Digitalisation of Work and Resistance

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In this volume's second chapter, we outline developments in the uses and misuses of technology in workplaces today and everyday forms and trade union-led resistance. There is now evidence that, left unchecked, new technologies in workplaces can lead to overwork, loss of autonomy, the blurring of lines between life and work, intensified expectations for performance and what trade unions in the early twentieth century called 'speed-up'. While factory workers and delivery and truck drivers have been subject to movement tracking for years, technologies to do so have advanced in precision and scope for investigation. Now, new technologies, usually worn directly on the body, do not only read movements and location but spot physiological and physical activities such as steps and

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heart rate. Other technologies are embedded into equipment, such as computers or on desks and chairs and read heat and movement. Radio-Frequency IDentification (RFID) enabled badges even read wearers' gestures and tone of voice. Employers are even beginning to measure emotion and 'unseen labour' (Moore et al. 2017).

This chapter discusses workplace tracking, monitoring and surveillance, outlining which methods are in the ascendant as self- and other-tracking become increasingly prevalent at work. We look at cases of resistance to this, in the warehouse, in gig work and office contexts. We note everyday forms of resistance and evidence of dissatisfaction emerging via interviews held with workers in each arena. Then, we outline some examples of trade union responses. To theorise, these new processes of worker monitoring and control, we argue that workers' concrete labour is now increasingly subject to abstraction as new ways to measure our previously unseen labour become apparent and more subject to commodification in the process. In warehouse and factory work, accountability is transferred to workers but data are not transparent. In professional workplaces, this new employer prescription eliminates any possibility for negativity by highlighting wellbeing (Davies 2016; Cederström and Spicer 2015). But the outcome is the same: intensified control mechanisms over workers.

Electronic Performance Monitoring (EPM)

In the early 1990s, a US Senator on the Labour and Human Resources Committee, in hearings on the Privacy for Consumers and Workers Bill (S. 516) warned that 'unrestrained surveillance of workers has turned many offices into electronic sweatshops … electronic monitoring should not be abused…Employees should not be forced to give up their freedom, dignity or sacrifice their health when they go to work' (Collins 1991). Nonetheless, by 2010, an estimated 75% of American companies were shown to monitor employee communications and other at-work activities (Ball 2010). The estimated change in the US market use of technology to monitor employees rose by 43% between 2007 and 2010 (quoted in Schumacher 2011: 138) and we are now in

a period of what seems to be 'limitless worker surveillance' (Ajunwa et al. 2017).

Electronic performance monitoring (EPM) includes email monitoring, phone tapping, tracking computer content and usage times, video monitoring and GPS tracking. Data produced can be used as productivity indicators; indication of employees' location; email usage; website browsing; printer use; telephone use; even tone of voice and physical movement during conversation (see wearable technologies section). Perhaps, the longest history of EPM is seen in call centre work (Taylor et al. 2002; see Winifred Poster's chapter in this volume) where various types of surveillance facilitate lean working practices. Even emotion tracking is standard activity in Indian centres (Van Jaarsveld and Poster 2013). The concern is that EPM can be used to micromanage employees and invade privacy, lower job satisfaction, increase stress and lead to low-trust, negative work relationships (Schumacher 2011), all of which can lead to poor working and worker conditions. EPM has the very real potential for uses of bullying and new surveillance methods (Rosenblat et al. 2014; Ball and Margulis 2011). As Rothstein pointed out, in relation to workplace monitoring:

> At work, human dignity is denied by treating the employee as a mere factor of production with fixed capacities and vulnerabilities determining her behavior and ignoring both the worker's individuality in the face of statistical probabilities and the human potential to overcome or compensate for physical obstacles. The worker's dignity is denied when she is treated as a mechanism transparent to the view of others at a distance and therefore manipulable or disposable without the ability to confront the observer. (Rothstein 2000: 383–384; also see Gantt 1995)

Now direct productivity monitoring, enabled by software installed into work and personal computers, brings a new EPM technique. Examples include RescueTime (used in the office case study presented below), Toggl, ATracker and My Minutes. Quantification and datification introduce pressures compounding a world of work where employees are 'always on', or even 'hyper-employed'. The constant onslaught of communications and information and expectations to personally manage

work that was once done by another specialist in the company in timetabling and accountancy has led to 24/7 working lives (Bogost 2013). The 'overwhelmed employee' checks her mobile devices up to 150 times a day and suffers from information overload, inability to find time to reflect and even just to think, leading to employee disengagement and undermining productivity (Hodson et al. 2014).

