Essential jobs, remote work and digital surveillance: Addressing the COVID-19 pandemic panopticon

Antonio ALOISI* and Valerio DE STEFANO**

Abstract. *An unprecedented COVID-19-induced explosion in digital surveillance has reconfigured power relationships in professional settings. This article critically concentrates on the interplay between technology-enabled intrusive monitoring and the augmentation of managerial prerogatives in physical and digital workplaces. It identifies excessive supervision as the common denominator of "essential" and "remotable" activities, besides discussing the various drawbacks faced by the two categories of workers during (and after) the pandemic. It also assesses the adequacy of the current European Union legal framework in addressing the expansion of data-driven management. Social dialogue, workers' empowerment and digital literacy are identified as effective ways to promote organizational flexibility, well-being and competitiveness.*

Keywords: *essential workers, telework, digital surveillance, COVID-19, algorithmic management, employee monitoring, managerial prerogatives, collective bargaining.*

1. Introduction

The first quarter of 2020 marked a traumatic hiatus between the past and the "new normality" – an uncharted territory whose contours are still largely unknown.

On 11 March 2020, the World Health Organization classified the outbreak of coronavirus disease (COVID-19) as a pandemic and advised governments to implement substantial measures to address the first global wave of this public

* IE Law School, IE University, Madrid, email: antonio.aloisi@ie.edu (corresponding author).
** Osgoode Hall Law School, York University, Toronto, email: vdestefano@osgoode.yorku.ca. Antonio Aloisi's contribution is made within the framework of the "Boss Ex Machina" project, which has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Marie Skłodowska-Curie grant agreement No. 893888. Valerio De Stefano's contribution is made under the Odysseus grant "Employment rights and labour protection in the on-demand economy" from the Research Foundation – Flanders (FWO).

This article is also available in French, in *Revue internationale du Travail* 161 (2), and Spanish, in *Revista Internacional del Trabajo* 141 (2).

health emergency. This ushered in restrictions on activities such as in-person schooling and team meetings, mass gatherings and long-haul travel. However, all these activities were promptly offered surrogacy by digital means, especially but not exclusively in the world of work. It is undisputed that new technologies have largely benefited from these forced isolation measures, and they are likely to be an ever more pervasive presence in workplaces and society at large as a result. The instant effects of the pandemic have led to a powerful digital acceleration that could have otherwise taken decades to come about. Widely described as a magnifier of pre-existing trends, the pandemic should therefore be regarded as having opened a window on to some possible futures of work that have been made possible sooner than anticipated and are causing growing anxiety.

Acting responsively, several studies have mapped the policy initiatives taken to minimize the ever-present threat of infection and cushion the nefarious outcomes of the socio-economic disruption brought about by the pandemic. In many cases, fundamental freedoms have been exceptionally put on standby, with little if any collective scrutiny, as rapidity of action has been specified as a *sine qua non* condition of flattening the curve of infection. On a more positive note, extraordinary economic measures have been implemented to benefit all categories of workers, sometimes regardless of their contractual status, though on a temporary basis (Lane 2020). Governments have taken unprecedented steps to aid workers, adopting a universalistic approach. Such a comprehensive paradigm could be a promising legacy of this unsought hardship, but it remains to be seen whether supranational and local regulators will use the lessons learnt to reshape existing rules.

COVID-19-related regulatory schemes are worth examining, since they amount to a "parallel" employment law system that replaces or, more accurately, complements the existing legal framework. They include paid sick and emergency leave, the anticipation of paid annual leave, the expansion and amendment of short-time work schemes, dismissal freezes, an unemployment allowance, bonuses for working parents, sick pay and assistance for the self-employed, and various income support measures (Mangan, Gramano and Kullmann 2020). However, this article strives to move beyond a mere compilation of labour market and social responses. The latter undertaking would require a titanic effort while adding very little to the comprehensive and updated research conducted by scholars, international organizations and policy centres (ILO 2020a). Moreover, many emergency provisions have subtly already become structural – the lifeblood of a new model of work relationships and regulatory paradigms. Accordingly, this article will try to make sense of some consolidated trends. Its overarching goal is to analyse and discuss crucial developments in digital surveillance, originally justified by disease containment efforts and then adapted to facilitate reopening. These developments are arguably here to stay for longer than imagined, as demonstrated by their persistence at times during the pandemic when the virus had a relatively smaller impact.

