Review of the data and implications for the human resource function about the effect of developing technology on the workplace

Dr. Charu Rawat

Assistant Professor, Amity Business School, Amity University, Lucknow

Abstract

It is challenging to separate the hoopla around technological innovation from its actual prospective effects on work, despite popular media's predictions to the contrary. This study looks at the data about how new technologies are affecting the workplace and how the human resource (HR) function may assist businesses and people in navigating these changes. According to available data, corporations are using cutting-edge technology like artificial intelligence and robotics to automate routine, uncomplicated operations and use predictive algorithms to make complex decisions more quickly and accurately. Additionally, new technologies are being employed more frequently to encourage the adoption of more flexible working practices like gig and virtual work. However, this will pose a number of difficulties for HR professionals, who must assist workers in modernising their skills to compete in the workplace of the future and find solutions to any potential detrimental effects of increased connectivity and precarious employment on worker wellbeing.

Keywords: Human resource management, emerging technologies, technological advancement, future of work, artificial intelligence.

Introduction

The impact of technological advancement on the workplace, often known as the changing nature of work, has received a great deal of attention in recent years, particularly from the popular press and consultancies. Headlines in the media declaring that "Robots will take our jobs. It has become customary to say things like "We'd better plan now before it's too late" (Elliott, 2018). Some commentators also assert that technological advancements will bring about workplace changes as radical as the dissolution of the traditional employment relationship, the widespread use of travel-replacing artificial reality, and the eradication of humans in favour of robots and artificial intelligence (AI). It is true that the most recent technological developments, like AI, are having a significant impact on the job. In fact, the usage of AI and robots is expanding swiftly, being used to automate simple, repetitive operations like factory work and various back-office tasks, as well as to quickly and more reliably make difficult judgements like medical diagnoses using predictive algorithms. According to a recent study by Frey & Osborne (2017), 47% of all employment falls into the high-risk category, or jobs that are likely to be automated within the next ten to twenty years. The development of technology is frequently linked to other changes in the workplace that may be made possible by the technology itself, such as the replacement of traditional employment relationships with gig economy work, a greater emphasis on flexibility and agility at work,

and a new generation of workers with attitudes very different from those of the previous workforce. Despite all the hype, it is still unclear what the actual evidence is regarding how technological advancement will affect the nature of work and what role the human resource (HR) function will play in assisting the organisation and its employees in navigating these changes.

Therefore, the aim of this study is to analyse this problem more empirically through a methodical examination of the data. In doing so, the study seeks to answer the following research question: What published information is there regarding the effect of new technologies on the workplace, and what role does HR play in light of these changes?

Following a summary of the findings and recommendations from this study, we will discuss the methodology for this evidence review.

Methods

An analysis of public data on the effects of technology on work and people management was done in order to respond to the aforementioned query. Peer-reviewed, academic articles are often the main focus of evidence reviews. Published information on technological innovation and its impact on work and people management, however, tends to be slightly out of date because of the time it takes to research and publish such outputs as well as the speed at which technology changes. We expanded our review to include the grey literature as well as studies conducted by consultancies and other comparable organisations in order to solve this constraint.

A variety of sources were used, including reports and research studies from consultancies, think tanks, and government agencies as well as studies that had been published in academic journals and by non-academic organisations. These were found through conducting searches on the Internet and online databases (including ABI/INFORM Complete, ScienceDirect, Scopus, Web of Science, and Google), as well as by asking professionals in the field for recommendations. Given the nature of the subject matter, which is influenced by several disciplines, including psychology, sociology, human resources management, organisational behaviour, information systems, computer science, innovation, and organisation studies, it is crucial to rely on both academic and non-academic databases. Given the rapid pace of technological change, we concentrated most of our attention on works published between 2010 and 2018 to obtain the most recent predictions for the future of work.

Publications were evaluated for quality in respect to the research design and relevance to our research issue (i.e., did they focus on research relevant to the research question?). Studies were evaluated, for instance, based on whether they used rigorous and acceptable research procedures, a large enough and appropriate sample, adequate analysis, and findings that were supported by the available data. The research team selected 115 documents after reviewing the titles and abstracts of all the relevant material. Then, after carefully reading each document, each article was evaluated for its contribution to the three topics under investigation to determine its relevance to the literature study. This review's final selection included 51 documents.

Findings

The findings revealed a number of new technologies that are probably going to affect how work is done in the future and, consequently, have an impact on the HR function. First, digital platforms were demonstrated to be widely used in the workplace and to be essential to both platforms for the labour market, such as Uber or Freelancer.com, and online marketplaces like Amazon or e-Bay. Second, AI and

machine learning were widely used for data analysis, pattern recognition, and prediction in the published evidence (Government Office for Science, 2015). Third, it was believed that employment will be impacted by robotics as industrial robots increasingly took over mundane jobs that were previously completed by manufacturing people (Frey & Osborne, 2017). Fourth, it has been shown that augmented and virtual reality (AR and VR) are becoming more and more important in sectors including healthcare, building, oil and gas, and aerospace (Higgins, 2017). Fifth, the use of wearable technology in the workplace is rising (Kim et al., 2012; Moore & Robinson, 2016; Moore & Piwek, 2016; Wilson, 2013). These gadgets help workers become more aware of their own wellness, track their progress, and develop plans to keep them engaged. The use of blockchain for transactions and information exchange that demand a high level of security was also suggested (Wright, 2018; Yli-Huumo et al., 2016).