The power of tracking work with EPM is in the possibilities for aggregation of 'big data'. Implicit is that the type of activity and the length of time spent on activities can be inherently linked to a qualitative judgment about a worker's performance; information that could be used in appraisals or hiring and firing decisions. Intimate performance dashboards provided by most EPM technologies incorporate contextual information obtained from tracking devices, such as levels of physical activity, level of stress or presence and absence scores. The data itself is seen as the indicator of value. However, as pointed out by Angrave et al.:

> …the process of modelling and creating dashboards and traffic lights is not value neutral but depends on dominant paradigms and perspectives within accounting and operations management, which themselves reflect ideology, politics and power. (2016: 7)

These practices are rapidly superseding other forms of management methods as data produced is seen to be a reliable indicator of productivity. New EPM then is very different from traditional methods and can have very negative consequences (Jeske and Santuzzi 2015). Reliance on metrics from tracking devices potentially dehumanises workers and the associated pressures result in biased performance evaluations; pressures for increased work or work intensification; reduction of autonomy (Bhave 2014; Haque 2015) (linked to privacy concerns); and perceived intensified control over individuals' work (Jeske and Santuzzi 2015). These pressures lead to reduction of commitment and lowered job satisfaction.

In professional settings, sensory tracking devices are often provided in wellness initiatives. In 2015, nearly a fifth of employees in Europe had access to wearable technology at work (ADP 2015). Now, one in three

companies provides wearable devices to track activity (Jiff 2016), save money (Daws 2016) and improve employees' health and happiness. The 'quantified work environment' (Bersin et al. 2016) resembles the world of athletes where technology aids people in identifying peak performance times and gaining rapid feedback. As incorporation becomes normalised, employees risk feeling excluded from programmes if they choose to opt out, where both stigmatisation and financial penalty may incur for employees who opt out (Hamblen 2015; Rosenblat et al. 2014). Is 'opting in' or 'out' ever possible in any employment relationship? Quantifying the self, in the Quantified Self-movement which started in Silicon Valley in the first decade of the 2000s, is about self-discovery and personal pilgrimages. The quantified *worker* does not have the luxury of a fully private, authentically individualised platform because their labour is ultimately accountable to the employer or client.

Moore, Roper and Piwek have researched one company's Quantified Workplace (so-named by the company) wellness initiative as part of a British Academy/Leverhulme funded project entitled 'Agility, Work and the Quantified Self' (2015–2017), where the employer at a company in the Netherlands provided FitBits, RescueTime and gamified activities to employees. Researchers noted a high rate of resistance from the Quantified Workplace study. FitBit use decreased significantly throughout the project. Three participant comments indicated concern about what personal data management were viewing, increasing to 21 in the final interviews. More than half of the participants in the Quantified Workplace project expressed concern with the amount of personal data that employers can access via wearable technology. Most participants were cautious about corporate privacy practices. In the first survey, 66% of participants agreed that consumers have lost all control over how personal information is collected and used by companies; 62% disagreed that 'most businesses handle the personal information they collect about consumers in a proper and confidential way'; 43% disagreed that 'existing laws and organizational practices provide a reasonable level of protection for consumer privacy today' (Moore et al. 2017).

In terms of legalities of wellness programmes that introduce more intimate and detailed tracking products, lawyers are warning that the use of productivity and health tracking in appraisals is a grey area. Using

wearable technologies to decide on promotions and bonuses could significantly contravene US Federal law, for example. It would draw attention to the Americans with Disabilities Act which 'prohibits employment discrimination based on health status and generally forbids employers from inquiring about an employee's health status' (Sheppard Mullin 2016). Medical data is, for the most part, protected by law and health-related discrimination is illegal. A report in the National Law Review warns employers to take note of the following when pursuing a productivity-tracking system with wearable devices:

1. The Americans with Disabilities Act (ADA) prohibits employment discrimination based on health status and generally forbids employers from inquiring about an employee's health status.
2. The Genetic Information Nondiscrimination Act (GINA) prohibits employment discrimination based on genetic information and forbids employers from asking about an employee's genetic information.
3. The Health Insurance Portability and Accountability Act (HIPPA) establishes standards to protect the privacy of personal health information, which may include information collected by an employer to track employee productivity (Sheppard Mullin 2016).

