

Chapter proposals

Working title: Trade union revitalisation: the impact of artificial intelligence and gig economy

Introduction

Trade unions have experienced considerable global decline since the late 1970s. Although trade union influence remains significant in some countries, many trade unions have witnessed a fall in membership on which this influence ultimately depends. Past attempts at turning the fortunes of unions around in the face of 'globalisation', national predicaments, artificial intelligence and gig economy have been the concern of trade union leaderships. In many developed and developing economies, trade unions are using all the available instrumentality available to them to contend with what some refers to as the Fourth Industrial Revolution (Philbeck & Davis, 2018; Schwab, 2017).

In the current global development (fourth industrial revolution), the gig economy expediated by artificial intelligence (AI) has become a major source of erosion of trade union membership and influence. The distribution of power within the workplace is continuously dependent on the use of artificial intelligence (Flanagan & Walker, 2021). Both employers and trade unions are using artificial intelligence to a greater effect today. Artificial intelligence refers to the use of software, machines or algorithms that are designed to understand and act on command to achieve a particular outcome. Artificial intelligence is used in the control of machines and computers to undertake human activities of decision making and problem-solving. Today employers use artificial intelligence as a means of control over employee activities, through its ability to mechanise mental or intellectual labour and to monitor movement and activities of the workforce (Davies, 2019). Equally, trade unions are now using artificial intelligence to enforce workers' rights and increase their influence in the workplace.

In light of these current global developments – gig economy expediated by artificial intelligence, the continuous density decline of trade union membership and the role trade unions are expected to play in industrial relations, trade union revitalisation: the impact of artificial intelligence and gig economy will explore the consequences of these current developments (gig economy expediated by artificial intelligence) on union membership and clout. The chapter will address the questions around the use of artificial intelligence in a gig economy, its impact on trade union clout and membership; the impact of artificial intelligence-based mechanisation on trade unions clout and membership.

This chapter addressed this concern by exploring the way trade unions have responded to the development and use of artificial intelligence in the workplace especially in a gig economy. The term trade union revitalisation has been used to denote trade union activities that are aimed at slowing down or where practicable reverse the declining union membership trend. The International Labour Organisation identified (ILO, 2021) highlight four of such activities that had made a positive impact on trade union membership. These include:

1. The organisation and servicing of new members, such as workforce in informal or gig economy and young workers.

2. Organising collective action, the ability to organise and act collectively irrespective of sector, nation or region (global action)
3. Fostering internal democracy, through the implementation of rules that assure the election of accountable stewardship/management and trade union activities.
4. Establishing and fostering effective and comprehensive social dialogue on issues affecting workers locally, national and internationally irrespective of sector.

Studies have revealed that the choice open to trade unions in terms of strategies available for their revitalisation is dependent on certain local, national and global factors (Gold, Preuss, & Rees, 2020; Frege and Kelly, 2003). Some of these factors may include union internal democracy (structure), support or opposition to unions activities by employers and government, national industrial relations and institutional context (Gold, Preuss, & Rees, 2020). In spite of the many constraints, unions are able to make strategic choices depending on their circumstances as indicated by the ILO (ILO, 2021). As noted in some studies, some unions have been able to reinvent themselves through political actions, external coalition civil and social movement organisations (Ibsen and Tapia, 2017; Oyelere, 2014). Consequently, trade union revitalisation is seen as a multi-layer process that includes several actors beyond the traditional actors of industrial relations (trade union, employers and government). Hence some authors have attempted to catalogue the different strategic approaches employed by trade unions to include partnership or cooperation, organising, mass mobilisation, political action, social movement unionism, labour–management partnership, internal democracy, international cohesion or alliance and building local and international coalition (Gold, Preuss, & Rees, 2020; Oyelere, 2014; Turner, 2005).

Our understanding of the revitalisation strategies is further enforced by the existing theories. A starting point is the review of the Radical or Marxist and the Pluralist which though agreed that conflict is inevitable but differ on the cause or source of conflict and the type of action that can resolve conflict. An overview of the revitalisation literature suggests a distinction between the Radical or Marxist and the Pluralist. Radical or Marxist perspectives suggest that there is an inherent conflict between employers and employees. They believe that conflict is unavoidable, and it is characterised by the uneven distribution of resources. The crux of this perspective is that power is controlled by the group that has control of the mean of production in the society, hence trade unions need to embark on workers ‘Mobilisation’ to secure a grassroots source of power. In the same vein, the Pluralist opined that conflict is natural and inevitable in the human environment. They argue that there should be a formal partnership for mutual gain between trade unions and employers. The Pluralist supposed that the allocation or distribution of power through collective bargaining among the trade union and employer will ameliorate conflict. The pluralist wants a mutual distribution of power among the different actors (Ibsen and Tapia, 2017). The main contestation is that while the Radical scholars see the trade union as an actor that mobilises against deregulation and liberalisation of the economic processes, the pluralists view trade unions as employers’ counterparts.