This emergency has increased the scope for unaccountable management and insidious self-regulation, all of which ought to be critically explored, exposed and addressed. We will look at what kinds of technologies are being integrated

into organizational processes to track and monitor workers, discussing how they are reconfiguring power relationships and the resulting dynamics of command and subjection. We also assess the suitability of the existing socio-legal and institutional frameworks, with a focus on the European Union's General Data Protection Regulation (GDPR) and on two more recent initiatives, the so-called "Artificial Intelligence Act" and the proposed Directive on improving working conditions in platform work. These two strands of research are intertwined. On the one hand, the article grapples with the stark polarization between "essential" and "remotable" jobs and briefly discusses the advantages and drawbacks faced by two broad categories of workers (Mundlak and Fudge 2020). On the other, our analysis focuses on the common denominator: a COVID-induced panopticon.[1] We intend to demonstrate that managerial prerogatives have received a boost without the activation of corresponding mandatory or collectively negotiated counterweights (Deakin and Novitz 2020).

This article will adopt an inductive approach. It is based on an integrated methodology, both descriptive and analytical. It bridges academic and grey literature, given the novelty of the phenomenon in question and the velocity at which it has developed, and is organized as follows. The second section presents the principal traits of two groups of workers, those working from home and those working on-site, and unpacks this great bifurcation. After mapping the broadening of monitoring prerogatives specifically, the third section seeks to make sense of the phenomenon under study by exploring the legal framework of the European Union (EU). Having presented the main dangers of these developments on an individual and organizational level, this section also advocates a more critical attitude to personal data sharing. In concluding, the fourth section advances some solutions to the challenges posed by this transformation, mostly based on social dialogue, digital literacy and workers' empowerment.

2. The new great polarization: "Essential" and "remotable" jobs

There was no blueprint for handling a health crisis on the scale and with the epidemiological characteristics of the COVID-19 pandemic. The early debate on how to react was fierce, inundated with conflicting opinions. After initial bewilderment, the most common response consisted of imposing, first, the confinement of "red zones" or the lockdown of larger areas and, second, the lockdown of entire countries. Workers could only access their employers' or public workplaces to conduct "essential" activities. (In some cases, governments provided a detailed sectoral taxonomy to determine which activities fell within this category, while in others the decision was left to the employers.) Work-from-home plans were massively adopted by companies in the service sectors and for workers engaged

[1] The term "panopticon" was adopted by Michel Foucault, who borrowed it from Jeremy Bentham (Foucault 1975). It was originally used to refer to a prison design consisting of a central watch tower surrounded by inward-facing cells. From the tower, a watchman could see into all the cells, but their occupants could not know if they were being observed, which resulted in a regime based on permanent visibility and coerced discipline.

in non-manual activities, this being the main option to avoid business discontinuity, decongest public transport and keep workers safe (ETUC 2020).

This much-needed policy resulted in a blunt divergence between two categories of workers, partly redefining traditional occupational cleavages. On the one hand, essential workers, divided into two subgroups (front-line and behind-the-scenes or "invisible" workers), had to continue working in person, facing overwhelming complexities and putting their lives in danger. On the other, white-collar workers (consultants in the finance, insurance and real estate industries, public officials, academic instructors, administrative and clerical occupations in all industries, managers and executives) were asked to move to different workplaces – mostly to their dining rooms, abruptly converted into not-so-temporary offices. Crucially, not all tasks are amenable to remote working, owing to the content of duties, company culture, and infrastructural and business readiness.[2] This dichotomy has also shown deep fault lines in two-tier economies, like those of several EU countries such as Italy and Spain (Bonacini, Gallo and Scicchitano 2021). In general, workers in the middle- or upper-income brackets were the most likely to be allowed to work from home, whereas those in the lowest income bracket had no alternative but to work on-site regardless of the circumstances (Cetrulo, Guarascio and Virgillito 2020) – a situation revealing a stark difference in treatment across occupational roles, even inside the same company.