Productivity data is an area of obvious direct interest to an employer and has different legal protection but many devices can now track many aspects of workers' everyday lives. The Personal Data Protection Agency, in the country where the Quantified Workplace experiment was run, put forward a series of queries to the local data analyst working on the company's study. The Agency asked in a quite incisive manner: 'Is the relationship between an employee and employer ever actually consensual?' (ibid.). The new constant-on nature of work; the rise of algorithmic distribution and selection of work and threat of automation leading to a 'technological fix' (Silver 2003: 64–66), and the use of wearable tracking devices have become significant concerns for workers' well-being. Employers have significant leeway to gather information about employees but new technologies available for human resource management have unprecedented possibilities for what employers can know about workers, inviting questions on regulation, privacy, data protection,

work intensification and datafied, data-based decision-making. Legal discussions in this area are lagging significantly.

Delivery drivers have been tracked for decades and the introduction of satellite technologies has allowed this practice to become ever more meticulous. Domestic workers are increasingly tracked and monitored which leads to stress and unpaid work (see chapter by Moore and Hayes in this volume). According to *The Week* magazine, one UPS driver told *Harper*'s that the employer uses new metrics as a 'mental whip', noting that 'people get intimidated and work faster' (The Week 2015). The use of new wearable devices that allow location tracking and speed of warehouse work has led to rationalisation of workforces, such as in the case of a retailer, Tesco, where wearable badges tracking working speed in warehouses were demonstrated to reduce the need for full-time employees by 18% (Wilson 2013). Employee tracking in Amazon warehouses has resulted in reports of heightened stress and physical burnout. Indeed, employee health and safety usually comes secondary to lean logistics and speed of work in depot work (Mulholland and Stewart 2013).

One warehouse operative, Ingrid (not her real name), who has worked in one warehouse in Britain for 11 years, provided information about a new worn device that was rolled out in her workplace in February 2016. All warehouse work floor operatives were unexpectedly required to use the hand-worn scanner. The current researchers asked what the workers were told the devices would be used for. Ingrid indicated that management told workers the devices would provide them with information about any mistakes made and who in the warehouse had made them, meaning that they can be used to help to not do this again.

In practice, however, Ingrid indicated that the technology has been used not only to track individual mistakes but also to track individual productivity and time spent working and on breaks. Workers were told that management would hold individual consultations based on the data, but this had not happened. Instead, at a specific interval in the months that followed the devices' implementation, workers were told that people would be fired within days and it transpired that data from devices were

part of the decision-making process for who to dismiss. Ingrid was not clear how the data was interpreted, however, as seen in her response here:

> Recently they sacked two or three people, and they decided this based upon who did least work. Maybe it was in May, when things get a bit quieter at work. They sacked three people: one of them was lazy, so I understand why. But the other two were very good. A week before the sackings, the management said, 'Everyone be careful because we are going to fire someone from the temporary staff'. So everybody speeded up.

Ingrid indicated concern that the data accumulation was in fact, being rigged. In one case, she and co-workers suspected that specific people were given easier tasks during a period of amplified monitoring. She and a co-worker visited the manager's office during a night shift, when s/he was not in the office, and observed paperwork on the desk that proved some of their suspicions. Even with this possible grievance on their hands, while warehouse operatives are permitted to join trade unions, Ingrid indicated that she is not part of a trade union and that she is not aware of any membership in her workplace. In any case, no consultation was held with relevant trade unions nor with workers before the technology was integrated. Ingrid stated:

> We're aware that the tracking might be used to put pressure on us to work faster, and it might be used to sack people. But lots of us feel that we don't care anymore. Because physically we just can't do any more.

Another example of resistance to surveillance and EPM is seen in Taiwanese outsourcing firm Foxconn, where an almost 1 million-strong workforce produce many of today's technological gadgets in a production regime which 'sacrifices dignity for corporate profit in the name of economic growth' (Chan and Pun 2010: 3). Stress and psychological breakdowns, as well as physical health problems, are routine effects of such production conditions. Workers report they are 'losing their futures' (ibid: 4). Among the characteristics of Foxconn's work regime are rigid internal surveillance systems, such as identity checkpoints, frequent body searches and the use of extreme forms of quality control

(Chan et al. 2013: 109). Wearable and quantified technologies (also discussed below) range from low-tech colour-coding of uniforms to the use of fingerprint scanners, electronic smart cards and alerting devices which are central to this regime. Harmful conditions and health and safety violations leading to fires and employee suicides are also well documented (Chan et al. 2013; Bieler and Lee 2016).

The Machine Question: Work at Risk and Reputation by Algorithm in Online Platforms

David Ricardo introduced the 'machinery question' in 1821, referring to the 'influence of machinery on the interests of the different classes of society'. The 'machinery question', he indicated, centered around the 'opinion entertained by the labouring class, that the employment of machinery is frequently detrimental to their interests' (1821). Marx, in defense of the working class, indicated that 'like every other instrument for increasing the productivity of labour, machinery is intended to cheapen commodities and, by shortening the part of the working, day in which the worker works for himself, to lengthen the other part, the part he gives to the capitalist' (1867/1990: 492).