There is however another contestation in the revitalisation literature. This has to do with the categorisation of national economic status. The two main classifications – developed or advanced and developing or underdeveloped economies. Whilst many trade unions in the former categorisation appeared to deploy partnership, those in the latter embarked on mobilisation especially mobilisation of the informal sector workers and civil society unions. It does appear though that in many advanced economy partnerships have helped to forge some relationships between trade unions and management (Hassel, & Schroeder, 2019; Gasparri, Ikeler, & Fullin, 2019). Such relationships arguably have led to the enhancement of business

performance (Johnston & Land-Kazlauskas, 2018). A partnership is considered the most reliable approach for trade unions in an advanced economy because mobilisation of employees and civil society organisations against employer and government is unsustainable and in conflict with the goal of the trade union – enhance business performance (Johnston & Land-Kazlauskas, 2018; Ackers, 2015). Also, it is likely to weaken the institutionalised role of trade unions in tripartite employment relations (Gold, Preuss, & Rees, 2020). Although elsewhere, it has been argued that privatisation and commercialisation or the neoliberalisation of the economy have eroded the clout or what Gold, Preuss, & Rees, (2020) described as ‘institutional securities’ of trade unions, hence they concluded that partnership may be one of the most reliable ways of revitalising trade unions clout (Gold, Preuss, & Rees, 2020; Hyman, 2015).

Although it is now a commonplace agreement that partnership is a successful strategy in advanced economies, there are some variances between ‘coordinated market economies’ like Germany and Japan, and ‘liberal market economies like the United Kingdom and United States of America (Goergen, Brewster, Wood, & Wilkinson, 2012). The proponent of this view argued that partnership is better suited for coordinated market economies and could be problematic in liberal market economies (Gold, Preuss, & Rees, 2020). Studies show that coordinated market economies depend largely on well-established formal institutions of the state to regulate the market and coordinate the relations with employees. In coordinated market economies, relations between employer and employee are often long-term, high job security, institutionalised workers participation, and cooperative relations with trade unions (Avdagic and Baccaro, 2014). Conversely, in liberal market economies, coordination of the entire economy is left entirely to market mechanisms (Hyman, 2007; Avdagic and Baccaro, 2014). Liberal market economies operate free-market policies, which are usually decentralised industrial relations. Due to the market dominance, liberal market economies focused on short-term and antagonistic relations between employers and trade unions. Employees participation is minimal and trade unions are kept at bay in an adversarial relationship (Bray, Budd & Macneil, 2020)

This view was further substantiated by Johnstone (2016) who suggest that privatisation, commercialisations and other neoliberal business policies and practices that tend to focus on the maximisation of profit in the short-term erode management and labour relations. Undeniably, neoliberalism has had a long-lasting impact on ‘institutional securities’ (Gold, Preuss, & Rees, 2020; Hyman, 2015) that has hitherto been the prerogative of trade unions. Arguably though, neoliberal policies and practices have been seen to be a major contributory factor to the development of the gig economy. The next section examines the concept of the gig economy and its impact on trade union revitalisation.

Conceptualising the Gig Economy

After a careful review of the term trade union ‘revitalisation’ and the revitalisation approaches employed by trade unions in both developed and developing economies, we went further to explore the consequences of recent developments i.e. gig economy and artificial intelligence on union membership and clout. This section will conceptualise the role of the gig economy on trade union revitalisation. It begins by presenting an understanding of the concept of ‘gig economy’ and the nature of work and employment relations in a gig economy. The section concludes with a review of the challenges the gig economy posed on trade union revitalisation.

The term 'gig economy' became common parlance especially after the global economic crisis (Hook, 2015) when many workers lost their standard/permanent (full-time) employment and opted for non-standard employment. The term 'Gig economy' found its root in the word "Gigs". Gigs is used to describe paid performance of performing artists. The gig economy is defined as the market economy that allows businesses to hire employees on a short term freelance contractual basis. This approach is a complete contrast to the traditional job – where jobs are usually full-time or part-time with a continuous relationship with an employer. Traditional job has been commonplace in most economies for a very long time, however, there are other forms of employment and the current global developments has led to a significant increase in those other forms of employment. The gig economy is characterised by "independent work" (Manyika, Lund, Bughin, Robinson, Mischke & Mahajan, 2015). Independent work is a way people can earn money outside the traditional job. Independent employees are hired as independent contractors to perform tasks or jobs. They are usually self-employed, individual contractors, petty business owners, freelance, temporary workers (Manyika, Lund, Bughin, Robinson, Mischke & Mahajan, 2015:20).

In the new global economy, the rapid change within the world of work has become a central issue for discourse among academics (Zahn, 2019). There is a growing body of literature that examines the exponential growth of the gig economy and the extent to which its activities are increasingly generating renewed interest and concern especially among trade unions (Johnston & Land-Kazlauskas, 2018; De Stefano, 2016; Ellem & Shields, 2004;). Debate continues about how this form of work is increasingly challenging the social and collective dimensions of work which forms the underpinnings of trade unions activities (Zahn, 2019; Bogg & Ewing, 2016; Vendramin, 2016). More recently scholarly attention has focused on the rapid emergence and growth of the gig economy and how this new form of service delivery process has defied existing business models, labour-management principles and practices (Healy et al., 2017). Much of the current literature pays attention to how advancement in technology has increased the number of individuals engaging in the gig economy and its significant impact on the degree of individualisation, the erosion of collectivism that trade unions provide and the lack of human contact (Zahn, 2019; De Stefano, 2016). Questions have been raised about the nature of employment and the regulations that guide employer-employee relationships in the gig economy. Very little has been empirically presented about the role of trade unions and their activities to organise and represent workers in the gig economy (Hong, 2015).

