

The impact of technological advancement on the employment relationship and employee well-being at work

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Abstract

The aim of this conceptual paper is to explore the impact of technological advancement on the employment relationship in the advent of increased adoption of advanced technology in the workplace. The paper seeks to answer the questions: (1) In what ways can technology make a positive impact on the employment relationship? (2) In what ways does technological advancement impact on the employment relationship and employee wellbeing in the workplace? To answer these questions, the paper will provide a review of the current literature, highlighting emerging issues around the use of technology at work and how it impacts on work and employee-relations. The paper draws on the labor process theory (LPT) as a theoretical lens to develop an understanding of how technology in the workplace degrades the employment relationship, in many respects commoditizing employees and treating them as a malleable resource.

Keywords: Employment Relationship, Advanced Technology, Labor Process

Introduction

The aim of this conceptual paper is to explore the impact of technological advancement on the employment relationship in the advent of increased adoption of advanced technology in the workplace. The introduction of advanced technology within the management of organizations has moved at a very fast pace from big data to machine learning then to artificial intelligence (Tambe, Cappelli and Yakubovich, 2019). Business and managerial need for efficiency and cost-effectiveness is the primary mover of advanced technology like artificial intelligence (AI), (for example robots) to help reduce on labor costs. In search for reduced costs and ever-increasing control over labor, there has been a requirement for innovation and new technologies (Hughes & Southern, 2019).

Extant literature shows that there are potential advantages of utilizing AI in organizations in terms of improving productivity and streamlining organizational processes and tasks but there are also significant psychological barriers in adopting modern technologies (Arslan et al., 2021). There is an emerging body of literature on AI and lost jobs (Coupe, 2019; Ivanov and Webster, 2019; Arslan et al, 2021), new skills development (Malik et al, 2020; Arslan et al., 2021) talent acquisition (Ascentis, 2020; Jain and Ranjan, 2020; Kot et al., 2021) negative effects of emerging technologies such as AI based analytics within HRM functions (Gibbs et al, 2015, van Heuvel and Bondarouk, 2017), Implicit Bias and Disparate Treatment (McWilliams and Budoff, 2019), AI and talent Management (Chamorro-Premuzic, et al., 2019; Vrontis et al., 2021). However, there is very limited attention given to challenges emerging from interaction between AI powered robots and human workers.

Within the employment relationship, there is a range of complex social psychological concerns that exist among employees such as personal worth and status, perceived fairness, contractual and relational expectations (Tambe et al., 2019). Indeed, there are concerns about the negative effects on unemployment and inequality (Spencer, 2018), depersonalization of workplaces and desensitizing the social organizational climate (Palumbo, 2021); accelerating the pace of work leading to increasing employee stress, overload, exhaustion and burnout (Chesley, 2014; Maier et al., 2015; Murray and Rostis, 2007); and mental health issues (Machav et al., 2017). A recent study by Arslan et al (2021) conceptually analyses challenges faced by HRM leaders and departments in contemporary organizations due to close interaction between artificial intelligence primarily in robots and human workers especially at team level- the focus is collaboration between humans and robots as teammates. However, they do not specifically address dynamics in the employment relationship stemming from this interaction.

While technology can lead to efficiency and precision of jobs it can also result in negative consequences such as litigation for unethical practices within organizations (Kochan, 2019; Tambe et al., 2019; Kot et al., 2021). It can also lead to disruptions in productivity when employees are unable to understand or accept the decision-making process (Arslan et al., 2021). Although there is an emerging interest in advanced technology and the future of work, there is a gap in the literature as regards the impact of this advancement in technology on the employer-employee relationship as well as wellbeing of employees at work.

There are indeed questions as to how emerging technologies at work influence the employment relationship (Bissola & Imperatori, 2014) and engaging with the affectivity of organizational life

(Lamprou, 2017). Although employees are reported to be enjoying more flexibility, there are reports of skepticism towards their employment relationships and employers (McLean Parks and Kidder, 1994; Svensson, 2012). In other words, the proliferation of new technologies at work is weakening the employer-employee relationship. Earlier studies have already expressed wariness about technology at work as an agent of weakening of the relationship between employees and the HR department with a potential deterioration of trust in HR professionals (Graham and Tarbell, 2006) with other negative consequences on the employment relationship including; lower employee commitment, job satisfaction and contextual performance (Gould-Williams, 2003). Wet et al (2016) investigate the influence of technology on employees' work and personal lives, however, they do not specifically address the employer-employee relationship.

The paper seeks to answer the questions: (1) In what ways can technology make a positive impact on the employment relationship? (2) In what ways does technological advancement impact on the employment relationship and employee wellbeing in the workplace? To answer these questions, the paper will provide a review of the current literature, highlighting emerging issues around the use of technology at work and how it impacts on work and employee-relations. We draw on the labor process theory and use it as a theoretical lens to develop an understanding of issues on the use of technology in the workplace.