Research on the capability of machinery to carry out human-like activities started in the 1950s when a researcher first coined the term 'artificial intelligence' in a report, where the author wrote that progress can be made in getting machines to 'solve kinds of problems now reserved for humans' (McCarthy et al. 1955). The term artificial intelligence was abandoned after the 1950s as people discussed 'expert systems' and 'neural networks' (Ford 2015) but resonates with simultaneous social concern that machines could actually steal paid work from humans. Ted F. Silvey, from the National Headquarters department of education staff of the Congress of Industrial Organizations (CIO) and American Federation of

Labour (AFL), pointed out that 'machines and instruments can do almost everything except buy what they make!' (1958). He noted (1957) that:

> Instruments substitute for man's mind, just as the rest of the machine takes the place of his muscles. Machines are acquiring the skill of human beings, but they must work faster and more accurately than anything of flesh and blood—and they never tire.

In this context, trade unions were concerned in the early Western era of manufacturing that the technologies involved in mass production worked to 'trivialize' man by its 'repetitive performance of bits. His craft skills, his creativeness, his human dignity, his uniqueness were, at best ignored and at worst, stomped on', causing the 'destruction of the workers' dignity as people' (Silvey 1956: 3).

This same trade unionist also optimistically pointed out the possibilities that mechanisation would reduce the work week and work year, 'both with full wage or salary income' (1958) and claimed that 'automation promises a time when a comparative handful of people will have to work in factories at the dull, repetitive tasks demanded by mass production' (1957: 30). Silvey's optimism as well as pragmatism are remarkable: he states that 'in the long run, automation will make more jobs…but the challenge is to solve the problem in the short run, to give immediate aid to the worker whose fingers are caught in the door when it is slammed shut' (1957: 29). In the 1970s, Braverman (1974/1998) hinted at the origins of algorithmic processes as a feature of the development of machinery, indicating that 'when the tool and/or the work are given a fixed motion path by the structure of the machine into that machinery in the modern sense begins to develop' (130). The machine's ability to run itself has become almost accepted in contemporary life, but what happens when humans begin to make decisions based on the specific aspects of the machine's operations with little or no external interference?

Today, the machinery question is 'back with a vengeance' (Economist 2016: 3) because this question is infiltrating professional workplaces where all kinds of work can be increasingly automated. In 2012, the ImageNet Challenge set people to programme computers to recognise images. These 'challenges', or contests, coordinated by top researchers

and corporations became a measure of success in the field, contributed to the rapid improvement in what is called 'deep learning', and the computer's ability to recognise images has now surpassed humans. This, and other experimentation, is bringing about the realisation that tasks once considered the exclusive remit of humans are now at risk of automation, mechanisation and digitalisation. Frey and Osborne's more recent report (2013) demonstrates that both repetitive and non-repetitive jobs are now susceptible. Tele-marketers, tax preparers, insurance underwriters and library technicians are at a high risk of automation, at 0.99 probability (1 = certain). Work in the professions as health care and social work (0.0035) and recreational therapy (0.0028) are also under threat. A great deal of legal casework research can now be done by computers using deep learning algorithms (Ford 2015). Non-routine work such as driving and deciphering handwriting are now being made possible by machines (Frey and Osborne 2013: 17).

So, the threat of automation in factories has been updated by new patterns of labour selection in new work design models such as the 'sharing economy', facilitated by new methods of work selection and distribution called people analytics (PwC 2015), which facilitate a process of identity management (Ajana 2013) and what Ajana calls 'digital penetration' (2017: 3), evident in new online platforms in the demand economy (AFL-CIO 2016), where people buy and sell labour. The sharing economy or work in the 'human cloud' includes, such platforms as Upwork, ODesk, Guru, Amazon Mechanical Turk, Uber, Deliveroo and Handy which are called 'online platforms' in the Digital Single Market European Commission terminology (2016a, b). Huws (2015a, b) and Cherry (2011) label this type of exchange and work 'crowdsourcing' and Huws defines it as 'paid work organized through online labour exchanges' (2015a, b: 1).

