business model if couriers are reclassified as 'employees' under the law, which would greatly increase labour costs (Chau, 2020).

Finally, the fragility of the 4IR trajectory and of assumptions about its inevitability are challenged by external shocks that have shaken certainty about the future shape of work and the economic system on which that future is constructed. Environmental sustainability now poses a major challenge to the sustainability of current living standards. The COVID-19 international pandemic is the latest in a succession of regional and international crises that have afflicted national economies and the international economic order over the past 2 decades (Navarro, 2020; Quinlan, 2020). The pandemic has highlighted the fragility of global supply chains and production networks, just in time and lean production, free trade and global labour (Van Barneveld et al., 2020). Regular crises have included natural disasters such as earthquakes, volcanic eruptions, floods, drought and forest fires (Quinlan, 2020). Other crises have been generated through new viral infections such as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and HIV/AIDS. There are also those crises associated with wars, targeted internal population suppression programmes such as those waged against the Rohinga in Myanmar and international conflict in both regions and countries (e.g. Afghanistan, Iraq, Syria, Libya and India). Crises have also been generated by systems failure, most recently the failures of the international and national financial systems in the 2008 Global Financial Crisis. When industries want to recommence operations, most 'will lack input and capital – most of which needs to be imported', thus highlighting the need for intensive planning for the post COVID-19 (Van Barneveld et al., 2020).

Crises tend to be followed by some form of policy re-alignment, short-term remedial programmes to alleviate the most visible distress and a search for explanations. Analysis of crisis and crisis management is relevant to discussions concerning the impact of technological change and the progression of the 4IR scenario, since the process of transformation associated with the introduction of technology has the potential to generate unemployment, erode skills, impoverish regions, undermine the fiscal system and generate social and political resistance.

Pertinent to the COVID-19 crisis was the lockdown that occurred in many countries as pointed out in the paper by Artero et al. (2020) in this issue, the millions of people who have been working from home are likely to be the more highly skilled, while those with lower skills may already have lost their jobs. Very recently, in some countries, workers have been slowly encouraged to return to their physical workplace. However, workplaces need to change to accommodate requirements while there is no Covid-19 vaccine available. Social distancing needs to be enforced, resulting in staggered work hours – also necessary for those who travel to work using public transport. Working from home (telecommuting) is likely to remain for the foreseeable future, partly to support these changes, while face-to-face meetings may increasingly give way to technology-enabled conferencing, reducing the need for travel (Arruda, 2020).

From the COVID-19 experience, thus far, we have seen that many governments, even those with neoliberal programmes, have been prepared to embrace Keynesian Macroeconomic Policy programmes, restricting local travel and closing regional,

national and international borders, businesses, schools, gyms, restaurants and so on (Van Barneveld et al., 2020). Crisis brings into question the sustainability of the current global production and financial systems, as well as the capacity of neoliberalism and shareholder governance systems to anticipate and manage events linked to change and crisis (Navarro, 2020). The neoliberal agenda of hollowing out the public sector, eroding health and safety nets and the marketisation of health has meant that, in many countries, the health system has been incapable of responding to the pandemic and a large part of the population have been left without adequate health access (Navarro, 2020). There has been international interest in broader stakeholder participation systems, supported by reporting and funding mechanisms that consider global shared values, environmental sustainability and broad social objectives linked to the United Nation's (UN) development goals.

Themes in this collection

There follows a grouping of articles recently submitted to this journal that all raise issues relating to the future of work. In the first article, Bali, Vas and Waring analyse how aspects of the 4IR interact with labour market regulation in Singapore. They argue that the race to develop and implement autonomous systems and AI has challenged the responsiveness of governments in many areas particularly in the domain of labour market policy. This analysis is drawn from their survey of Singaporean employees and managers in 2019, exploring whether and how AI and autonomous technologies have begun impacting workplaces in Singapore. Their conclusions reiterate the need for government intervention to facilitate broad-based participation in the productivity benefits of 4IR technologies, while also offering re-designed social safety nets and employment protections. Their study suggests that, despite concerted policy efforts from the government, industry lacked a level of preparedness for the challenges of the 4IR. The survey results indicated a lack of leadership among employers, with a failure to adequately resource 4IR initiatives or support employee skill development and preparedness for the 4IR, despite the range of support available to employers to upgrade workforce skills.