Historical account of the worker-technology interaction of the forces of industrialization

Technological evolution in HRM can be traced back to the industrial revolution (Vrontis et al., 2021). Therefore, understanding the impact of technology on work and employee relations, should start with a brief historical account of the worker-technology interaction of the forces of industrialization. The introduction of technology in the workplace dates back to the 18th century

when the industrial revolution started. The first industrial revolution began in Great Britain in the mid-18th century steam powered technologies what develops to is the execution of work. One of the major inventions was the steam engine which allowed the transition from farming and feudal society to the new manufacturing process (Xu et al., 2018). Towards the end of the 18th century new manufacturing technologies from Britain were introduced to the United States marking the beginning of the second industrial revolution.

The second industrial revolution developments include the internal combustion engine and electric motor, facilitating the electrification of factories and homes and the post war expansion of automotive vehicle infrastructure (Taalbi, 2019). In addition, the invention of the internal combustion engine, also resulted in speedy industrialization utilizing oil and electricity to power mass production (Xu et al., 2018). From the late 1970s the American economy has benefited from adopting new technology which has resulted in profound changes in the employment relationship.

The third industrial revolution, centered on the diffusion of two of the most recognized general-purpose technologies such as microelectronics and the Internet. There were groundbreaking inventions still used today, including the sewing machine X-ray light bulb calculator and anesthesia. The third industrial revolution was characterized by implementation of electronics and information technology to automate production, thereby reducing the number of employees. The fourth industrial revolution now involves computer generated product design and three-dimensional printing, which can create solid object by building up successive layers of materials. Undoubtedly, the fourth industrial revolution, like the previous ones, is highly likely to have considerable impact on the whole of society, including the labor market and employees (Min et

al, (2019). Among the most pressing changes wrought by the fourth industrial revolution is employment structure in companies owing to fully automated work and not manually as in the past for example; packing, internal transport, settlement of payments, to mention but a few (Ejsmont, 2021).

Evidently, industrial revolution has made successful strides in developing more effective ways of working as well as an increase in employment opportunities. Work in factories paid better wages than farm work. Owing to the growth and widespread of factories, there was an increase in demand for labor, managers and employees were required to operate the new technologies, increasing the supply of jobs and overall wages. The industrial revolution made life comfortable for many though living conditions for workers remained repulsive, which eventually fueled the rise of labor unions. Within the United States, towards the end of the 19th century there was a considerable number of strikes among factory workers signifying dissatisfaction with working conditions. Clearly, the Industrial Revolution provided an incentive to increase profits, and as a result, working conditions in factories deteriorated as was evidenced in long hours, inadequate remuneration, and minimal breaks and child labor.

Deteriorating working conditions for many of the factory workers resulted in the labor movement throughout the USA. Particularly in 1877, what is referred to as the Great Uprising emerged, the numerous strikes indicated the many grievances among workers in many industries and locations. This was a period of struggle fueled by the worker-technology interaction of the forces of industrialization and the conflict between labor and capital. According to Budd (2021), the great uprising is more notable for what it represents, that is, repressed workers' grievances in a considerable number of industries and locations in the USA

struggling with the forces of industrialization and conflict between labor and capital. Therefore, the Great Uprising was a demonstration of the shared concerns of workers in a fragmented employer-employee relationship (Budd, 2021). This is frequently used to define the beginning of the labor relations movement in the US- one in which labor and capital are always at odds (Budd, 2021).

As rightly observed by Taalbi (2019) the development of technologies such as steam power, electricity, the combustion engine, biotechnology, and microelectronics has been fueled by modern capitalism which is fundamentally shaped by the diffusion of pervasive and radical technologies (Taalbi, 2019). Workers were just cogs in a wheel, factory owners made more money and cared less for the welfare of the employees who helped become rich. Budd (2021) describes the critical human resources and industrial relations issue in the early 1900s as the labor problem which manifested in undesirable outcomes of inequitable and contentious, or oppressive and exploitative, employment relationship.

According to Braverman (1998; xvii) a former factory worker, *'production technology introduced into the work process under capitalism is therefore designed to maximize managerial control'*. In the USA, the focus of businesses is promoting economic prosperity through free market competition (Budd, 2021). Indeed, within the capitalist economic system, managers are driven to maximize efficiency and profits, and hence *'reduce complexity and autonomy in order to achieve lower costs and greater control'* (Adler, 2007; Braverman, 1974). Employers make deliberate choices of technology which convert labor power into profitable work as well as aligned with their strategic goals and business needs.

HRM and Advancement in Technology

It is undisputable that work in contemporary organizations is driven by gradually prevailing digitalization and communication technology comprising non-stop connectivity, immediacy and an overabundance of challenges in the work-life (Derks et al., 2015; Arslan et al., 2021). This has led to work-life being fundamentally transformed and reconfigured among growing pervasiveness amidst the growing prevalence of new imaging digital economy and emergent technologies such as big data machine learning and artificial intelligence (Arslan et al., 2021). Technologies have indeed enabled HRM practices by introducing technology enabled systems like e-recruitment, e-training, or e-competence management (Stone et al, 2015). Undoubtedly new technologies in HRM have changed the HRM lexicon to include but not limited to electronic HRM (eHRM), HRM data mining, HRM cloud computing, amplification of HRM (for mobile technologies), HRM big data, SMAC (social media) (Martin and Cerdin, 2014; Bondarouk and Brewster, 2016).