Crowdsourcing has facilitated companies' outsourcing of labour as well as introduced new platforms for freelance and self-employed work. The Office of National Statistics in the United Kingdom reported in July 2016 that the number of self-employed workers increased from 3.8 million in 2008 to 4.6 million in 2015 (ONS 2016). The platform economy relies on self-employed contracted labour in both the UK and internationally and, as such, workers on these platforms have no access to

regular employment benefits such as health care or maternity leave. Workers have very little legal protection either and platforms are designed to reduce employer liability.

When these kinds of platforms were first introduced, workers used them to top up incomes and the work was mostly in more advanced countries. However, over time, workers with no other incomes in both the global North and South have become heavily reliant on these spaces. They facilitate outsourcing of work to the global South where the price paid for human labour is lower and labour market regulation is localised and limited (Bergvall-Kåreborn and Howcroft 2014). But now even professional tasks on these platforms are being 'broken down by their least common denominator…' and 'the way that tasks and human capital is being viewed and handled is… one that almost serves to dehumanize workers' (Cherry 2011: 30). Companies have tended to follow minimum standards, particularly, in the global South (Estreicher and Cherry 2008) and often adopt unenforceable Corporate Social Responsibility models, which affects how outsourced labour occurs.

On the 'crowdwork' (Berg 2016) platforms Amazon Mechanical Turk and Upwork, people place available job contracts online and workers contact clients to pick up work. Work is often distributed in a piecemeal fashion to various workers as part of outsourced labour. The work offered by such platforms ranges from graphic design to programming, but communication between the worker and client is usually very limited, leading to a distinct lack of transparency. This can raise ethical questions as 'workers are unable to make judgments about the moral valence of their work' (cited in Bergvall-Kåreborn and Howcroft 2014: 218). Further to this, intensified reputation self-management is standard practice in the online labour market as freelancers seek work and as employers or clients actively profile employees with the use of new technologies (Pasquale 2010; Gandini 2016; Bodie et al. 2016). The chasing and utilising of social capital to enhance and further careers and to find work and employment is not itself new, but the type of reputation formed that allows freelancers and the like to find work on online platforms is 'based on algorithmic-based third party elaboration that translated the opinions of others into reputation proxy' (Gandini et al. 2016) (also see Gandini and Pais' chapter in this volume). So reputations

are acquired through the number of tasks a worker took on board and ratings by customers. For example, Uber drivers report that if they receive customer 'star' rankings below 5.6 or 4.5 they can be fired, despite some aspects of a journey can have nothing to do with a driver's performance such as traffic and 3G or the soiling of the car by another passenger. Drivers receive no help from the firm for related issues and often receive much less income than they were promised upon becoming drivers (Brownstone 2015). The paradox and fiction of algorithms is that they are 'absent' of 'human bias' (Frey and Osborne 2013: 18). However, Bodie et al. point out that 'workers want to be treated as people, not ranked as fungible data sets or assessed as cost centres' (2016: 75).

Human behaviour profiling and resulting data allow management to make judgments about who people are as well as to predict future behaviour. Computer-generated data is expected to be reliable, neutral and to help with forecasting (Amoore 2013; Cheney-Lippold 2011). The assumed neutrality and utility of data for these purposes is what is at stake in workplace power relations, whether the workplace is one of a freelance worker or a full-time employee. Workers are increasingly easily selected and discarded; replaced and disposable in this 'profane' referencing system (Gandini et al. 2016). Reputation in the online labour market has become incredibly important for work that happens in digital spaces, so-called 'virtual work' (Huws 2014, 2013; Holts 2013) and 'digital labour' (Fuchs 2014).

Online platform work is largely unregulated, leading it to resemble a neo-Darwinist arena of uncertainty, where discrimination is fully experienced offline but is generated online, where social relations of work are masked and anonymised. Accountability is heavily skewed towards workers, which is exacerbated when casualised work is on the rise. Virtual work has already been proven to perpetuate precarity and pressures people to overwork (Huws 2014; Moore and Robinson 2016) and facilitates a process Dyer-Witheford calls 'cyberproletarianisation' (2015). The platform Upwork's website provides a link to a section called 'Am I Safe Working Here?'. The 'I', however, refers to safety for clients rather than workers. Upwork provides a Work Diary which is a billable time system recording all work completed. The diary takes a screenshot of a freelancer's screen every 10 min to verify work and counts keystrokes

during work sessions. Upwork Messages also provides an online messenger system allowing real-time discussion if desired. Upwork ensures clients their 'right to ownership of intellectual property' and will provide dispute assistance (Upwork 2016).