The HR function as well as people management in general will face a variety of issues as a result of these new technologies (Bondarouk & Brewster, 2016; Marler & Parry, 2016; Stone et al., 2015). Organisations will need to develop a strategy for how they may use these technologies to their greatest advantage, such as to increase productivity and decision-making accuracy, while also addressing any potential negative effects on staff. Following is a quick overview of the HR function's involvement in supporting or reducing the possible consequences of developing technology on the workforce.

Requirements of changing skills and automation

Evidence implies that firms have strong financial incentives to automate their currently manual operations (Markoff, 2011), and that technological advancements may fundamentally alter the types of jobs that are available (PWC, 2017). In reality, the capacity of coders to create a set of methods that will enhance the problem definition and take into account every conceivable circumstance determines whether a task can be automated (Frey & Osborne, 2017). Despite this drawback, automation is being employed more and more in fields that need for the storing or access of data (Frey & Osborne, 2017), including fraud detection, medical diagnostics (Cohn, 2013; Wolcott, 2018), and law (Markoff, 2011). Furthermore, there is a growing trend towards the automation of manual operations, including those involving driving (Autor et al., 2003; Veres et al., 2011), cargo handling (Bloss, 2011), and mining (Frey & Osborne, 2017).

The evidence is not clear on the involvement of HR professionals in the automation process, although it would appear that they could be crucial in identifying processes (and subsequently roles) that could be automated. However, the involvement of the HR function in managing the effects of employment losses brought on by automation may be more crucial (Frey & Osborne (2017); PWC, 2017). HR professionals should be in charge of not only helping employees get through a period of uncertainty while such decisions are being made, but also thinking about how employees can be re-skilled or up-skilled to replace outdated skills so they can be kept in the workforce.

Evidence points to a change in the knowledge, skills, and abilities that organisations will need. For instance, although non-routine cognitive and manual abilities are becoming more important, routine skills are becoming less important (Autor et al., 2003). To complement machines (MacCrory et al., 2014) and complete the remaining tasks that are not automated (Makridakis, 2017), organisations will need a workforce with increased skill diversity, autonomy, and interdependence, as well as increased cognitive, creative, technical, and social skills (Liu & Grusky, 2013; Wegman et al., 2018). In addition to designing leader development programmes that take into account the new challenges associated with managing employees in a modern work context and in coordinating humans and machines, the HR function plays a critical role in ensuring the recruitment and development of these competencies (Frey & Osborne, 2017).

Increase in place and time flexibility

According to a lot of data, businesses are increasingly providing flexible working arrangements to accommodate employees' demands and lower the costs of maintaining a physical office (Berkery et al., 2017, de Menezes & Kelliher, 2011, Stavrou et al., 2015). It is obvious that advances in internet and, more recently, mobile technologies have enhanced people's capacity for working remotely and, consequently, outside of regular office hours. However, it's also critical to recognise that flexible pension plans and a rise in the proportion of women in the workforce have also had an impact on the growth of flexible working (Atkinson, 2017). Undoubtedly, the HR function's mandate includes managing flexible working regulations and developing career and performance management systems that ensure employees are not penalised for working flexibly. According to research, flexible work schedules might actually result in increased workloads even though they give employees more discretion over where and when they work (Kelliher & Anderson, 2010). Although evidence would imply that in most firms the uptake of home working is gradual (Bevan, 2017), the rise in remote working has led to a perceived loss in the physical workplace (Waber et al., 2014). The value of face-to-face connection, which has been demonstrated to be required to maintain trusting relationships amongst employees (Forbes, 2013), maintain low stress levels (Chron, 2017), and enhance employee performance (Waber et al., 2014), may be one explanation for this. Building relationships at work will indeed grow more difficult as employees become more separated. Research concentrating on the value of social connections at work is growing as virtual systems are implemented more commonly within organisations (Heaphy & Dutton, 2008; Marlow et al., 2017; McGrath et al., 2017). According to Heaphy and Dutton (2008), for instance, social contacts at work— regardless of how brief or long-lasting they may be—have physiological correlations and impacts on the immunological, cardiovascular, and neuroendocrine systems. They contend that organisations shape employees by providing (or failing to provide) opportunities for these positive social interactions to occur and that physiological resourcefulness built into positive social interactions shapes micro-organizational behaviour, such as engagement and work recovery. In a similar spirit, McGrath et al.'s (2017) finding that higher levels of social connection predict higher engagement at work suggests that these interactions serve as a resource to motivate workers to fully engage in their work. Furthermore, their data imply that these beneficial impacts continue outside of the workday. On the other hand, employees report increased involvement in activities that promote recuperation on days when they are focused on their work after work. Therefore, businesses must take steps to encourage employee interaction. Many firms (such as Facebook) have taken the lead in creating common spaces where employees can gather to work and interact in response to this requirement.