Nature of Work and Employment Relations in Gig Economy

One of the greatest challenges of trade unions in a gig economy is the promotion of individualism against collectivism (Ormerod, 2021). Individualism is endorsed by three main characteristics of independent work (i.e.) i. high degree of autonomy, ii. Payment by task or sales and iii. Short-term relationship between the worker and the client (Manyika, Lund, Bughin, Robinson, Mischke & Mahajan, 2015:20). The high degree of autonomy represents the level of control employees have over the workload. Unlike employees in the traditional system, they have the flexibility to determine the amount of workload by setting their parameters for jobs. They are free to accept or reject offers at will. Payment by task or sale suggests that independent workers income is based on the task performed at every single instance instead of a fixed wage. It is important to point out that some traditional workers also fall into this circumstance where they are paid by the hours of work or rate piece, by

commission and sometimes variable rates and schedules. The short-term relationship between the worker and the client is another key characteristic of the gig economy. For an independent workforce, tasks are performed on a short-term basis and they work for many employers simultaneously or in quick succession. Although independent jobs may be extended over a long period, in such cases, it is important to note that at every time a task is performed, such tasks are discrete jobs, and either party can choose to discontinue at any time (Manyika, Lund, Bughin, Robinson, Mischke & Mahajan, 2015:20).

Many of the recent literature on the gig economy has paid attention to the changing nature and arrangement of work by using terms such as precarious, insecure and flexible in their explanation (Zahn, 2019). The changing outline of work, work relations and the global economic factors have led to a reorientation of the socio-economic, political and cultural environment where employment laws and relations are developed, transformed and interpreted (Kountouris, 2012; Fudge & Owens, 2006). Historically, research investigating the changing nature of work considered how legislations announcing individual worker's rights have lessened the burden on businesses and enabled low-cost flexible forms of employment, with the view to lower unemployment and increase competitiveness (Deakin & Wilkinson, 1996), whilst weakening trade unions 'institutional securities' (Gold, Preuss, & Rees, 2020). This necessitated the application of different actions by the trade unions including partnership and mass mobilisation discussed earlier (Harvey, 1989).

The legal framework of the non-standard form of employment has been used to regulate work relationships and this has considerable effects on the labour market and the institutional securities of the trade unions. The decline in the manufacturing sector and the emergence of a new economy, based on the advancement of information systems and technology has contributed to the rapid growth of this new model of employment which is often associated with insecurity, precarity and limitations (Fudge & Owens, 2006). A similar study by De Stefano (2015) which examined work practices in the gig economy argues that the suitability of the platform and the swiftness with which job opportunities are offered and accepted makes it probable to consent to a large pool of workers who are offering to perform the task at a specified time (Manyika, Lund, Bughin, Robinson, Mischke & Mahajan 2016).

). These work practices are seen to have the potential of changing the limitations that confront the current pattern in organisations. Technology has provided tremendous access to the workforce and granted increased flexibility as workers are provided with 'just-in-time' work and compensated on a 'pay-as-you-go' basis (Weil, 2014; Finkin, 2015). De Stefano (2015) maintains that some features of the gig economy convey the concept of extreme forms of commodification of human beings and dehumanisation of their activities.

According to De Stefano (2015), the obvious suppression of work and the nature of its activities as well as their human components have damaging effects. This is because workers tend to be identified by clients and customers as an extension of the online platform and their review or feedback could have severe implications on their ability, to work or earn in the future since their likelihood to continue working is contingent on their rating and review of past activities (De Stefano, 2016; Dzieza, 2015; Sachs, 2015). Since most workers in the gig-economy are classified as independent contractors (Sprague, 2015), employers seem to shift risks and responsibilities to individual workers who now have obligations towards their customers. These risks are often traded off by workers with the flexibility that is connected to their self-

employment status (Rogers, 2015, Harris & Krueger, 2015). While several studies highlight the flexibility of schedule in the gig economy, very little is mentioned about the sustainability of the arrangement such as the increased competition among workers for the pay and the extent, which it compels workers to work longer hours, engaging in transactions across geographical locations and time zones hence, giving up their flexibility with the determination to make more earnings (Gupta et. al., 2014).

The Challenges of Gig Economy on Trade Unions Revitalisation

Considering the features of independent work, it is indisputable that the gig economy creates new opportunities and access to work for people who otherwise may have been excluded from the labour market. In addition, it affords customers or clients easy access to inexpensive, reasonable and just-in-time services. It also provides new levels of work flexibility in terms of work-life balance and promotes originality, inspiration, ingenuity and growth of new cultural products and services. Critics have also argued that these benefits come at a cost as the emergence of this new form of work has given rise to concerns among different stakeholders (Valenduc & Vendramin, 2016; Fuchs and Fischer, 2015; Pfeiffer, 2013). Emphasis will now be placed on some of the challenges of the gig economy and its impact on trade union revitalisation.

Several studies (see... Gandini, 2019; Graham, Hjorth and Lehdonvirta, 2017; Hagi, 2015; Dokko, Mumford & Schanzenbach, 2015) have discussed the challenges of the gig economy on workers. For instance, Gandini (2019) used the labour process theory to explore the distinctive traits that characterise the gig economy. Graham et al., (2017) examined how the gig economy influences the livelihood of workers in Sub-Saharan Africa and South-East Asia. In another study, Kaine and Josseland (2019) examined the organisation and experience of work in the gig economy in a variety of national settings. Stewart and Stanford (2017) study explored how work is regulated in the gig economy and considered options that could be used to create minimum standards and better working conditions for workers. Overall, there seem to be some pieces of evidence to indicate that poor categorisation of workers in the gig economy makes it challenging for the courts to regulate or impose requirements such as minimum wage, overtime rules, right to organise and civil rights protection on employers (Hagi, 2015; Dokko, Mumford & Schanzenbach, 2015). The lack of channels for collective representation and collective bargaining in the gig economy makes it more challenging for members to organise and collectively seek improved working conditions and establish working rights (Braithwaite, 2017; Hayns, 2016). The internationalisation of the product market has undermined the possibility for multi-owner collective bargaining (Burawoy, 2011; Wright & Brown, 2013).