Current developments in technological advancement, are progressively offering alternatives to human resources in functions customarily needing human interaction and communication (Malik et al., 2019; Luo et al., 2019), leading to changes in both the organizational structures and the nature of work (Colbert et al., 2016). Indeed, research has focus has highlighted how information technologies are transforming HRM-related practices by creating electronic means of performing human resource tasks such as e-recruitment, e-training or e-competence management, contributing positively to HRM service quality in both local and international organizations (Bondarouk & Brewster, 2016; Bondarouk et al., 2017). These developments are gradually attracting industry attention, for example, robots and artificial intelligence bots, (Go &

Sundar,2019; Larivi_ere et al., 2017; Thomaz et al.,2020) as they have succeeded in transforming traditional human resource functions, providing growing strengths and potentialities for HRM but also formidable challenges including job-specific obsolescence (Malik et al., 2019); Larivi_ere et al., 2017). There are fears of jobs being taken over by artificial intelligence and bots. Stone et al (2015) warn that the more HR becomes technology-focused, rather than employee-focused, the field of HR as a whole may be viewed as more of a management "tool" and less as a valued strategic partner. We are not saying that technology doesn't matter, but we are saying that technology is merely a decision support tool that should enhance, not replace, the role of managers and HR professionals in organizations (Stone et al, 2015).

Within HRM, there are several driving factors fueling adoption of emerging technologies, there are now discussed. First, organizations using AI in recruitment have noted that it is an irreplaceable source of competitive advantage. This is evident in a survey conducted by Deloitte (2020) among 200 German firms, of which 79% stated that AI was an inimitable source of competitive advantage. AI in recruitment is advantageous for discovering hidden talent (Carey & Smith 2016; Savage and Bales, 2017). Walker (2012) algorithmic platforms and systems are already offered by commercial providers, such as Google, IBM, SAP, and Microsoft in order to enable current human resource practices, such as hiring and performance measurements. A considerable number of renown companies such as Vodafone, Intel, Unilever, and Ikea, utilize algorithmic decision-making in HR recruitment and HR development (see; Daughert & Wilson, 2018; Precire, 2020).

Secondly, adoption of emerging technologies helps organizations become cost-effective and efficient as they help save both time and costs, minimizing risks, enhancing productivity, and increasing certainty in decision-making (Suen et al. 2019; McDonald et al., 2017; McColl and Michelotti 2019; Woods et al., 2020). For example, Woods et al (2020) notes that some organizations are utilizing Artificial Intelligence (AI) in their online applicant system as it provides the advantage of timely automated feedback to the applicants and save time and cost for the organization.

In line with achieving cost-effectiveness, organizations adopt advanced technology in order to replace labor in routine tasks (Autor et al., 2003) as they are simpler to codify and automate. Within the Human Resource function, it has been easier to employ the computerized human resource information system HRIS to keep records and create self-service options for employees. Record entering and maintaining was a routine HRM task which has now been automated in companies where HRIS is used. Clearly remarkable opportunities have been created by technology to eliminate administrative overhead and transform the HR department into a strategic partner (Greengard, 2000). According to Boxall and Purcell (2016) HRM is located in an economic context which places demands of Cost-effectiveness implying the need for a firm requiring people who have the skills, knowledge and characteristics for the job as well as the motivation to perform at the cost that the firm can afford to pay. Therefore, the most sustainable approach to HRM is one that delivers on the grounds of both effectiveness and cost (Boxall and Purcell, 2016).

Thirdly, organizations believe that use of emerging technologies in HR practices, that is, recruitment, introduces objectivity, consistency, and fairness in decision making (Langer et al., 2019; Raghavan et al., 2020). Therefore, AI is used in decision making in order to mitigate the human biases such as prejudices and personal beliefs (Woods, 2020). As algorithms are programmed, the decision-making process is objective and consistently applying standardized requirements and criteria (Deloitte, 2018) as opposed to using human recruiters. Undoubtedly, the introduction of electronic human resource information systems and other novel technologies offer several opportunities to improve upon and reduce the cost of HRM functions including, among others, the evaluation of job applicants (Bondarouk et al., 2017; Cooke et al., 2019) and employee performance appraisals (Abraham et al., 2019).

Fourthly, there are studies on the positive impact of technology and improved productivity by reducing mild forms of misconduct such as evading and absenteeism (Baker and Hubbard 2003; Duflo et al. 2012). Other researchers such as Pierce et al., (2015) have found a connection between technology and the direct reduction in workers unlawful behavior such as theft and increased productivity. However, Pierce et al., (2015) observe that certain industry sectors, for example, restaurants have the greatest advantage in employing advanced technology especially with human resource policies that more strongly linked to pay and employment to employee performance.