Arrangements for employment

According to the evidence, employment relations are increasingly dependent on self-employment contracts, subcontracts, and different types of "gig-work" as a result of the trend towards workers performing tasks using AI platforms via the gig economy and open talent market (Deloitte, 2013). According to research, around 2.8 million UK workers participate in the gig economy to varying degrees, which is helping to lessen the requirement for permanent labour and give businesses more financial flexibility (Berg, 2016). This in turn is causing individuals to be unable to affect their working environment ((Fleming 2017, Moisander et al. 2018) and a lack of institutional connectivity (CIPD 2017 and Fitzgerald et al., 2012). The gig economy has also been related to rising levels of personal debt, low productivity, limited autonomy, and greater economic instability (Fleming, 2017).

In order to ensure that employees are not put at risk due to a lack of support and job security, HR professionals need to consider how the business might profit from the flexibility that this method may offer. Instead than concentrating only on short-term cost savings and flexibility, it is crucial that businesses use these contracting arrangements in a responsible and long-term manner.

Well-being of employees

According to the debate above, employers should think about a potential drawback of the rising use of technology in the workplace. In fact, research has suggested that the shift to a workforce that is more connected and reachable, as well as the rise of global working, means that work is getting closer to being available around-the-clock (Deloitte, 2016) and that there is a greater risk of employees overworking themselves (and thereby endangering their wellbeing) (Chron, 2016; Schlacter et al., 2018). Media attention reveals that workers are worried about this possibility. For instance, Google staffers described connectivity as a "electronic leash" that hurts their wellbeing (Independent, 2017), while other studies have connected increasing connectivity to stress and burnout (The Guardian, 2016).

The HR department plays a crucial role in addressing these issues because it is largely responsible for the rules that relate to employee wellbeing. In fact, several businesses, like Daimler, have implemented strategies to entice workers to unplug after hours (HR Magazine, 2017). The implementation of such concepts is challenging, particularly in balancing the requirement for flexibility in one's work schedule and location with the dangers of overwork.

Impact of emerging technologies on HR practices

The aforementioned instances point to a responsibility for the HR department in managing the changes brought on by technological advancements in the workplace, work, and workforce. It's crucial to keep in mind, though, that new technologies have been demonstrated to have an impact on how firms carry out their HR functions as well. The primary HR tasks of finding, selecting, training, inspiring, and retaining talented individuals in businesses (Stone et al., 2015) are still crucial, but future workplaces may need for other strategies (Holland & Bardoel, 2016). In order to improve methods of attracting and retaining talent, for instance, as described by Davenport et al. (2010), we see businesses adopting sophisticated data collection technology and analytics. This confirms the notion that technology is changing how HR processes are managed, especially in relation to collecting and using data. Line managers and HR professionals can improve interactions and communication with their workforce by utilising interactive technologies. Generally speaking, technology can give HR new opportunities. As we've already seen, technology frequently improves service delivery efficiency, reduces administrative work, and enables human resources to contribute to the strategic direction of businesses (Bondarouk & Brewster, 2016; Stone et al., 2015). According to Marler & Parry (2016), the technology-enabled transition from being primarily administratively oriented to being more strategically oriented, as well as the growing accessibility of data, may re-structure decision-making processes, opening up new opportunities for HR professionals to be involved in "complex, judgment-oriented, and professionally demanding tasks and responsibilities" (p. 2234). By enabling, for instance, real-time monitoring of employee and workplace data via sensors and decision-making via complicated algorithms, emerging technologies may enable the further development of this trend (Bondarouk & Brewster, 2016). At its most extreme, the surge in self-employment, the gig economy, and automation could lead to a considerably reduced permanent workforce, which would radically alter the function of human resources.

Conclusion and implications

According to the results of the evidence assessment and the discussion above, new technologies like wearables, blockchain, VR, AR, robotics, AI, and robotics have the potential to have a big impact on the workplace and employees. The development of the technologies themselves as well as the readiness of companies to accept them will have a significant impact on the magnitude and pace of this impact. Additionally, this analysis shows that the HR function is crucial to helping workers adapt to changes in the workplace, particularly in regard to skill development, work organisation, and mental health. However, as both the potential advantages and threats of developing technologies for employees expand, the role of the HR function may become even more crucial. The primary functions involved in HRM, which support managers and employees in carrying out their everyday work, are unlikely to change. It all comes down to how well the HR function develops their own abilities and how well they comprehend technologies and their ramifications. According to Jesuthasan (2017), a significant component of the HR position in the future workplace will be to maintain digital engagement. Beyond that, we would suggest that, in light of this technological improvement, the duty of the HR function also includes providing employees with training and support in order to assure their development and well-being as well as the long-term viability of the company.

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