Considering the pieces of evidence above, studies have argued that trade unions have either ignored or underestimated the need to extend their activities to the gig economy because of the difficulties involved in the process (Johnston and Land-Kazlauskas, 2018; De Stefano, 2016; Gallin, 2001). To enable an effective process of trade union revitalisation, it is essential for trade unions to consider the following about the gig economy and its workers. Trade unions need to seek for an expansion of the definition of employment and enforcement of existing laws to cover workers or independent contractors working in the gig economy (Stewart and Stanford, 2017; Harris and Krueger, 2015). Trade unions need to reconsider a redefinition of the concept of 'employers' and 'employees' (Prassl and Risak, 2015). Trade unions need to present an all-inclusive condition for union membership to attract younger workers, the majority of who are working in the gig economy (Visser, 2019). Trade unions need to seek an extension of their collective bargaining rights to include workers who engage within the gig economy. A new collective agreement should be guaranteed for workers in the gig economy to

have access to sick pay, holiday allowance and pension contribution (Johnston and Land-Kazlauskas, 2018). Trade unions need to rely on co-operation with social and political organisations to redefine the locus of their activities. Trade unions need to extend their focus to virtual platforms, engage with workers in the gig economy and come up with new and inventive ways of alliance and interest representation. For instance, some platform workers have been involved in protests aimed at seeking the need to set a framework of minimum standard for their remuneration, working time and insurance (Vandaele, 2018; De Stefano, 2016). Trade unions can support this type of platform collective voice by providing their specialist knowledge, skills, experience and professionalism (Visser, 2019).

Influence of Technology on the Gig Economy

Within the gig economy, the concept of virtual work has been used to describe different forms of work that are carried out either at home, in non-traditional workspaces or in public spaces with the use of computer and internet-based tools (Valenduc & Vendramin, 2016). Studies identified nine new forms of employment after assessing the circumstances inherent in twenty-seven countries (Mandl, Curtarelli, Riso, Vargas & Gerogiannis, 2015; Kountouris, 2012). According to these studies, some of the identified forms of employment occurred early in the millennium while others are simply an improvement of the existing forms of employment. These forms of employment are categorised into two main groups, based on the nature of employment (worker or client-worker) relationship and model of work (how work is performed). They are – employee/job sharing, interim management, casual work, voucher-based work, information and communications technology (ICT) based mobile work, portfolio work/crowd working and collaborative self-employment (Valenduc & Vendramin, 2016; Orlikowski, 2010). In employee sharing, workers are jointly hired by a group of employers to work within different companies on rotation. Job sharing on the other hand is when one employer hires more than one worker to fill a position and accomplish the same task within the company on a rotational basis. There are instances where employers hire highly skilled experts (interim management) temporarily for specific projects. For casual work, the employment contract permits employees their work flexibility and as such, they are not bound to accept the regular work hours by employers. Collaborative self-employment encourages more flexible forms of partnership which aims to discourage the traditional business partnership. Considering all these explanations, it has become obvious that the increasing reliance on technology in the gig economy has eroded employer-employee work relationships but focus attention on how the work is performed and on work flexibility (Mandl, et al., 2015).

For information and communications technology-based mobile working, workers work from locations that are not their employer's premises. They generally rely on the use of information and communication technologies such as the computer, internet, computer-based video conferences to carry out remote activities. Given that these work activities are carried out outside the employer's premises the agreement that governs the employer-worker relationship is largely informal and frequently adjusted to meet the demands of local legislations, collective agreements and individual contracts (Kessler, 2018; Valenduc & Vendramin, 2016). In crowd working, work is carried out through an online platform which gives both employer and worker access through the internet intending to offer a service, proffer solutions to a problem, deliver a product in exchange for financial reward. Platform-based on-call work on the other hand is a form of work with continuous employer-employee relationship without continuous work. This implies that even though the employer signs an employment contract with the worker, there is no commitment from the employer to supply work to the employee continually. This form of employment is commonly referred to as a zero-hour contract (Kessler, 2018; Howe, 2006). The key point to note from the above is that emphasis is placed more on how the job is performed

while less attention is centred on the nature of the employment relationship which is a vital trade union activity. Some important themes that have emerged from our exploration of these new forms of employment are that they offer flexibility, autonomy and increased personal efficiency. More emphasis is placed on how the job is performed while less attention is placed on the nature of the employment relationship, with implications for workers and the trade union. For example, the relationship between employers and workers is vague and work is being aided by the digital platform. This analysis shows that the fundamental principles of work and employment have been eroded as wages are low and the companies seem to retain the profit while the payment is by no means guaranteed for the workers. This also implies that workers may experience non-existence or poor social protection, low job security, low rate of job satisfaction, information irregularities and absence of dependable dispute resolution systems. Additionally, workers may experience boredom, stress and social isolation because of the repetitive nature of the tasks which has the likelihood to interfere with their private life (Huws, 2016; De Stefano, 2016; Valenduc and Vendramin, 2016). And overall, workers will lack the added security and support that the trade union provide.