Lastly, other changes introduced by adoption of advanced technology in HRM include stretching boundaries of HRM practices, shortening distances in and between organizations (Bondarouk and Brewster, 2016), extending office boundaries to employees' homes. Organizations can now

offer their employees new ways of working due platforms which enable remote working, eliminating physical and time barriers on such organizational forms as HRM shared services, telework, and virtual teams with the use of advanced technology and platforms which facilitate virtual work (Bondarouk and Brewster, 2016; Pianase et al., 2022). Remote work has been a very common flexible practice especially since the onset of the COVID-19 pandemic.

Although there is no agreement on the specific effects technology will have on the future of work, this topic is gaining enormous attention from the media as well as from technology, work, management, and labor experts today (Kochan, 2019). However, despite the benefits discussed above, Tambe et al., (2019) have observe that AI in the context of human resources presents different challenges, such as bias in the hiring decisions. An example can be given of Amazon who used algorithms for hiring, information was based on historical data collected when white men had been the best performance. This led to highly qualified women to be left out as possible candidates because of the data used to formulate the criteria used in hiring decisions via algorithms.

Secondly, Machine learning and other datasets techniques require large numbers of observations. However, many of the important outcomes in HR such as dismissals are relatively uncommon especially in small organizations, therefore use of machine learning and other data set techniques may not yield results that are suitable for this situation (Tambe et al., 2019). Thirdly, while a human decision maker can monitor adversarial behavior and adjust his or her decisions accordingly, this is lacking in the use of technology in making decisions and will likely lead to undesirable outcomes such as litigation and disruption in labor productivity. In other words, use

of technology in Human Resource practices does take away the humane side of the organization from managing people.

Fourthly, information technology (IT) surveillance of employees surveillance has been shown to cause psychological and physical stress (Pincus, 1998). The main argument used by organizations in favor of IT employee is that it improves productivity. However, there are some negative effects associated with IT employee surveillance. In extreme cases, invasive surveillance and monitoring has been proved to trigger other physical disorders, such as carpal tunnel syndrome (McParland & Connolly, 2019). McParland and Connolly (2019) note that efficiency and improvement in productivity are the main drivers of However, IT employee surveillance exposes people to high levels of continuous stress, resulting in getting sick more often and with very slow recovery rates, generating work absence and less productivity for the company (Dau-Schmidt, 2017).

Advanced technology and the employment relationship

It is clear that from the 19th century organizations have sought technology as a means of attaining competitive advantage. However as organizations continue to adopt new technologies, questions arise regarding the influence of emerging technologies on the employment relationship (Bissola & Imperatori, 2014). Understanding of what constitutes the employment relationship is important. The International Labor Organization defines the employment relationship as the legal connection between employees and employers where an individual agrees to perform work or services under certain conditions in exchange for **compensation**. Employees' knowledge and skills are acquired through the employment relationship by employers. Stakeholders in the

employment relationship encompass several different actors and dimensions, involving employees and their representatives on the employee side and the management and their representatives on the employer side (Dau-Schmidt, 2015, 2017). Therefore, through the employment contract, employees become both an organization's strategic asset and its manipulable resource which has potential to create value for the organization (Sparrow and Makram, 2015). This understanding of the employment relationship is rooted in the HRM theory which reflects a unitarist perspective which has assumptions common goals between management and employees, who are in a mutual relationship where management takes care of employees' interests while employees satisfy the company's needs. However, there is plurality of plurality of interests as employees have their own goals. Plurality of interests leads to antagonism among the parties in the employment relationship.

As noted by Bailey (2020), implementation and usage of new technologies usually leads to restructuring work, the workforce, and the workplace. The labor market)and the management of human resources will also undergo significant changes (Bercovici & Bercovici, 2019; Whysall et al., 2019; Piwowar-Sulej, 2020). As factories for example become smart, employees' skills and professional competences will undergo tremendous change especially in the area of digital skills and the process of continuous professional development (Da-Silva et al., 2020).Undoubtedly, the rise of advanced technology and its adoption in the workplace have changed the nature of the employment relationship and obfuscating the relationships of production (*Dau-Schmidt, 2015*) and requiring a new set of competencies among the workforce.

The concept of an employee and the employment contract is undergoing considerable transformation. Ways in which the employment relationship has changed are now discussed. First, the rise of digital platforms which enable technologically enabled organizations like Uber in ride-hailing and Door Dash in service-hiring domains which have reclassified workers as independent contractors in a growing gig economy (Bailey, 2022). Although ride-share drivers work for companies such as Uber and Lyft, they are not classified as employees, yet for the sake of control and appropriate job assignment, they utilize HRM practices, such as selection, development, appraisal, compensation, job design and workforce planning (Meijerink & Keegan, 2019). Paradoxically, although they do not consider the workers as employees, they still manage them on platforms through algorithms which possess challenges on HRM research built upon clearly regulated employee relations (Duggan et al., 2020).