2.1. Essential and exposed, clapped and scrapped: The dangers facing on-site workers

As chronicled in major media outlets on the occasion of advocacy initiatives to improve working conditions, workers praised (and applauded)[3] as essential had to keep business and public services open, including during the peak of the outbreak. This group of place-dependent workers has been overshadowed by the prevalence of debates about the perks and pitfalls of remote work, which in turn have spurred ferocious divisions of opinion. The group includes healthcare, security, agricultural, food production and processing, warehouse, construction, janitorial and maintenance workers, cashiers in pharmacies and grocery and general merchandise shops, delivery couriers and truck drivers (Blau, Koebe and Meyerhofer 2020). Women,[4] disadvantaged minorities, less-educated people and migrants (often on the fringes of labour markets) are over-represented in sectors or occupations not amenable to remote working arrangements.

---

[2] A preliminary study has found that "37 percent of jobs in the United States can be performed entirely at home, with significant variation across cities and industries" (Dingel and Neiman 2020, 2). These jobs typically pay more than jobs that cannot be done at home. If applied to 85 countries in the world, the same occupational classification reveals that lower-income economies have a lower share of remotable jobs (Dingel and Neiman 2020). Worryingly, remotable jobs may be easily amenable to "offshorability" (Lund et al. 2021).

[3] Referring to various popular hashtags on social media inviting people to applaud front-line workers in organized public demonstrations of appreciation.

[4] Worldwide, about 70 per cent of jobs in the health and social care sectors are held by women. See UN (2020).

Although the pandemic has exacerbated insecurity for all "non-standard" workers, its impact has been disproportionate on precarious workers, who always bear the brunt of socio-economic crises. Some of the vulnerabilities associated with new forms of (casual) employment have also worsened, delivery workers being particularly visible on empty streets during lockdowns. Migrants have likewise been forced "to accept precarious and unsafe working conditions, which are in turn amplified by the exceptionality of the situation" (Ristuccia 2020). The situation has compelled indispensable workers to choose between economic adversity, owing to the absence of assistance schemes, and the risk of infection, to the detriment of their families and colleagues (Bender and Ulceluse 2020). Several reports detail a drop in income from vulnerable jobs owing to reduced demand or inability to work for multiple reasons (ILO 2020a). Many workers have suffered a decrease in their already irregular working hours. The growth of the "e-commerce supply chain" threatens wages and working conditions: mass self-isolation has indeed been made possible by legions of underpaid workers providing critical services (Benner et al. 2020).

Since the onset of the pandemic, social partners have negotiated specific protocols on safety and health in many countries, supported by local authorities and government agencies (Gamio 2020). Despite this, in many industries workers do routinely come into close contact with colleagues (Benner et al. 2020), customers or other people as an unavoidable part of their work. For many of them, working conditions have remained at their pre-COVID-19 standard, under the same tyrannical managerial regimes. However, the situation was aggravated by concomitant factors. Commuters faced a reduction in public transport and "on-the-go" services. Many blue-collar workers spent a long time inside poorly ventilated environments, for instance in the food production sector and in fulfilment centres, where several outbreaks started. The workplace has been one of the channels of contagion, threatening to undermine the effects of lockdown policies. Early on, there were difficulties in purchasing and distributing adequate quantities of personal protective equipment (PPE), even in critical sectors. Some workers experienced an *intensification* and an *extensification* of work and were, in some cases, pushed to unnecessary extremes in order to fulfil unrealistic expectations (Hodder 2020).