Focusing on China, Du and Wei address the perennial challenge of the impact of technological change on jobs. Within the 4IR literature, there are predictions of substantial job losses through digitalisation and robotics (Frey and Osborne, 2017). Many of the predictions on the job effects of robotics are within the context of developed economies. Du and Wei provide a systematic evaluation of the impact of robotics in an emerging economy context. In a review of the extensive literature on the employment effects of technological change, the authors differentiate between aggregate labour market studies that consider the impact on unemployment and sector and industry studies that examine the impact on skills and the distribution of jobs. In focusing on the impact of robotics on the routinisation of jobs, Du and Wei tested the relevance to the Chinese context of the routine-biased technological change hypothesis. Autor et al. (2003) suggested that workers in routinised jobs are at greater risk from technological change. Through routinisation, work schedules are homogenised and worker autonomy reduced, making it possible to displace labour by automated and robotic processes. Using data from the China Labour Force Dynamics survey, the study finds a link between technology-induced routinisation

https://doi.org/10.1177/1035304620944296 Published online by Cambridge University Press

and labour turnover. Workers in jobs classified as highly routinised jobs were indeed most likely to leave their job. Moreover, the exit from jobs was not followed by entry into another job, but to unemployment or labour force exit. The study provides evidence that, through routinisation, technological change can accelerate job loss and prevent shifts into similar jobs.

In a study of multiple job holdings in Canada, Glavin provided evidence that its prevalence is considerably greater than the figures reflected in official statistics arguing that this prevalence reflects the insecurity of 'main' jobs. Multiple job holdings are linked to the inability of primary jobs to provide either a sufficient or secure income. The intersection of new technology and work is apparent in the gig economy. Through apps and an online platform, work can be allocated, assessed, remunerated and controlled. There has been growth in research on gig work, especially around conditions, job quality, labour regulation and forms of control (Stanford, 2017; Stewart and Stanford, 2017). However, there have still been few systematic attempts to assess the extent of gig work and its conditions (Bureau of Labor Statistics, 2018; McDonald et al., 2019). Anecdotal evidence suggests that a new field for research will have a further impact on the gig work concerning COVID-19 social distancing requirements. One manifestation of the development and expansion of the gig economy would be an expected increase in multiple job holdings. Glavin examined the extent of multiple job holdings in Canada, during the period 2011–2019, exploring the paradox that, given developments in the gig economy, official estimates of multiple job holdings in Canada have remained stationary. With gig work, assignments can be multiple, occasional, informal and very short term, resulting in an understatement of both jobs and multiple job holdings in the economy (De Ruyter et al., 2019). Taking a new approach to the conceptualisation of multiple job holdings and using the 2011 Canadian Work Stress and Health Study and the 2019 Canadian Quality of Work and Economic Life Study, Glavin's analysis found that the extent of multiple job holdings in Canada was 20%, nearly three times the official estimate. Moreover, he argued that the official main job/second job dichotomy fails to take account of the different degrees of precariousness.

The next article in this volume moves the focus to Europe, and explores whether the use of digital collaborative platforms (DCPs) and the rise of new digital labour markets increases or reduces education-based inequality. The authors, Artero, Borra, and Gómez-Álvarez, propose that transaction cost theory predicts that the less educated could benefit significantly from the digital collaborative economy due to the reduction in information costs made possible by this form of exchange. Nevertheless, neoclassical and institutionalist economic theories posit a positive relationship between educational levels and platform use. Using microdata from the 2016 Eurobarometer survey, they find that education level has a clear positive effect on DCP use, accentuating the need for attention to socioeconomic inequality when public policies are created that promote social justice and wellbeing in a disrupted landscape. Their research findings indicated that higher-educated individuals are likely to have easier access to the new jobs resulting from the 4IR. This accentuates the need for economic policies that reduce the gap in educational inequality, especially given the current growth in precariousness, both in traditional and gig economy labour markets. They pointed out that the COVID-19 pandemic is a clear example of how companies and individuals with the ability to carry out activities in the

digital field have not had to suspend productive activity, compared to other sectors and individuals that have had to cease operations completely.