Amazon Mechanical Turks' Participation Agreement limits its role in the transactions between 'requesters' and 'providers', putting the emphasis on both ensuring legality of transactions and appropriate taxing. This Agreement indicates clearly to providers that: 'you will not be entitled to any of the benefits that a Requester or Amazon Mechanical Turk may make available to its employees, such as vacation pay, sick leave, insurance programmes, including group health insurance or retirement benefits; you are not eligible to recover worker's compensation benefits in the event of injury' (AMT 2014).

Present author Moore was privileged to be invited to speak at the Royal Society of Arts in 2016, where the group was writing a booklet on gig work. Mags Dewhurst, who is both an active member of Independent Workers Union of Great Britain, was also invited to speak. Dewhurst is a same-day medical pushbike courier for CitySprint UK Ltd. Moore asked her about some of the changes she has witnessed over the 5 years she has done this work. Dewhurst indicated that there is a rise in technology such as use of handheld computers (XDA/PDA like Palm Pilots) or apps—both in the courier industry and food delivery. These technologies have digitised what used to happen on paper and are used primarily for the collection of signatures to authorise pick up and collection of parcels. However, the related devices also allow companies to GPS track all couriers' movements live, as well as live process of collection and delivery at every stage. Dewhurst stated that:

> …your every move and action are tracked in a digital audit trail. This is quite different from the days when couriers used to work off paper and rely solely on the use of the radio (wallow talkie) to receive jobs. Now everything is digital there is much less freedom and much higher amount of control, thus meaning we are much less 'independent', even though our contracts say we are totally free and independent.

Moore asked Dewhurst, in her view, what is the biggest threat to workers' rights, in this context? She noted that bogus independent contractor/subcontractor contracts are prevalent in gig economy work. She indicated that the rise of digitalisation, automation and algorithmic management have risen, stating that: 'Used in combination, they're toxic and are designed to strip millions of folks of basic rights'. Moore asked: 'Which rights are being stripped, in your context of work?' Dewhurst indicated, 'All of them. The only bit of legislation that protects me would be the Equality Act, but that would only protect certain characteristics and would be hard to win anyway. Holiday pay, NMW[1], sick pay, pensions, parental leave, redundancy, tax and in contributions … is removed via IC contracts'.

Moore asked what kinds of organising she and colleagues have done, and Dewhurst indicated that they have:

> Built a branch of the IWGB UNION. This is the mechanism we have found most effective for creating change - as it helps consolidates a fragmented community and gives people hope and strength in numbers and through collective fights. So far we have won three major pay rises of 20-30% at London's big three courier companies; City Sprint, Ecourier and Absolutely Couriers. We also won at Gophr a small app company but they recently backed out of the agreement. We are also in the process of challenging our IC status in the courts at four of the big courier companies. We've also had limited success with the Deliveroo strike in August. Although we didn't manage to stop the new pay structure coming in, we helped the workers escalate their strike, created loads of positive publicity and helped to shine a big light on the gig economy and exposed the contradictions inherent in it — which are all present in the courier industry as well obviously.

Moore asked what more can be done to organise and reform work and what is stopping people from doing it? Dewhurst indicated that the difficulty with unionising gig economy workers is that it is hard to get access to workers who are on the move constantly, where their work is scattered across large areas. Dewhurst noted that 'if we can't get legislation to force companies to let unions in from the off, which is highly

likely, then unions need to try harder'. She noted that a problem is that unions often have a very negative attitude that only serves to prevent action. Dewhurst related that she often hears big unions complaining about anti-trade union legislation, lack of participation and blames the government for why they are not winning. In her mind:

> …this is the wrong attitude and is a recipe for inaction and is defeatist. If this is the attitude, of course nothing will happen and of course you won't convince anyone to take action. What was great about the Deliveroo strike was that it was autonomous: the drivers did it by themselves, we merely assisted once it got going. It exposed the failings of government, business, and the unions!! Now slowly, the big guys are waking up and gearing up but I doubt much will happen. As ever we will rely on workers to have the courage themselves to take action and force change and that is where the real power lies.