Importantly, both front-line and "invisible" workers had to follow new precautionary measures inside and outside the workplace. In line with a techsolutionist narrative, "there was an app for that".[5] Most on-site workers were asked to install software or apps on their personal devices to obtain "passports" to prove a "symptom-free" state of health, along with additional medical documentation (Bodie and McMahon 2021). They had to fill in "questionnaires" on self-reported medical information, to be shown at the entrance of their workplace. Several companies reinvented themselves to offer what they advertised as new "biometric solutions for safer spaces" that were of questionable usefulness. The list of gadgets includes ultrasonic bracelets beeping every time blue-collar workers in the UK automotive industry or Belgian dockers are within virus-catching distance of a co-worker, and a sensor communicating with a thermal

[5] In reference to Apple Inc.'s slogan "There's an app for that".

scanner to activate a green light in public offices to indicate that the incoming worker does not have a temperature. Other companies have introduced around-the-clock sanitation shift alerts to indicate when offices have been cleaned, GPS-integrated applications tracking employees' every move or enforcing hygiene guidelines, radio-frequency identification (RFID) to measure and optimize the occupancy rate of spaces (scheduling software to gauge time attendance and ensure group rotation), and text messages urging compliance with good hygiene practices. The most dystopian solution is an under-the-skin microchip giving workers contactless access to factory or office facilities. Crucially, almost all of these tools also permit private contact tracing (Ponce Del Castillo 2020).

In order to avoid breaching data protection laws, most of these monitoring activities were carried out on-site, subject to workers signing a statement of responsibility. Although submission to monitoring was voluntary, there was little if any room for negotiation, and the situation was compounded by a sense of responsibility towards colleagues, which led to widespread acceptance. This approach punitively shifted responsibility for safety on to workers themselves. The aim of contactless interaction fostered widespread recourse to facial recognition instruments and even more sinister tools such as lasers to indicate proximity between colleagues or whether too many employees were congregating in warehouses and large malls (Browne 2020). In many cases, new mask detection systems were deployed, checking whether people entering the company's premises were wearing PPE properly. Various hospitals experimentally tested AdvanWash, a system using RFID-equipped hand sanitizer dispensers in conjunction with RFID tags or badges worn by workers. Its principal goal was to ensure that healthcare workers washed their hands, preventing access to critical areas in the event of non-compliance. Unsurprisingly, the system was also able to store data for analytical or historical purposes. In the United States, hand-hygiene monitoring systems were soon turned into performance management devices to measure whether workers were meeting their expected key performance indicators (Bittle 2020). Drozdiak and Fouquet (2020) report several cases where the need to sustain business continuity in order to revive crushed economies was taken as an opportunity, in an arguably irresponsible way, to blend social-distancing compliance, handheld gadgets, health protocol enforcement and productivity-tracking tools.

Although the introduction of such pandemic panopticon technology was lawful, at least in an exception-to-the-rule scenario, recent history has demonstrated that seemingly innocuous data-gathering devices can be put to nefarious uses. Low-wage workers could end up being treated as guinea pigs in sectors such as retail and distribution, where performance-enhancing technology is already in place. On closer inspection, such tools are often used to reconfigure employer–worker relations within and across organizations (Kellogg, Valentine and Christin 2020). The volume, variety and velocity of data collected during the pandemic pose a serious threat, since it is likely that the data could be used after the period of emergency to suit companies' caprice. In general, uncritical acceptance of these innovations opens the door to a new generation of employee-monitoring widgets beyond those that are currently regulated (Eurofound 2020a), contributing to the erosion of principles such as meaningful consent, collective

involvement and prior administrative authorization. What is especially problematic is the opaque nature of these monitoring tools, which, combined with their hurried adoption, further limits workers' understanding of employers' strategies and objectives. This may undermine human agency, impair labour rights and thwart productivity. It is therefore extremely urgent to challenge the unrestrained penetration of a culture of total surveillance (Whitaker 1999).

