The Impact of Technology Change in Work, Employment and HRM

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Abstract:Rapid technological change has had a huge impact on transforming employment, work, and human resource management. Technological innovations have led to the rise of automation and new types of work. HR practices are undergoing a transformation towards remote working, algorithmic decision-making, and so on. However, the integration of technology into organisational production inevitably creates challenges in terms of inequality and ethical concerns. To address these challenges, the article offers a series of practical recommendations for possible interventions by HR departments.

Keywords: HRM, technology change, work, employment

1. INTRODUCTION

The rapid advancement of modern technology has significantly altered the nature of work, employment practices, and human resource management (Omar, 2021). Rapid technological change has created a new break in automation, artificial intelligence (AI), machine learning, and digitization (Dwivedi et al., 2021), which are altering the way organizations operate and the nature of jobs. This article will critically review the influence of technology development on work and employment along with HRM practice, examine the accompanying challenges and opportunities, and provide efficient strategies.

2. TECHNOLOGICAL TRANSFORMATION OF WORK AND EMPLOYMENT

The rapid advancement of technology has resulted in significant changes in the job market and employment scene. This transformation is visible in three important areas: automation and job replacement; remote work and digital connectivity; and the gig economy and platform work.

Firstly, the automation and job displacement. With the rapid development of technology, the automation of daily tasks is achieved through the use of artificial intelligence (AI), robotics, and machine learning. Automation has replaced tasks that were traditionally manual and time-consuming. Although this has enhanced efficiency and output (Agrawal et al., 2019), it has also generated worries about job displacement and a shift in the sorts of skills required of the workforce (Autor, 2015). Autor (2015) also stated that technological developments polarize the job market, enabling either high-skill, high-wage employment or low-skill, low-wage jobs while decreasing the number of middle-skill jobs. According to the Mena Report (2016), automation and machine learning could replace at least 5% of manufacturing, technology, sales, and marketing workers over the next three years.

Secondly, the remote work and digital connectivity. The development of technology has drastically changed the traditional corporate job model, and digital networking tools have made remote work a reality. Because of the broad usage of digital communication tools, collaboration software, and cloud platforms, enterprises have been able to quickly accept and utilize remote working, a trend that has been pushed in particular by the advent of the COVID-19 pandemic. Remote work has a positive impact on improving employee job satisfaction and well-being. Remote employment has been shown to improve employees job satisfaction and well-being. As it relieves knowledge workers of workplace distractions and commutes, allowing employees to manage their schedules more flexibly (Delanoeije et al., 2019) and focus on particular tasks (Kelliher & Anderson, 2009). However, because of the less independent collaborative duties, remote work might cause technical stress and job unhappiness (Suh & Lee, 2017). Furthermore, feelings of alienation, loneliness, and fear caused by physical distance will have a detrimental impact on employee productivity (Collins, 2005).

Finally, digital platforms contributed to the emergence of the gig economy (Graham et al., 2017), a model that cuts labor costs by classifying workers as "independent contractors" and therefore avoiding employment-related liabilities such as insurance and paid time off (Josserand & Kaine, 2019). More freelance employment is available in the gig economy, offering workers more autonomy and flexibility (Kaine & Josserand, 2019). However, because of its high flexibility, the gig economy has prompted worries about the lack of typical work benefits such as health insurance, retirement plans, and job security (Wood et al., 2018).

3. TRANSFORMATION OF HUMAN RESOURCE MANAGEMENT

The development and proliferation of digital technologies have had an inevitable impact on the digital transformation of the workplace. This transformation is particularly pronounced in the areas of recruitment and talent acquisition, as well as employee training and development.

Firstly, digital transformation has enabled online platforms and AI-driven algorithms to be increasingly used to search for and screen candidates, thereby streamlining the recruitment process. Firms implementing algorithmic decision-making can achieve cost and time savings, minimise risk, increase productivity, and increase decision-making certainty (McDonald et al., 2017). In addition to these economic reasons, organisations seek to reduce human bias (e.g., prejudice and personal beliefs) through the application of algorithmic decision-making, thereby increasing the objectivity, consistency, and fairness of the HR recruitment process (Langer et al., 2019). However, relying solely on algorithms to complete recruitment decisions may carry the

risk of bias and unfairness (Lindebaum et al., 2020). Algorithms can produce discriminatory or biased results if they accept inaccurate, biased, or unrepresentative input data. Thus, if algorithms have biased input data, they are prone to produce or replicate biased decisions (Köchling & Wehner, 2020).

Secondly, employee training and development. With the rapid development of technology, companies are turning their attention to upgrading the skills of their employees in order to remain competitive in the digital transformation process. The automation of routine tasks is threatening traditional workflows by gradually replacing some traditional work tasks through the use of technologies such as artificial intelligence and robotics, forcing many traditional workflows and tasks to undergo fundamental changes (Agrawal et al., 2019). In the face of this change, employee mastery of new technologies, tools, and software is particularly important to remain competitive in dealing with a fast-changing environment. This requires continuous learning to ensure that employees are able to embrace and adapt to new technologies and ways of working. Research suggests that training will be a key strategy for organisations to meet the demand for the necessary knowledge and technical skills by providing training to employees (Aguinis & Kraiger, 2009). During the training process, the HR department is responsible for connecting the direction of employee training with the organization's required skills. To improve the efficiency of training, organizations can offer remote delivery. Technologies like virtual reality and augmented reality can be used to simulate real-world workplace scenarios, which not only improves the interactivity of the training but also strengthens employees' hands-on skills (Zhao et al., 2005).