Second, within the employment relationship, employees seek to get recognition and good performance ratings from their managers. However, in the current industrialized age, technological development has advanced to an extent where management and leadership is done through algorithms, thereby removing the social aspect from the employment relationship. In traditional brick and mortar organizations, workers can build a reciprocal relationship with a manager close to them as the HRM practices such as selection and performance appraisals are often carried out by frontline managers who interact with workers on a daily basis (Bos-Nehles & Meijerink, 2018; Kehoe & Han, 2020; Trullen et al., 2020).

In an empirical study conducted by Ejsmont (2021), respondents indicated that AI would have the greatest impact on the labor market and the employment structure in organizations. As

predicted by OECD, it is estimated that 9% of jobs in OECD countries could be automated and 25% could change significantly as a result of the automation of 50–70% of the associated tasks depending on factors such as investment and the environment (European Commission, 2020). Digital transformation will lead to creation of new job positions such as AI engineer, AI conservator, industrial data handler (Ejsmont, 2021). Already, there are new job titles owing to big data such as Data analyst, HR data analyst as well as new programs and courses being developed in higher education institutions as well as professional bodies in order to prepare for this new era of digital transformations. Ejsmont (2021) allude to the fact that the most desirable employees in the fourth Industrial revolution will be graduates of the fields of study such as: automation and robotics, informatics (software, IT, database), electronics.

The labor Process Theory

In order to effectively build a case for understanding how use of advanced technology impacts the employment relationship, we profitably turn to the labor process theory (LPT). LPT is located within a neoliberal labor-capital model, therefore offers an important framework for the study of the impact of advancement in technology and its impact on the organization of work and the employment relationship. There are two stakeholders in the employment relationship- the employer and the employee with different interests. From a human resource perspective, managers need to secure the economic viability of the firm in the markets in which it competes by ensuring that the firm has access to labor in a cost-effective manner. On the other hand workers have their own goals, there's no mutuality of interests. Therefore, rather than just accepting the adoption of advanced technology there is need for critical analysis.

The origins of labor process theory (LPT) is rooted in Karl Marx's work, specifically the volume; *Capital: A Critical Analysis of Capitalist Production* (1867/1967). Marx defined the term *labor process* as the means by which raw materials are transformed by human labor into valuable products with the help of tools and/or machinery. Particularly, Marx focused on the *capitalist labor process*, which he defined as the means by which raw materials are converted into profit-generating commodities, for exchange in the marketplace by human labor. Marx contended that the extraction of surplus value under capitalism and like slavery or serfdom is veiled from workers. Workers are usually unaware of the fact that they are being exploited while they contribute a great deal more value than they receive in wages. In Marx's view it is through exploitation of labor that capitalists grow increasingly wealthy, and workers become more enslaved to the production process.

Within the contemporary literature Harry Braverman developed the concept of the labor process through the publication of his book '*Labor & Monopoly Capital*' in 1974. He built on Marx's anti-labor beliefs analyzing the impact of capitalism on work and work organizations in twentieth century (Braverman (1973). Braverman asserted that organizational development under capitalism serves to "de-skill" workers and obfuscates the tyranny being imposed on labor resulting in the degradation of work. As a former factory worker, Braverman extended the theory by critiquing the capitalist labor process of the 20th Century. He explained the widespread trend toward job fragmentation in work organizations.

Four principal ideas of the LPT in the literature can be summarized as: (1) the idea of managerial control, (2) the concept of the social relations of production, and (3) the notion of

deskilling through the restructuring of work (Littler, 1990; Thompson, 1989) and (4) the unpacking of the social relations between capital and labor as ‘structurally antagonistic’ which brings into reckoning issues of control, autonomy, consent and resistance at work (see Flecker and Meil, 2010; Jaros, 2005; Newsome, 2010).

First, Braverman’s (1974) ‘labor process’ perspective advocates that managerial action/strategies are determined by capital-labor relations, whereby managers or employers control labor and its unruliness. For Braverman, the methods of control over workers had increased in the twentieth century as a consequence of Taylorism systems of scientific management such that it forced the division of labor to the point where workers, particularly on assembly lines, became increasingly deskilled and detached from the product they spent their lives working on (Braverman, 1974). Adoption of advanced technology in managing human resources has made it possible for globalized firms to devolve responsibility for production by outsourcing to cheaper economies enabling them to externalize costs of production while maintaining centralized control. For example, Nike does not exactly “make” shoes, but rather it oversees their design, marketing, manufacture, and distribution (Davis, 2016). What Nike does is to maintain a nexus of contracts with designers, manufacturers and distributors. Clearly, this business model changes the employment relationship.

Undoubtedly, something fascinating in the world of work and business is happening as exemplified in these examples; (1) the world’s largest taxi company, Uber, owns no vehicles; (2) the world’s most popular media owner, Facebook, creates no content; (3) Alibaba, the most valuable retailer, has no inventory; and (4) Airbnb, the world’s largest accommodation provider,

owns no real estate (Goodwin, 2015). These examples do highlight the way advancement in technology is reshaping the nature of organizations and changing how work is done. Several studies indicate weakening the employer-employee relationship owing to the proliferation of new technologies at work (Bissola & Imperatori, 2014; Lamprou, 2017).