Belying the renewed interest in full automation, the pandemic has shed light on usually hidden human networks (Ekbia and Nardi 2017). Robots and artificial intelligence (AI) are constantly maintained by the essential workers who enable a quarantined world to function (Mateescu and Elish 2019). The very fact that the economic crisis triggered by the pandemic was accompanied by a general "take-it-or-leave-it" posture towards hard working conditions may have played a role in curbing contestation and collective claims. Although flawed on many levels, the narrative of job-displacing technology has been used to inhibit harsh reactions and facilitate the gradual yet inexorable erosion of workers' protection. On-site workers have witnessed colleagues being left unemployed or furloughed as businesses struggle to meet costs (Hodder 2020). Calamities do indeed create a culture of uncertainty regarding redundancy risks and future employment prospects, changing the priorities of individuals, organizations and their wider communities, fragmenting the labour force and hindering solidarity. In this context, digital technology plays a far from neutral role, since it can lead to slow, deep and almost invisible attrition of working conditions, including wages, accompanied by sluggish policy responses.

Many non-standard workers fell through the cracks of the prominent emergency measures and had limited access to unemployment benefits, health insurance and sick leave, since they did not meet the eligibility criteria owing to the discontinuous nature of their employment (Fairwork 2020). Most measures to protect platform workers, ranging from contactless delivery and cashless payments to distribution of PPE (masks, gloves and sanitizing wipes), were merely preventive. What is striking is that many principals avoided taking decisive action to minimize the potential risk of worker misclassification lawsuits. Non-standard workers in the so-called "grey area" face paradoxical consequences of their debatable legal status, which often does not reflect the reality of their employment relationship. The platforms instruct workers on good hygiene practices through strict orders, yet they place all their own responsibilities in this regard upon the workers because any decisive action by platforms would risk the recognition of the existence of an employment relationship in court (Aloisi 2022). This vicious cycle shifts instead of reducing the risk, thus producing detrimental effects on public health and on society at large.

2.2. Working from home in exceptional times: Out of sight, mind the boss

The lockdown triggered "the most extensive mass teleworking experiment in history" (ILO 2020b): offices were left unoccupied almost overnight. Forty per cent of employees in the EU started working remotely full-time, this being the first

time that approximately one in four workers had teleworked (ILO 2020b).[6] Not surprisingly, this alternative working arrangement was mainly used as a measure to flatten the infection curve while saving a significant number of jobs (Adams-Prassl et al. 2020), rather than as a radical (and hitherto niche) organizational policy offered to workers on a voluntary basis. Thus, an unorthodox pattern conceived to enhance elasticity and agency was rebooted to allow continuity, resulting in an unexpected increase in workload. "Telecommuters" found themselves working longer hours in the absence of a dedicated office or desk space, and on *permanent availability* mode (DeFilippis et al. 2020). For white-collar occupations, paid work encroached on the time once given to leisure or family; there was little opportunity to switch off, owing to an expectation of around-the-clock commitment in the "home office".

Amid the pandemic, many commentators rushed to assess this flexible arrangement without considering that the mass remote working experiment was profoundly influenced by the unusual circumstances in which it took place. Only collective and individual bargaining can unlock a genuinely emancipating version of teleworking arrangements. Despite the special circumstances that removed certain bureaucratic and contractual barriers, many workers and managers, forced to get up to speed with a long-overdue modernization of organizational templates, found remote work convenient and successful in terms of commitment and satisfaction. Preliminary statistics confirm that productivity has not dropped, although many workers have been bound by constraints resulting from confinement policies (Powell 2020). Many workers also had to carry out additional and unpaid education and caring duties (homeschooling for children was the norm) or face challenging or abusive household conditions.

Regrettably, remote work is an opportunity that not all managers were willing (or culturally prepared) to offer, even when public authorities strongly recommended it or made it compulsory. Small and medium-sized enterprises have hesitantly implemented remote working arrangements and swiftly lifted them at the earliest opportunity. Towards the end of 2020, many local politicians, for instance, encouraged people to go "back to work" – by which they meant "back to the office" – to support economic activities in urban districts (*Economist* 2020). This reveals a widespread reluctance to extend unsupervised autonomy, as well as an inability to overcome a toxic version of presenteeism and workaholism.