4. CHALLENGES AND EFFICIENT STRATEGIES

While digital change has facilitated workplace employment, it has also created a range of challenges and implications for human resource management. The main concerns are in the areas of inequality and ethical concerns.

Inequality and digital divide

Although technological breakthroughs have enhanced productivity, they have also increased job inequality and the digital divide. This problem is exemplified by the digital divide, which is produced by variations in individual access to digital technology (DiMaggio et al., 2003), and it has the potential to worsen already existing socioeconomic disparities. As a result, it is critical to identify strategies to involve and equally expose everyone to all stages of technological advancement. A multitude of factors, including cultural background, economic status, and educational level, might contribute to the digital divide across groups (Van Dijk & Hacker, 2003). Specific groups of individuals have been identified as being particularly disadvantaged in terms of ICT uptake, including those with poor incomes, those with low education or literacy levels, the elderly, and those living in distant or rural locations (Cullen, 2001). They are frequently already disadvantaged in terms of education, finances, and health status, and the substantial cultural disparities between developed and developing regions result in low rates of exposure to and acceptance of new technology (Cullen, 2001). The exclusion of these groups from the process of technological change due to a lack of appropriate technological training and opportunities for its use not only places limitations on their competitiveness in the labour market, but also restricts their scope for economic and social

advancement, thereby increasing socio-economic disparities between groups.

In order to narrow the digital divide and increase equity. HRM professionals could provide more equal training opportunities to help employees learn and master digital technologies. In addition, organisations can increase the effectiveness of training by offering employees inclusive support resources and targeted assistance to disadvantaged groups of employees to meet the needs of employees from different culturally proficient backgrounds. Moreover, social and governmental institutions can increase the inclusiveness of digital technologies to ensure that everyone has access to education. Specific measures can be taken to reduce the digital divide by providing quality education on digital technologies and encouraging enterprises to actively participate in social awareness programs on digital technologies.

Ethical concerns

While using AI and automation to improve the efficiency of decision-making, people have overlooked their potential ethical issues. This includes issues of algorithmic bias and data privacy (Hagendorff, 2020).

First, algorithmic bias. It is believed that human decision-making is usually considered subjective and biased, whereas the use of algorithms increases the objectivity of decision-making (Pessach & Shmueli, 2023). However, the introduction of algorithms does not help one address this problem because the predictive model may actually be inherently biased as it learns and retains historical biases (Kleinberg et al., 2017). As a prominent example of the current debate around bias and fairness in algorithmic decision-making, the hiring algorithm applied by Amazon resulted in an extreme disadvantage for female applicants, which ultimately led to Amazon shutting down the full algorithmic decision-making for hiring decisions (Dastin, 2022). In addition to this, the perceived fairness of the algorithmic decisions made by job applicants during the recruitment and training process will affect their performance in accepting the job offer as well as later on in the workplace. It has been shown that employees who feel that they have been treated fairly are more likely to exhibit dutiful behavior and altruism (Cohen-Charash & Spector, 2001). Conversely, candidates who feel unfairly treated may damage the employer's image, for example, by posting unfavourable comments about the employer's company on social media platforms.

To reduce unfairness in the algorithmic decision-making process and enhance the candidate experience during the application and training process. HR departments can reduce the risk of input data bias by increasing data diversity. Besides, regular evaluation and testing of algorithms should be increased, as discriminatory results from algorithmic decision-making are only detected after the decision has been made. Therefore, regular monitoring is beneficial for detecting potential biases and enabling timely corrections. In addition, multi-perspective evaluations can help detect possible biases. The fairness of algorithms can be assessed from multiple perspectives, and timely adjustments can be made by selecting people from different backgrounds to participate in the development and testing phases of the algorithms.

Secondly, the data privacy. The promise offered by data analytics to monitor employee behaviour and performance in

the workplace is increasingly appealing to companies, sometimes even extending to non-work-related behaviours. COVID-19 has even accelerated the process of data monitoring of employee behaviours, such as monitoring the social distance of factory and warehouse workers (Vincent, 2020). However, some of the big data analyses in human resource management seriously affect employee privacy and can lead to privacy breaches and infringements (Nguyen, 2019). The right to privacy underpins and is closely related to other fundamental rights at work and beyond, such as freedom of association and expression. Excessive monitoring and involving employees' privacy will have a negative impact on employees' job satisfaction. This is because, according to Maslow's theory of needs, the third level of an employee's needs is threatened, which is the sense of belonging, and due to excessive monitoring of the employee's privacy by the organisation the employee's privacy is compromised, which in turn affects the employee's commitment to the organisation (Mcleod, 2023).

To ensure that employees' privacy is respected, HR departments need to follow the laws and regulations that apply to employee data privacy, such as the European General Data Protection Regulation (GDPR). In addition, the HR department can provide clear notification to employees before data collection and give employees the right to refuse data collection. In addition, organisations should inform employees of the purpose and use of data collection in a timely manner and seek their consent before collecting data. Finally, for data retention, HR departments should put in place secure storage measures such as data encryption and access control to avoid the risk of unauthorised access, leakage, and misuse.

5. CONCLUSIONS

Rapid technological change has had a huge impact on transforming employment, work, and human resource management. Technological innovations have led to the rise of automation and new types of work. HR practices are undergoing a transformation towards remote working, algorithmic decision-making, and so on. However, the integration of technology into organisational production inevitably creates challenges in terms of inequality and ethical concerns. To address these challenges, the article offers a series of practical recommendations for possible interventions by HR departments.

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