Extending LPT to the impact of advanced technology on employer-employee relationship

Earlier studies have also expressed wariness about technology at work as an agent of weakening of the relationship between employees and the HR department with a potential deterioration of trust in HR professionals (Graham and Tarbell, 2006) with lower employee commitment, job satisfaction and contextual performance as negative consequences on the employment relationship (Gould-Williams, 2003). As discussed above, productivity and improved organizational outcomes are the motivating factors for the use of technology in workplaces, but there is often very little consideration of the impact on employees (Johnson et al., 2020). While there is a belief among business leaders that the primary goal of the employment relationship is efficiency, there is need to strike a balance enabling equity (fairness in distribution of economic rewards administration of employment policies and the provision of employment security) and voice (the ability for employees to have a meaningful input into workplace decisions)' (Budd, 2021; p.5). From a strategic HRM perspective, labor cost-efficiency is important, organizations need human resources who are skilled and effective while also motivating them at a cost through for example wages and benefits (Boxall and Purcell, 2016).

In building understanding on the effects of advanced technology in the workplace, we use the four principles of LPT mentioned above. Firstly, *the idea of managerial control*, this is one of

the key principles of LPT which explains how labor is controlled and degraded within capitalist organizations. Braverman's (1974) argument about the use of labor power as a commodity can be extended to the contemporary use of advanced technology in organizations. Thompson (1990) considers control of the labor process which is exerted by an employer as a way of transforming labor power of workers into a commodity or service.

Control is one of the four major functions of management and comes in many forms including, performance monitoring, setting performance standards and taking corrective action to achieve organizational goals. The theory of bureaucracy by Max Weber (1947) being among the first to legitimize organizational control. In line with this, Frederick Taylor's theory of scientific management also formalized the shift in the knowledge of production from worker to manager (Braverman, 1974; Maguire, 1999). Indeed, Taylor's concern with management control as well as with doing more with less workers, continues to influence the contemporary discourse of control. Within contemporary organizations, adoption of advanced technology is a control mechanism for converting labor power into lucrative outcomes for the organization. Employers adopt technology which suit their strategic goals and business needs, without much consideration for employee outcomes.

Within the strategic HRM literature, to a greater extent, the focus was on HRM policy choices and outcomes rather than stakeholder considerations (Beer, Boselie, & Brewster, 2015), in particular, employee well-being was hardly considered (see, for example, Collins & Porras, 1997; Pfeffer, 1998). For example, although the Harvard Model (Beer et al., 1984) received acceptability owing to its less neo-liberal approach (Bondarouk and Brewster, 2016), emphasis

was more on organizational outcomes, employees were seen as means towards other ends (Kaufman,2010). Clearly, this appears to be the case in the adoption of advanced technology such as AI, organizations are choosing to maximize profits while using employees as commodities. Clearly sidelining human outcomes in strategic HRM as not being invaluable compared to organizational outcomes reveals a neoliberal view that the purpose of the firm is solely and simply to maximize shareholder value (Bondarouk and Brewster, 2016).

At this point, we turn to the example of Uber as a contemporary organization to illustrate this control and how it leads to *the degradation of the employment relationship*. Companies like Uber who use platform technologies have managed to alter the employment relationship and succeeded in classifying drivers as independent contractors. In 2015, a group of drivers filed an alleged class action lawsuit against Uber in the Northern District of California asserting that they were employees of Uber and thus entitled to various protections under California law. In this case of *O'Connor v. Uber Technologies*, Uber's stand was that drivers who used its technology platform were independent contractors as a matter of law. This classification of employees as workers or contractors weakens the employment relationship. As aptly noted by Bondarouk and Brewster (2016), the notion of 'employees' shows a mismatch with organizational traditional reality as technological developments stretched out employment contract boundaries and impact on time, so that it might be more appropriate to talk about 'workers', to include those who work for but are not employed by an organization. Uber's approach to maximizing profit by removing contractual rights and benefits of employees reveals a neoliberal view of the firm which solely and simply focuses on maximizing shareholder value. Employees as contractors are just a means an end. Meanwhile, HRM models such as the Harvard/Beer et al (1984) model considered

employees as a valuable stakeholder. In this context, technological advancement has enabled Uber to classify drivers as workers who are just contractors as this maximizes Uber's investment in the transport platform, thereby commoditizing the contractor drivers.

However, the presiding Judge Edward Chen denied Uber's motion, holding that the plaintiffs had met their burden of showing performance of services (Muller, 2020). The judge also rejected Uber's claim that it is merely a "technology company" and maintained Uber sells the software and rides. Following the denial of summary judgment, a federal appeals court agreed to review an order certifying the drivers as a class, leading Uber to ultimately settle with the plaintiffs for \$100 million (Westlaw, 2016). Noteworthy for this study is that, in this emerging technology platform- Uber who owns the algorithms used by drivers disclaims a formal employment relationship.