Trade Union and Legal Responses

This section outlines and trade union responses to the types of worker surveillance and monitoring outlined above. UNI Global Union has actively campaigned for workers' digital rights since 1998. Its trade union affiliates recognise how the use of technology has facilitated a 24/7 working culture. The UNI Global Union ran its fifth annual work–life management fortnight from 7 to 20 October 2016, the theme of which was: *Achieve more with less stress* and focuses on technology and work–life balance. Trade unions recognise that it is not technology *in itself* that has fostered the most negative aspects of how technology is applied in the workplace, but it is the *use* of these technologies. Previous to this, research carried out by UNI Global Union affiliates in 2015 demonstrated that the negative aspects of 24/7 mobile working lifestyles arise not only from the presence of technology at work but also because of workplace management cultures. In Community Business' survey (2012) of workers, almost a quarter of people said they use mobile devices and technology for work outside office hours because their bosses expect them

to. Almost one-fifth said it was because their clients expect them to. So, it seems that it is not phones themselves that are preventing workers from relaxing, it is other people. Workers may need to do early morning or late-night conference calls, but they may be happier to do so if flexible working patterns let them cut their commuting time or juggle home and work commitments. Office workers may need to think about their own habits too. One reason colleagues and clients can so easily reach us out of hours is that those being contacted are already on their tablets or phones, using social media or checking the football scores. People are more likely to hear the ping of an email arriving, so they more likely to deal with it. The sender then assumes individuals are happy to work out-of-hours and bombards them even more in future. So it is not just employers and clients who need to learn the lessons about technology. Presenteeism (either at the desk or at the end of the phone), and how we can work most productively, is also a process of workers' recognition of the pressures we are facing and pushing back which, as we have observed above, is already happening in various contexts.

Trade unions and employers' organisations in many countries are increasingly debating or proposing guidance, policies and codes of practice on workplace digitalisation and have begun to discuss proposals for updating workplace-specific data protection and privacy legislation. Despite the lack of multi-employer bargaining on privacy and technology use, there are examples of where trade unions have successfully negotiated with legislators and employers, or won judicial victories, in defence of workers' rights to privacy and the right to be protected against the risks that come from poorly regulated or managed use of digital technology encroaching on workers' private lives. A notable example is from Belgium, where the 2002 National Collective Agreement on protection of employees' private lives (No. 81) with respect to controls on electronic online communications data (earlier agreements covered matters such as workplace video monitoring) called for information to be provided at both individual and collective level. Trade unions in Belgium were instrumental in getting government backing for 'well-being at work' legislation in 2014, just as Swedish trade unions played a key role in getting the government to pass a new 'health and safety, stress and violence' law in 2014, in an attempt to mitigate against the most

egregious consequences of technology-related stress in the workplace. The Argentine trade unions impressed upon their government the need to issue a 'decree on health workers and stress' in 2015, while the French trade unions presented a united front in support of the 'right to disconnect' clause within the El Khomry labour law reforms of 2016 to tackle work-related burnout from stress based on digital technology spilling over into employees' private lives.

In 2001, the Confederation of Danish Trade Unions (Landsorganisationen i Danmark, LO) and Danish Employers' Confederation (Dansk Arbejdsgiverforening, DA) adopted a 'basic agreement' which concerns new control initiatives at the workplace. It states that any new control arrangements or mechanisms at the workplace must be announced at least 2 weeks prior to their introduction. In Greece, the National General Collective Agreement refers to protection of personal integrity requiring: 'contracting employer organisations [to] underscore to their members the obligations for enterprises as regards the protection of the individual relative to matters of a personal nature, aimed at protecting workers' personal integrity'. In Germany, the Federal Constitutional Court and Federal Labour Court ruled in favour of the trade union position that any 'secret' monitoring, i.e. without the worker's consent is an intrusion into a worker's private life.

At the international level, trade unions have focussed on the issue of workplace privacy. The central 'basic agreement' between the Norwegian Confederation of Trade Unions (Lands-organisasjonen i Norge, LO) and the Confederation of Norwegian Business and Industry (Næringslivets Hovedorganisasjon, NHO) contains an agreement on monitoring activity in enterprises (there are similar rules in other basic agreements between social partner confederations). The agreement stipulates a range of conditions under which monitoring and control measures may be implemented by the employer, emphasising the principles of objectivity and proportionality. The introduction of such measures should be discussed with union representatives as early as possible prior to implementation. Employees should receive notice of the proposed measures before they are implemented (on the objective of monitoring, its consequences, etc.). Trade union representatives should be consulted regarding handling and registration of the information acquired through such monitoring. The agreement also refers to the Act relating to the

processing of personal data. If provisions of the agreement are ignored prior to implementation of measures, the measures may be deemed unlawful by the Labour Court. So, we see that the integration of new technologies into workplaces has been neither neutral, nor undisputed process. Worker and their representatives have carried out both passive, everyday and more direct forms of resistance. Now, we conclude that more must be done in the face of the risks and dangers that we face at work resulting from new technologies of control.

In Conclusion

Even the World Economic Forum is publicly expressing awareness of the transformations that new technologies are creating for current social life. Founder of the WEF, Klaus Schwab (2016), writes that:

> We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society.