Appreciating Artificial intelligence

The definition of the term Artificial Intelligence (AI) is fraught with difficulties (Kaplan, & Haenlein, 2019). Generally, however, it has been described as the development and use of a computer to perform the task normally carried out by a human. Artificial intelligence is “a system’s ability to interpret external data correctly, to learn from such data and to use these learning to achieve specific goals and task through flexible adaptation” (Kaplan, & Haenlein, 2020: p 17). Artificial Intelligence is seen as a major player in the fourth industrial revolution. It is considered the major facilitator of the gig economy. Many of the roles and activities in the gig economy are facilitated with artificial intelligence assistance. The question therefore that readily comes to mind is ‘will there be massive job displacement as a result of the use of artificial intelligence?’ The extension of this question is ‘what will the impact on trade union membership be?’ It is believed that there is no likelihood of massive job redundancies, but a shift from formal to an informal market economy. Many industries have already witnessed this shift and hence the talk about the gig economy.

No doubt therefore that the world of work has changed drastically because of technological advancements and the increasing role of artificial intelligence in the workplaces (Flanagan and Walker, 2021). According to Acemoglu and Restrepo (2019), the intelligent response from machines, algorithms or software to the environment is known as artificial intelligence. It is about giving power to machines so that they can respond to the environment and make intelligent decisions based on data provided to or collected by them. Artificial intelligence sets an important context for the division of power within organisations (Nissim and Simon, 2021). It has been noticed that artificial intelligence is linked with the concentration of power of employers as it provides measures to strict surveillance over employees and replace labour or automate cognitive competencies of workforces (Moore et al., 2019; Marcus & Davis 2019). Though in order to enhance the power of workers, some labour organisations have also begun to use artificial intelligence in their organising and mobilising activities. However to revitalise

and renew trade unions completely by utilising such technologies is still a big challenge for unions (Flanagan and Walker, 2021).

The internet and trade union revitalisation

There is now a level of academic literature focusing on how trade unions are using artificial intelligence to reorganise and reconfigure the process of collectivism among workers in a gig economy. From the use of different platforms, trade unions are employing what the internet provides to foster diverse techniques for recruiting and representing workers at all level. One of the main focus or rallying points for the trade unions in the gig economy is what Castells (2013) referred to as “communication power”. He described communication power as the opportunity provided by the internet to ‘mass-self communication networks’ (MSCNs) (Castells, 2013). Mass-self communication networks is constitutive of new ways of reaching the majority of workers and the civil society at large. Because of this mass-self communication networks, trade unions can mobilise different categories of workers that either to will not be mobilised under the traditional trade union (Fitzgerald, Hardy, & Lucio, 2012).

We have seen how the use of machines, artificial intelligence and the gig economy has eroded the traditional institutional security of trade unions, similarly, however, we observed how the same tools can be used to mobilise and galvanise workers outside the traditional shores of trade unions. Scholars believed that the internet provides a distinctive opportunity for the trade union to reconfigure itself as a democratic structure with institutional security backed by workers power (Lévesque and Murray, 2010). It has been suggested that this will happen if the trade unions use the internet as a platform for “distributed discourse” (Greene et al., 2003; Hogan et al., 2010). They opined that distributed discourse will ensure the empowerment of union members, foster transparency of unions activities and decisions, and eliminate bureaucratic bearers (Flanagan & Walker, 2021). Greene and Kirton (2003) also believed that distributed discourse can lead to the reinvigoration of trade unions by the opportunity it creates for women and other precariously marginalised workers.

Concluding remarks

Trade unions remain the key player to protect the interest of workers even in a gig economy. Trade unions will continue to metamorphose and adapt to the changing world of work and employ every available tool (internet, machines, artificial intelligence) in its attempt to collectively represent workers irrespective of the nature of the economy. Hence, we conclude that it is important for trade unions to transform themselves into an organisation that can respond to the changing world of work and society in general. As we have noted from the emergence of web 1.0 some decades ago to 3.0 today, there is no likelihood that technological advances will abate, rather we expect further advances in technology. Hence, if the current technological trajectory is anything to go by, the next decade is likely to be fraught with even more challenges for the trade union.

Before the first industrial revolution and now the fourth industrial revolution, trade unions have remained the nexus for workers representation. Just like the introduction of machines reconfigure the way work was carried out during the first industrial revolution; artificial intelligence is being used to reconfigure the way work is construed today. It is believed that employers of labour are using artificial intelligence as a tool for automating work and in the process eliminating the right of workers in certain issues (Acemoglu and Restrepo, 2019; Zuboff, 2019). This thus leads us back to the question posed at the beginning of this chapter, ‘will there be massive job displacement as a result of the use of artificial intelligence?’ The extension of this question is ‘what will the impact on trade union membership be?’ The first part of the question has been aptly answered earlier, in these concluding remarks we will like to address the second part of the question.

There is no doubt that trade unions must continue to metamorphosis and adopt new techniques to regain and sustain membership. The clout of trade unions depends on the level of their membership, hence there can be no revitalisation without workers participation (Oyelere, 2014). The question then is ‘can trade unions use artificial intelligence to their advantage?’ ‘Can artificial intelligence aid trade union revitalisation?’ The answer to these questions is an emphatic yes. Artificial intelligence and other machine aided tools, for instance, can be used to strengthen trade unions internal democracy. A more open and democratic trade union is likely to attract estranged workers (Dibben, 2010; Harcourt, & Wood, (1980), and galvanise internal solidarity through cohesive collective identities, deliberative vitality, and participation in the life of trade union (Lévesque, & Murray, 2010). This will go a long way to secure what Gold, Preuss, & Rees, (2020) described as ‘institutional securities’ of trade union organisations.