The tech-solutionist narrative depicted technology as a panacea that would help overcome the crisis. Very soon, many were forced to realize that there are no digital solutions for organizational problems and structural gaps. However, it should be noted that many pilot programmes were already in place. There is no lack of positive experiences but they are typically the result of farsighted collective agreements and company protocols (Eurofound and ILO 2017).

[6] By June/July 2020, 34 per cent of EU-27 employees were solely working from home and 14 per cent worked from home in conjunction with working from other locations including their employer's premises (Eurofound 2020b). According to Sostero et al. (2020), 3.2 per cent of employees in the EU-27 usually worked from home – a share that had remained relatively stable since 2008.

Understandably, only companies that had previously designed alternative workflows and equipped their employees with laptops, phones and secure software benefited from the abrupt shift. Conversely, those companies that suddenly had to coordinate teams of scattered workers without a predefined plan suffered greatly from a lack of training. In order to be effective and authentic, remote work requires a qualitative managerial leap, moving away from micromanagement and shifting the evaluation of work performance from mere physical attendance towards outputs.

Leaving aside the nuances of the numerous popular definitions of remote work, it must be noted that, as far back as 2002, the European Framework Agreement on Telework was signed to regulate the terms and conditions of people working remotely.[7] It established a general principle of non-discrimination between teleworkers and comparable workers at the employer's premises in terms of workload and performance standards. Following the signature of the Agreement, telework has been regulated in several jurisdictions to increase competitiveness and uphold a viable work–life balance (Samek Lodovici 2021). Social partners have agreed to adopt this arrangement at both the national and company levels.

It is undeniable that, thanks to the rapid development of technologies, in recent years this arrangement has been widely adopted, particularly in large companies, to enhance well-being and one's sense of fulfilment, establish family-friendly policies and boost productivity and efficiency (avoiding unnecessary interruptions and distractions and reducing idle time). Simultaneously, such arrangements have also been used to reduce fixed costs associated with office spaces, employee mileage allowances and extra-time payments.

The quest for flexibility has played an important role, too. The underlying assumption is that workers are not interested in rigid organizational models in highly vertical and constrained structures that do not grant them autonomy, project-based arrangements and time sovereignty; workers are keen to use technology in a liberating way to better adapt workloads to individual needs and preferences. Remote work arrangements have also been considered a factor in the attractiveness of companies striving to entice and retain talent or even a deliberate strategy to improve the diversity of teams by leveraging a potentially global pool of candidates.

The short-sightedness of personnel organization policies was overwhelmingly evident during the pandemic. Preliminary data show that some progress was made to foster mutual trust and results-based schemes (Fana et al. 2020). Less reassuringly, in the face of a mass exodus from corporate spaces, many managers and executives reacted with alarm and imposed stricter management control. Although traditional hierarchies were partially impacted upon, workers – especially junior ones – responded with overcommitment or by engaging in voluntary "visibilizing" practices (Delfino and van der Kolk 2021;

[7] Signed by the European Trade Union Confederation (ETUC), the Union of Industrial and Employers' Confederations of Europe (UNICE) [BusinessEurope], the European Centre of Employers and Enterprises providing Public Services and Services of General Interest (CEEP) and the European Association of Craft, Small and Medium-Sized Enterprises (UEAPME) in Brussels on 16 July 2002.

Hafermalz 2021). Many firms and institutions, unable to draw up work plans based on objectives, verifiable deliverables and multilateral accountability, increased the number of online meetings and hastened to implement surveillance software (to measure the time spent online, the number of keystrokes on the keyboard or the list of websites visited). Among other things, the inability to modernize work arrangements has slowed down the implementation of a "more trusting and more results-based" form of management (ILO 2020b, 4).