According to Muller (2020) such workers who are classed as independent contractors working for a platform firm are more vulnerable to manipulation and abuse. Workers are susceptible to abuse in the platform technology enabled firm as the information asymmetries that define platform marketplaces such as Uber and Airbnb, allow for firms to control information in ways that exploit the divergent interests of workers and firms (Calo and Rosenblat, 2017). Clearly, owners of the platforms manipulate information to their advantage and undermine the joint-profit premise of the platform economy. The technology platform workers can actually be classed as precariat employees who have degraded contractual rights, employment and income security, as well as the diminished scope for workers to find meaning and fulfilment through work (see Campbell and Price, 2016; Ferreira, 2016).

Second, *intensification of work* is another principle of the LPT. Work intensification was recognized by Braverman as one of the effects of developments in technology, along with globalization in the form of increasing competition and the global financial crisis (Braverman, 1974). Work intensification is evident in companies like Amazon who use algorithms and robots to control employees' performance and work output leading to a fractured employer-employee relationship. Amazon is a good example to illustrate negative effects of advanced technology on the employer-employee relationship. The company has a good reputation for its constant transformation in digital infrastructures which include features such as "One-Click Checkout," Amazon Prime, and an excellent customer-oriented strategy (Jolly, 2017). Clearly what drives Amazon's adoption of advanced technology is the ability to provide and deliver its service effortlessly and effectively. Furthermore, the procurement of warehouse robotics company Kiva allows Amazon to operate cost-effectively, increase productivity, and profitability.

Data is utilized to manage employees and determine performance appraisals at Amazon (Anderson, 2015). A hostile and unsafe work environment is created by demanding workloads and unreasonable targets. For example, they use robots to shine a light on the next object that a worker needs to pick up, thereby eliminating micro-rests- the time that the human brain requires to think about the next step (Newton, 2020). Employees working alongside robots are like cogs in the wheel being managed mechanistically. The mechanistic management style is detrimental to building a strong employment relationship, this is evidenced in extremely high employee turnover. Turnover ranges from 89% -107% in some warehouses, with an average tenure of a full-time warehouse associate being one year compared to two years at other tech companies like Facebook, Google and Apple (Tung and Berkowitz, 2020). Work intensification is also evident

in the number of injuries in Amazon warehouses. Tung (2022) notes that there is a considerable increase in injury rates Amazon, that is 20% nationally, that is from 5.5 injuries (2020) to 9.0 injuries (2021) per 100 full-time employees.

Third, the principle is deskilling through the restructuring of work (Littler, 1990; Thompson, 1989). Technology certainly does lead to deskilling in the labor process. Downey (2021) utilizes the technology deskilling effect theory, and observes that low-wage workers have become part of the production process due to partial automation, where implementation of automation technology replaces high-skilled workers with low-skilled workers but cannot completely remove human labor from the process. For example, Downey (2020, p.2) notes that:

“statistical clerks compile data and tabulate statistics for use in statistical studies . . . [and] tabulate statistics using adding machine and calculator. Certainly, Microsoft Excel has simplified these tasks so that a much wider range of workers can perform them... One explanation is that fully-automated robots are not yet available to do these jobs, but technological simplification allows less-skilled workers to do them, which I call technology-enabled deskilling”.

work is degraded as knowledge and skills are systematically removed from direct producers and concentrated in the hands of management and their agents; this depletes and debases the quality and experience of work such that workers are condemned to endless routine and impoverished tasks (Braverman, 1974; Buroway, 1979; Jaros, 2005; Smith, 2015). Clearly, the above shows that, although Braverman’s theory is described as a critical framework for understanding the degrading impact of technology and scientific management on the nature of work in the

twentieth century (Thompson, 1989, 1990; Smith, 2006, 2015; Smith and Thompson, 1998; Knights and Willmott, 2016), the theory is still relevant in the 21st century. The technology-enabled deskilling is appears to be an extension of Braverman's LPT. It takes into account how the simplification of work by technology will then change the requirement of labor to low skills. In reference to the example given above as about how Amazon uses robots to help workers pick up the next item, the technology mechanism removes the ability of the human brain to think about the next step. This does indeed reflect Braverman's (1974) deskilling as a central element of the degradation of work under advanced capitalist employment conditions, in this case the push for technology as a mechanism for achieving cost efficiencies in business.

Lastly, the unpacking of the social relations between capital and labor as structurally antagonistic which brings into reckoning issues of control, autonomy, consent and resistance at work (see Flecker and Meil, 2010; Jaros, 2005; Newsome, 2010). Among the principal features of capitalism is structured antagonism (Delbridge and Keenoy, 2010), employers own the means, therefore, the less powerful party is subject to control. Within an employment relationship, there is unequal distribution of power among the parties involved which leads to antagonism. As noted by Ackroyd (2009: 265) unequal distribution of power over work is an attribute of a capitalist workplace.