The final paper in this volume focuses on whether automation-resistant skills are rewarded – specifically linguistic skills in the US labour market. The authors Ubalde and Alarcon maintain that the skills that are difficult to automate are predicted to increase in demand and be more highly rewarded in the 'new economy'. Given new information and knowledge requirements resulting from the internationalisation of markets, linguistic competencies would be expected to be highly valued. The authors test this hypothesis by analysing the demand and reward for linguistic skills through a two-step analysis of occupational and individual data derived from two US sources: the Occupational Information Network and the Current Population Survey. They found that, while 'hard' verbal-reasoning skills are associated with high average salaries, interactive and multilingual skills are unrewarded and even penalised. By challenging human capital and neoclassical theory, they suggested that linguistic skills are undervalued in part because of their association with low-status, feminised service sector jobs. Their proposed recommendations to overcome current inequities through union and employer actions include more detailed classifications, definitions and measurements of culturally under-valued skills, ensuring that demand and reward are assessed separately from gender, class and ethnic bias.

Conclusion

Although the 4IR offers the potential to transform and realign economies and societies, there is also an increasing realisation that it may exacerbate problems for people and the planet (Herweijer et al., 2017). In their report 'Enabling a sustainable 4IR', which refers to G20 insights, Herweijer et al. (2017) proposed an approach that would result in mitigating any unintended adverse consequences of change, while maximising positive, social and environmental benefits. The onset of the COVID-19 pandemic has led to the disruption of many traditional markets and industries (Gopinath, 2020); therefore, now more than ever before, governance structures and policy mechanisms are needed to ensure that governments 'have both the agility and ability to maximise the benefits of the 4IR and harness innovations that promise the greatest social and environmental returns' (Herweijer et al., 2017: 1).

In a similar vein, the Secretary-General of the OECD has called on governments and institutions around the world to collaborate more closely to work on the opportunities presented by the 4IR to utilise technological change to end poverty, curb inequality and confront discrimination as per the UN's sustainable development goals (World Government Summit, 2019). Jose Angel Gurria said, 'The digital transformation can change the world, but we have to create a level playing field. In OECD countries alone, we estimated that up to half of all people will be displaced or affected by technology'. The OECD (2018) projections suggest that one billion people worldwide lack the necessary digital literacy and skills to participate in the digital economy, indicating that less than half the world's population has access to the internet. This is particularly the case in relation to women, where globally, 200 million fewer women are found to have access than men (OECD, 2018).

The articles in this themed collection are all focused around some aspects of the four key themes identified by Santana and Cobo-Martín (2020) as a potential structure for examining the future of work. That is: technological (automation, gig work; new forms of work and so on); political (labour markets, educational policies and so on); social (vulnerable workers and so on) and economic (employment, wage inequality, precarity). This collection has highlighted just how much more work there is to be done in this sphere, especially considering the current COVID-19 pandemic where inequalities are exacerbated. In summary, the articles have emphasised: the need for closer government–industry collaboration in skill development; a potential emphasis of the ILO's decent work agenda in relation to the evidence provided by the incidence of multiple job holdings and the prevalence of unsustainably low-waged insecure work; the need for more widespread provision of access and training to DCPs for the disadvantaged to create a more level 'playing field' and a revaluation of linguistic skills to ensure that a wider range of skills are valued and rewarded in our increasingly multi-ethnic and globalised world.

Declaration of conflicts of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship and/or publication of this article.

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