Those who work from home risk finding anxious line managers obsessively looking over their shoulders to reduce "cyberslacking" under the erroneous assumption that employees do not stay motivated on their own (Eurofound 2020a). Monitoring software that promises to enable managers to retain control over their workers has experienced an unparalleled boom. Data show that in April 2020 demand for tracking tools surged by 54 per cent and was on average 58 per cent higher in 2021 than it was before the pandemic (Migliano and O'Donnell 2022). Cybersecurity precautionary measures have often been skipped. The crisis has provided a marketing windfall as well as the opportunity to fine-tune existing applications.

The list of software grows by the day. ActivTrack monitors the programs used and tells managers if the employee is distracted and wasting time on social media. HubStaff takes screenshots of employees' computers every five minutes. Time Doctor and Teramind keep track of every action conducted online. Interguard compiles a minute-by-minute timeline that considers every piece of data, such as web history and bandwidth utilization, and sends a notification to managers if workers' activities appear suspicious and when they exhibit a combination of flagged behaviours. OccupEye records when and for how long someone is away from their workstation (TUC 2020). Sneek continuously takes photos of colleagues to generate a timecard and circulates them to keep the team's mood up. Afiniti pairs customers with agents according to demographic data. Pesto synchronizes professional calendars and music playlists to create a sense of community; it also has a facial recognition feature that can display a worker's real-world emotion on their virtual avatar's face. More mundane applications are used to replicate the experience of "corporate camaraderie" online with gossip rooms, watercoolers or "not-so optional company happy hours" to "create that sense of togetherness" (Harwell 2020).

Although there is an abundance of reports about "fringe software vendors", it is often overlooked that all applications, including the seemingly innocuous ones like Microsoft 365 (Silverman 2020), aggregate all sorts of data into simple charts or graphs that give managers a high-level view of what workers are doing (Cyphers and Gullo 2020). The same goes for collaborative ecosystems, cloud spaces and shared repositories, which are now more indispensable than ever before but are too expensive to be developed internally or through proprietary technologies.

Over-reliance on standardized metrics risks narrowing an organization's focus on simple activity at the expense of decision-making and accomplishments (Nguyen 2020a). For instance, metrics often measure pointless parameters or underestimate preparatory activities such as ideation and planning.

Concomitantly, workers are lured into self-monitoring their own performance through self-tracking dashboards, a practice that fosters conformity. As a result, "the raw data collected of the various activities can then be fed into increasingly complex modelling systems and used [to] construct behavioural profiles, patterns and benchmarks" (European Parliament 2020). In turn, these metrics can be manipulated and repurposed to infer unspecified characteristics or to predict behaviours (Tucker 2019). Yet, data may be accidental, inaccurate and erroneous. Transparency about productivity scores and the extent of monitoring is far from granted. Moreover, there is no evidence that metrics used to determine productivity correlate closely with outcomes. Thus, concerns arise about their accuracy and interpretation, particularly in inexperienced hands and without consultation with the workforce.

3. The pandemic panopticon and what to do about it

There is a crossroads at which the bifurcation between essential and remotable workers ends. The incomplete inventory of cases and applications sketched out in the previous paragraphs tells us that on-site and remote workers share their subjection to a pervasive pandemic-triggered panopticon. Despite the significant differences, across the divide activities are mediated by digital tools and completed through infrastructure that creates "time-stamped logs" of activities (Leonardi 2021). All human resources management functions (screening, interviewing, hiring, setting tasks, measuring productivity, evaluating performances and terminating contracts) have shifted online, often entrusted to automated decision-making systems, "without an intuitive link between what is done when 'logged-in' and how it is assessed" (Aloisi and Gramano 2019, 98). This makes it difficult for workers to provide justifications, object to a decision or ask for an explanation. Moreover, the simple existence of these evaluative practices signals a lack of trust – the cornerstone of a fruitful relationship – which may result in disengagement and have a suboptimal or negative impact on productivity (Migliano and O'Donnell 2022). Even worse, it may also give rise to an explosive atmosphere of hostility, deviation and resistance (Burdin, Halliday and Landini 2020).