Industrie 4.0, Schwab goes on to say, is 'characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres'. We argue that these incredible transformations, which are seen to be just on the horizon, should be discussed seriously in corporate, trade union and employer association circles, considering the significance of the new technologies available to employers and which are dominating labour markets in some areas, as we have detailed above.

In conclusion, we outline a suggested code of conduct that emerged from a UNI Global Union conference in Brussels in 2000 on the legal and practical issues raised by the use of electronic media at work. Based on contributions made at the conference, and the experience of companies and unions that have already implemented 'electronic facilities'

agreements, UNI drew up a code of practice on online rights at work, designed to 'establish an internationally recognised yardstick of what constitutes good practice'. The code is in four parts:

a. *Trade union communication*. Works councils, trade unions and their representatives should have the right to access and use enterprise electronic facilities for works council or trade union purposes, both internally and externally. This includes the right to send relevant information to all employees. Employees should have the right to use enterprise electronic facilities to communicate with their trade unions, works council and their representatives. This part of the code seeks to extend to electronic means of communication the provisions on workers' representatives' facilities contained in the 1971 ILO Convention 135 and Recommendation 143. It notes the nature of communication has changed, with employee representatives in different branches of a multinational company now needing to be able to cooperate and coordinate work across international borders. Moreover, an increasing number of employees are working from home, from remote telecentres or on the move.
b. *Non-business communication*. Employees should be permitted to use enterprise electronic facilities for non-business purposes, both internally and externally, provided that this is not detrimental to their work responsibilities.
c. *Monitoring and surveillance of communication*. The employer is obliged to undertake not to subject employees' use of the enterprise's electronic facilities to clandestine surveillance and monitoring. Communication should be subject to surveillance and monitoring only if: this is permitted by collective agreement; the employer is legally obliged to do so; or the employer has reasonable reason to believe that an employee has committed a criminal offence or serious disciplinary offence. Access to surveillance and monitoring records relating to individual employees should take place only in the presence of a trade union representative or a representative selected by the employee. UNI states that these provisions take into account various international and European law and guidelines on workplace privacy.

d. *Conditions for use of electronic facilities*. Employee rights to use enterprises' electronic facilities should be subject to a number of conditions: communication must be lawful and not include defamatory or libellous statements; enterprises' electronic facilities shall not be used as a means of sexually harassing other members of staff or spreading offensive comments or intolerance; and the employer can require a disclaimer when employees are communicating internally and externally, making clear that the views expressed are those of the author alone and not those of the enterprise.

We suggest that this kind of code of conduct should be updated to deal with Industrie 4.0 issues such as employers' access to health information made available by FitBits and other similar devices, storage of data, transfer of data, data protection, privacy and worker access to the data they generate.

In our new world of work, people are faced with a range of new issues and pressures introduced along the continuum of machinic possibilities. From electronic performance monitoring, the threat of automation, to algorithmic management platforms, we are faced with a range of urgent questions. What should my boss or client know about me? Who decides what they know and should know about me? What protections will exist in a world where it is increasingly difficult to switch off and log out? Technologies like Olivetti Research's Active Badge and successors such as the Sociometric Badge and Wearable Sensor Badge can do far more than a traditional swipe card. It can trigger automatic doors, transmit wearer identities and forward telephone calls. Some can also record workers' movements, speech, proximity and interactions, and analyse voice patterns and non-verbal cues to deduce mood and interpersonal influence (Lindsay 2015; Mohan et al. 2009: 45). In early 2016, employee presence recorders were attached to desks in *The Daily Telegraph* newspaper offices without employee consent, which was received badly by the employees. Ironic, really, the journalists thought, as they should be on the 'beat' to get good stories, so why was their desk-time being monitored? These workers were in a good position to do something about it, the OccupEye devices were removed after journalists publicised the issue widely (Mance 2016). In another example, an employee was told by her

US employer to keep the GPS tracking device on her phone switched on even when she was out of office hours. The employee was fired for disabling it out of hours. The employee sued her employer for economic and non-economic damages (Kravets 2015). The potential for displacing management accountability for workers' stress levels and the support for decision-making on redundancy on the basis of data is very real in these contexts. As we show above, workers are not passive agents during this period of change and have already begun to resist the related pressures that new forms of tracking and monitoring introduce, from 'art-houses to warehouses' (Moore and Robinson 2016: 2778). What will happen next depends on how transparent datafication processes are introduced in workplaces, how inclusive communication is, and the ever-important role of trade unions in this process.

Note

1. National Minimum Wage.

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