It is also important to stress that what is described as ‘gig economy’ is not dissimilar to what is prevalent in many developing economies i.e. ‘informal economy.’ The informal economy is characterised by the inability of the workers to come together under an organisation and demand their rights. Workers in such settings in developing economies, often are not aware of these rights or unable to seek enforcement of these rights because of the lack of social protection schemes. In developed economies, however, where workers are aware of these rights and the social protection schemes, the gig economy has meant that workers lose their job security and protection because temporary work, in most cases, does not provide the same protections and benefits as permanent jobs.

We conclude with some of the suggestions put forward by some authors that have examined the impact of the current economic trends on trade unions, the role of artificial intelligence in the world of work and the attempts at revitalisation taken by different trade union organisations around the globe.

Trade union revitalisation and relevance strategies in a digital era:

1. Focus on new vision and mission: Trade unions need not just limit their scope in protecting the interest of workers rather they must focus on three major rights namely, civil rights (freedom of expression, freedom of speech), political rights (freedom and competency to elect and to be elected to sovereign establishments) and social rights

(access to facilities such as health, safety and welfare measures, clean and healthy food, water, sanitation etc.) (Nowak et al., 2018).

2. Focus on research and development: To know the changes happening in the economy and the steps taken to deal with those changes, unions need to either establish research units or expand the existing research units to help employees prepare better for future roles and responsibilities (Nissim and Simon, 2021).
3. Recruitment of 'Technology Experts': Recruitment of technology experts in management teams are required to get the relevant information about how technology may support unions and bridge the gap between what is needed and what is present. Technology experts may help unions build sound digital strategies for the unions (Pearce, 2018).
4. Skill development (Re-skilling and up-skilling): The main aim of re-skilling and up-skilling is to help workers whose job is at risk because of automation. Unions may collaborate with employers, corporations and government to arrange ongoing training programs for workers for their skill development so that they regularly get work assignments from the past employers or may apply in new organisations (Flanagan and Walker, 2021).
5. Empowerment of workers: Unions must identify certain sectors where there is still a huge scope for human labour and are not completely dominated by artificial intelligence-based automation. The sectors and jobs must be mapped appropriately to place workers. Workers may be empowered in such sectors for better working conditions (Nowak et al., 2018).
6. Welfare measures for workers in artificial intelligence era: Rights of workers about health, safety and welfare must be represented by unions especially in those organisations where automation is taking place. Workers who are working under strict digital supervision may need some support from unions and cannot simply rely on employers or government rules.
7. Artificial Intelligence Associations: Unions must enhance their knowledge base and networking base to keep abreast with the latest technological advancements. They must join committees and communities all over the world to remain relevant in the digital age (cath, 2018).
8. Retirement benefits for workers: Unions are known for their protective behaviour towards workers in general and fighting for better working conditions and fair remuneration for workers. They must ponder over ways where fair retiral benefits must be bargained with employers and organisations in which the replacement of workers is quite certain. Unions also need to request organisations to prepare workers for different career paths and provide them with proper training.

9. Creating ethical artificial intelligence committees: Globally, it has been observed that industry experts, academicians, government officials and other bodies are creating ethical committees for artificial intelligence-based automation and the only party left is trade unions, now it's high time that unions need to create committees for their regular discussion and ensure that this automation should not harm the dignity of workers (Eitel-Porter, 2021).

References

- Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: How technology displaces and reinstates labor. *Journal of Economic Perspectives*, 33(2), 3-30.
- Ackers, P (2015). Trade unions as professional associations. In: Johnstone, S, Ackers, P (eds) *Finding a Voice at Work? New Perspectives on Employment Relations*, Oxford: Oxford University Press, pp. 95–126
- Avdagic, S, Baccaro, L (2014). The future of employment relations in advanced capitalism: Inexorable decline? In: Wilkinson, A, Wood, G, Deeg, R (eds) *The Oxford Handbook of Employment Relations*, Oxford: Oxford University Press, pp. 701–726.
- Bogg, A. and Ewing, K.D., (2016). The Continuing Evolution of European Labor Law and the Changing Context for Trade Union Organizing. *Comparative Labor Law & Policy Journal*, 38, p.211.
- Braithwaite P (2017). Organising the workers whose jobs are made precarious by technology. *Open Democracy*. Available at:<https://www.opendemocracy.net/neweconomics/organising-the-workerswhose-jobs-are-made-precarious-by-technology/> (accessed 18 October 2021).
- Bray, M., Budd, J. W., & Macneil, J. (2020). The many meanings of co-operation in the employment relationship and their implications. *British Journal of Industrial Relations*, 58(1), 114-141.
- Burawoy, M., (2011). On uncompromising pessimism: response to my critics. *Global Labour Journal*, 2(1).
- Castells, M. (2013). *Communication Power*, 2nd edn (Oxford: Oxford University Press).

Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges.

Davies, W. (2019), "The Political Economy of Pulse: Techno-somatic Rhythm and Real-time Data", *Ephemera: Theory and Politics in Organization*, 19, 3, 513–536.

De Stefano, V. (2016). The rise of the " just-in time workforce": on demand work, crowdwork, and labor protection in the " gig economy". *Comparative labor law and policy journal*, 37(3), 461-471.

Deakin, S. F., Wilkinson, F., & Institute of employment rights. (1996). *Labour Standards Essential to Economic and Social Progress*. London: Institute of Employment Rights.

Dibben, P. (2010). Trade union change, development and renewal in emerging economies: The case of Mozambique. *Work, Employment and Society*, 24(3), 468-486.

Dokko, J., Mumford, M. and Schanzenbach, D.W., (2015). Workers and the online gig economy. The Hamilton Project, pp.1-8..