In critical HRM, "structured antagonism" is a fundamental feature of the capitalist mode of organization, critical management studies which introduces pluralism and retains the analytical touchstone in the employment relationship (Delbridge & Keenoy, 2010). *Structured antagonism evolves from the nature of competitive market relations, in which employers echo individualist tendencies while competing for employees (Delbridge & Keenoy, 2010). On the other hand, employees strive for maximization of their opportunities and rewards from employers.* As a

result, the structured antagonism provokes conflicts of interests between the employer and the employee. *Meanwhile, employers are in competition with others in product and service markets, and are under pressure to minimize labor costs in order to sustain and increase profits or other benefits* (Delbridge & Keenoy, 2010).

Given the unequal distribution of power, especially for low skilled employees, they are easily manipulated. For example, during the Covid-19 Pandemic in 2020, Amazon warehouse employees who staged a walkout owing to legitimate concerns of safety at work were fired. The year 2020 lead to a surge in labor issues (unethical managerial decisions, arbitrary firing of employees, ignoring workers' rights, low wages, aggressive targets) in Amazon and led to a vote for unionization. Warehouse associates as individual employees had no voice, some employees were singled out and fired after walking out to get their voice heard. Employees as less powerful party, tried to fight, for example in Alabama, there were efforts for a union vote. However, Amazon the more powerful party in the employment relationship organized captive audience meetings to sell unions as being bad for their employees leading to the powerful party winning. As noted by Palmer (2021) Amazon staged a very antagonistic public relations campaign at their Bessemer, Alabama warehouse comprising; text messages to employees, leaflets, a website that urged workers to "do it without dues", posting flyers in bathrooms that compelled workers to "vote 'NO as well as getting United States Postal Service to install a mailbox outside the warehouse as a matter of urgency.

Conclusion and recommendations for further research.

The paper was developed to contribute to a call for papers focusing on *the future of human resource management*. In this light, the paper set out to examine the impact of adoption of

advanced technology on the employment relationship in the workplace. As reviewed in the literature, adoption of advanced technology such as algorithms, AI, machine learning, to mention but a few; within organizations has considerable advantages in terms of achieving cost-effectiveness, improving productivity and streamlining organizational processes and tasks. Despite all these positive contributions for the organization, there are also negative consequences which have received limited attention but are likely to shape the future of HRM especially as it relates to the employment relationship and employee well-being. The paper set out to answer the following questions: (1) In what ways can technology make a positive impact on the employment relationship? (2) In what ways does technological advancement impact on the employment relationship and employee wellbeing in the workplace? To answer the questions a literature review was conducted, then the LPT was adopted as a theoretical framework to make sense of the nature of the employer-employee relationship in the context of the emerging technologies.

Firstly, in answering the question: “In what ways can technology make a positive impact on the employment relationship?” it is important to note that employees will be impacted differently depending on several factors such as level of skills (low-skilled or highly skilled), the type of industry and job as well as type and function of technology (Esjmont, 2021). For example, for low skilled work needed in a technology platform company like Uber (USA) at the operations level, the positive effect relates to the flexibility in the work schedule and being their own boss.

It is also evident that within the employment relationship, there’s a growing distance between managers, HR managers, frontline managers and supervisors as technological advancement has moved to a level where management, leadership and HRM practices of monitoring performance is done through algorithms, thereby removing the social aspect from the employment relationship.

This was projected by Brynjolfsson & McAfee (2014) ahead of time. Brynjolfsson & McAfee (2014) also noted that technology has created an increase in work intensification and redundancy.

The study set out to explore the impact of technology on the employment relationship. There are indeed fears of job losses, deskilling and upskilling due to new technologies as well as reshaping the employment relationship. However, Bailey (2022) argues that technology will not dictate the future of work and society even though popular and academic accounts foretell revolutionary and quick transformations in work and employment with the use of emerging technologies unless we choose to let it do so. Humans within organizations give power to technology, they do have a choice as to what extent they can let technology take over the workplace and manipulate the employment relationship. Bailey contends that we can foster positive outcomes taking into consideration human choice and agency in technology implementation by understanding the kinds of technologies that are newly entering the workplace. Indeed, research has shown that to a greater extent, human agency influences the choice of technologies which prevail in processes that are as political, ideological, social, and organizational as they are technological (See: Winner 1980; Thomas 1994). Bailey advocates developing knowledge of how new technologies differ in form and potential effect from previous technologies that policymakers have to address, the negative consequences they pose for workers, and the concrete steps policymakers need to take in order to mitigate negative consequences by choosing good technology and outcomes. In this regard, future research should focus on empirically examining how the human agency as a control variable can put parameters in place for the choice of enabling technology. Pointers for further research include empirical examination of how advanced technology has transformed the employment relationship from an HRM perspective. Previous research has been conducted from

an economist perspective and the legal perspective (Dau-Schmidt, 2017). Strands of knowledge on the changing nature of the employment relationship in the advent of new technologies within organizations have developed in isolation, an interdisciplinary study is therefore necessary to develop a more comprehensive understanding of the impact of technology on the employment relationship and the future of HRM.

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