Dzieza, J., (2015). The rating game. How Uber and its peers turned us into horrible bosses. *The Verge*, 28, P.15.

Eitel-Porter, R. (2021). Beyond the promise: implementing ethical AI. *AI and Ethics*, 1(1), 73-80.

Ellem, B., & Shields, J. (2004). Beyond the will to unity: Theorising peak union formation, organisation and agency,!. *Peak Unions in Australia: origins, purpose, power and agency*, Ellem, B., Markey, R, and Shields, J.(eds), The Federation Press, Sydney, 32, 53.

Finkin, M.W., (2015). Beclouded work, beclouded workers in historical perspective. *Comparative Labor Law & Policy Journal*, 37, p.603.

- Fitzgerald, I., Hardy, J., & Lucio, M. M. (2012). The Internet, employment and Polish migrant workers: communication, activism and competition in the new organisational spaces. *New Technology, Work and Employment*, 27(2), 93-105.
- Flanagan, F., & Walker, M. (2021). How can unions use Artificial Intelligence to build power? The use of AI chatbots for labour organising in the US and Australia. *New Technology, Work and Employment*, 36(2), 159-176.
- Frege, C. M., & Kelly, J. (2003). Union revitalization strategies in comparative perspective. *Journal of Industrial Relations*, 45(4), 501-527.
- Fuchs, C. and Fisher, E. eds., (2015). *Reconsidering value and labour in the digital age*. Springer.
- Fudge, J. and Owens, R. eds., (2006). *Precarious work, women, and the new economy: The challenge to legal norms*. Bloomsbury Publishing.
- Gallin, D., (2001). Propositions on trade unions and informal employment in times of globalisation. *Antipode*, 33(3), pp.531-549.
- Gandini, A., (2019). Labour process theory and the gig economy. *Human Relations*, 72(6), pp.1039-1056.
- Gasparri, S., Ikeler, P., & Fullin, G. (2019). Trade union strategy in fashion retail in Italy and the USA: Converging divergence between institutions and mobilization? *European Journal of Industrial Relations*, 25(4), 345-361.
- Goergen, M., Brewster, C., Wood, G., & Wilkinson, A. (2012). Varieties of capitalism and investments in human capital. *Industrial Relations: A Journal of Economy and Society*, 51, 501-527.
- Gold, M., Preuss, L., & Rees, C. (2020). Moving out of the comfort zone? Trade union revitalisation and corporate social responsibility. *Journal of Industrial Relations*, 62(1), 132-155.

Graham, M., Hjorth, I. and Lehdonvirta, V. (2017). Digital labour and development: impacts of

global digital labour platforms and the gig economy on worker livelihoods. *Transfer: European review of labour and research*, 23(2), pp.135-162.

Greene, A. M., & Kirton, G. (2003). Possibilities for remote participation in trade unions: mobilising women activists. *Industrial Relations Journal*, 34(4), 319-333.

Gupta, N., Crabtree, A., Rodden, T., Martin, D., & O'Neill, J. (2014, February). Understanding

Indian crowdworkers. In *Proceedings of the 17th Conference on Computer Supported Cooperative Work* (pp. 1-5).

Hagiu, A., (2015). Work 3.0: Redefining Jobs and Companies In The Uber Age, *Forbes*.

Harcourt, M., & Wood, G. (Eds.). (1980). *Trade unions and democracy: strategies and perspectives*. Transaction Publishers.

Harris, S.D. and Krueger, A.B. (2015). A Proposal for Modernizing Labor Laws for Twenty-First-Century Work: The "Independent Worker" (pp. 2015-10). Washington, DC: Brookings.

Harvey, D., (1989). *The condition of postmodernity an enquiry into the origins of cultural change*. Oxford, Blackwell.

Hassel, A., & Schroeder, W. (2019, August). Trade union membership policy: the key to stronger social partnership. In *Industrial Relations in Germany* (pp. 73-94). Nomos Verlagsgesellschaft mbH & Co. KG.

Hayns, J., 2016. A Sharing Economy Strike. *Jacobin Magazine*. Available at:

<https://www.jacobinmag.com/2016/08/deliveroo-strike-sharing-economy-living-wage/>

(accessed 18 October 2021).

Healy, J., Nicholson, D. and Pekarek, A., (2017). Should we take the gig economy seriously?.

Labour & Industry: a journal of the social and economic relations of work, 27(3), pp. 232-248.

Hong, E., (2015). Making it work: a closer look at the gig economy. New American Weekly.

Hook, L. (2015). Year in a word: Gig Economy: the line between gigs and works is getting increasingly blurred. Financial Times, 29, 12.

Howe, J., (2006). The rise of crowdsourcing. Wired magazine, 14(6), pp 1-4.

Huws, U. (2016). Logged labour: A new paradigm of work organisation? Work organisation, labour and globalisation, 10(1), 7-26.

Hyman, R. (2007). How can trade unions act strategically? Transfer: European Review of Labour and Research, 13(2), 193-210.

Hyman, R (2015) Three scenarios for industrial relations in Europe. International Labour Review
154(1): 5–14.

Ibsen, CL, Tapia, M (2017) Trade union revitalisation: Where are we now? Where to next?
Journal of Industrial Relations 59(2): 170–191.

ILO (2021). Trade unions in transition: What will be their role in the future of work? ILO
webpage cited on 1st Oct 2021. <https://www.ilo.org/infostories/en-GB/Stories/Labour-Relations/Trade-unions-in-transition#introduction>

Johnston, H., & Land-Kazlauskas, C. (2018). Organizing on-demand: Representation, voice, and
collective bargaining in the gig economy. Conditions of work and employment series,
94.

Johnstone, S. (2016). Labour and management co-operation: workplace partnership in UK
financial services. Routledge.

Kaine, S. and Josserand, E., (2019). The organisation and experience of work in the gig
economy. Journal of Industrial Relations, 61(4), pp.479-501.

Kaplan, A., & Haenlein, M. (2020). Rulers of the world, unite! The challenges and
opportunities

of artificial intelligence. *Business Horizons*, 63(1), 37-50.

Kessler, S., (2018). *Gigged: The gig economy, the end of the job and the future of work*.

Random House.

Kountouris, N., (2012). The legal determinants of precariousness in personal work relations: A

European perspective. *Comparative Labor Law & Policy Journal*, 34, p. 21.

Lévesque, C., & Murray, G. (2010). Understanding union power: resources and capabilities for

renewing union capacity. *Transfer: European Review of Labour and Research*, 16(3), 333-350.

Mandl, I., Curtarelli, M., Riso, S., Vargas, O., & Gerogiannis, E. (2015). New forms of employment (Vol. 2). Eurofond, Luxembourg: Publications Office of the European Union.

Manyika, J., Lund, S., Bughin, J., Robinson, K., Mischke, J., & Mahajan, D. (2016).

Independent-Work-Choice-necessity-and-the-gig-economy. McKinsey Global Institute.

Manyika, J., Lund, S., Robinson, K., Valentino, J., & Dobbs, R. (2015). *A labor market that works: Connecting talent with opportunity in the digital age*. San Francisco, CA: McKinsey Global Institute.

Marcus, G., & Davis, E. (2019). *Rebooting AI: Building artificial intelligence we can trust*. Vintage.

Moore, J. (2019). AI for not bad. *Frontiers in big Data*, 2, 32.

Nissim, G., & Simon, T. (2021). The future of labor unions in the age of automation and at the

dawn of AI. *Technology in Society*, 67, 101732.

Nowak, J., Dutta, M., & Birke, P. (2018). *Workers' Movements and Strikes in the Twenty-first*

Century: A Global Perspective. Rowman & Littlefield.

Orlikowski, W.J., (2010). The socio materiality of organisational life: considering technology in

management research. *Cambridge Journal of economics*, 34(1), pp.125-141.

Ormerod, A. (2021). The Decline of the UK Textile Industry: The Terminal Years 1945–2003. In

The Cotton and Textile Industry: Managing Decline (pp. 54-97). Routledge.

Oyelere, M. (2014), The Impact of Political Action on Labour Movement Strength: Trade Union

Revitalisation in Africa. Basingstoke: Palgrave Macmillan

Pearce, G. (2018). Digital transformation? Boards are not ready for it!. *ISACA Journal*, 5.

Pfeiffer, S., (2013). Web, value and labour. *Work Organisation, Labour and Globalisation*, 7(1),

pp.12-30.

Philbeck, T., & Davis, N. (2018). The fourth industrial revolution. *Journal of International Affairs*, 72(1), 17-22.

Prassl, J. and Risak, M., (2015). Uber, taskrabbit, and co.: Platforms as employers-rethinking the

legal analysis of crowdwork. *Comparative Labor Law & Policy Journal*, 37, p.619.

Rogers, B., (2015). Employment as a legal concept. *Legal Studies Research Papers Series*.

Philadelphia: Temple University.

Sachs, B., (2015). Uber and Lyft: Customer Reviews and the Right-to-Control. *On labor*, 20.

Schwab, K. (2017). The fourth industrial revolution. *Currency*.

Sprague, R., (2015). Worker (mis) classification in the sharing economy: Trying to fit square pegs into round holes. *ABA Journal of Labor & Employment Law*, 31(1), pp.53-76.

Stewart, A. and Stanford, J., (2017). Regulating work in the gig economy: What are the options?

The Economic and Labour Relations Review, 28(3), pp.420-437.

Turner, L. (2005). From transformation to revitalization: A new research agenda for a contested

global economy. *Work and occupations*, 32(4), 383-399.

Valenduc, G. and Vendramin, P., (2016). Work in the digital economy: sorting the old from the

new (Vol. 3). Brussels: European Trade Union Institute.

Vandaele, K., (2018). Will trade unions survive in the platform economy? Emerging patterns of

platform workers' collective voice and representation in Europe. Emerging Patterns of Platform Workers' Collective Voice and Representation in Europe (June 19, 2018).

ETUI

Research Paper-Working Paper.

Vendramin, P., (2016). Work in the digital economy: sorting the old from the new. In 8th annual

TURI conference.

Visser, J., (2019). Can unions revitalize themselves? International Journal of Labour Research,

9(1/2), pp.17-48.

Weil, D., (2014). The fissured workplace. Harvard University Press.

Wright, C.F. and Brown, W., (2013). The effectiveness of socially sustainable sourcing mechanisms: Assessing the prospects of a new form of joint regulation. Industrial Relations Journal, 44(1), pp.20-37.

Zahn, R. (2019). Trade unions, the gig economy and the feminisation of work: lessons from the

past?. In: Theorising Labour Law in a Changing World. Hart Publishing, West Sussex,

pp. 107-123. ISBN 9781509921553

Zuboff, S. (2019). Surveillance capitalism and the challenge of collective action. In

New labor forum (Vol. 28, No. 1, pp. 10-29). Sage CA: Los Angeles, CA: SAGE Publications.