Given the situation of information asymmetries and unbalanced powers (Rogers 2020), modern workplaces are critical arenas in which to test issues such as privacy rights and how the benefits of technology are shared (Pakes 2020). Although platform work in all its ramifications has been a site of experimentation (Ivanova et al. 2018), its most advanced aspects, such as the matching of individuals to tasks, a fine-grained imposition of schedules, and the automatic adoption of reward and disciplinary measures, are spreading much more extensively to larger segments of the labour market. A sense of inevitability during the pandemic has magnified the trends of "informatization" and "platformization" of work (Zuboff 2015; Ajunwa, Crawford and Schultz 2017).

Although some of these developments have facilitated compliance with the rules of conduct imposed for anti-contagion purposes, they have also contributed to the hasty normalization of intrusive monitoring. The potential of employer

surveillance is unprecedented in terms of its severity, methodology, frequency and precision (Hanley and Hubbard 2020). The pandemic has amplified the use of tools capable of scanning emails, counting the hours spent in collaborative environments, capturing screenshots of employees' monitors to prevent distractions, or even keeping the cameras permanently on. In physical environments, digital monitoring has been deemed justified in the name of safety and public health (Putzier and Cutter 2020). However, given the massive investments that have been made in such systems, it is unlikely that they will simply be deactivated when the crisis finally passes. Concomitantly, such ample adoption could increase competition and lead to declining costs, encouraging ever-wider implementation. Moreover, the gigantic amount of "digital exhaust" that such activities produce and can be used to retrace personality traits could be turned towards not only anticipating but also prescriptively shaping behaviour in a very individualized and detailed manner (Bodie et al. 2017). The foreseeable consequence is the total erosion of autonomy, self-government and agency, impairing abstract thinking and creative contribution in favour of diligent homogeneity. Game-changing technologies reflect business preferences that can be far from ideal. What is worse, given their obscure nature, they end up limiting the transparency of employers' strategies, jeopardizing contestation and freezing industrial action.

Always-on surveillance is not merely a by-product of the pandemic (Aloisi and De Stefano 2022). Even before this coronavirus struck, devices for tracking, watching, storing and mining data had long colonized workplaces and private spaces, opening the door to an optimized combination of workforce analytics and algorithmic governance (Otto 2019; Mateescu and Nguyen 2019) – techniques that let algorithms extrapolate correlations with minimal supervision. In this inflexible environment, there are no alternatives to performing the work as prescribed (Aneesh 2002).

The emphasis on command rather than on emancipation constitutes a failure. First, the emerging panopticon evinces serious backwardness in terms of corporate culture, as reflected in levels of satisfaction and well-being. For both essential and remote workers, monitoring may end up reducing productivity, since it makes delivering on metrics more urgent than generating tangible results (Hanley and Hubbard 2020). The adverse effect of this mindset, whereby workers are treated as uncooperative and untrustworthy children, is evident (Sarpong and Rees 2014). Second, employees have been accepting monitoring as a necessary price to pay to protect their health and job security. The risk is that they become habituated to these new systems. A combination of passive acquiescence and an ostensibly participatory push encourages the sharing of information in exchange for little reward as part of self-conscious reputation management. The dominant ethos emphasizes self-tracking and measurement, as habitually occurs in corporate well-being programmes.

What is left out of the story is that the very same technologies that are adopted to monitor workers could be repurposed to improve the transparency, verifiability and objectivity of managerial decisions and thus advance the inclusion of under-represented populations and reduce socio-economic gaps. Instead of being used to build replicas of previous cohorts of recruits, data can be ex-

ploited to increase diversity by promoting the demarginalization of vulnerable groups (Ajunwa and Greene 2019). Once again, rule-makers must be aware that, far from being impartial and bias-free by definition, tech-driven innovation is ambivalent; its impacts depend on political and managerial choices (Hare 2022). Democratic debate and civic resistance are possible and necessary. As discussed in the next paragraphs, the solutions lie in a critical approach to personal data sharing. It is equally important that institutions and social partners mobilize existing regulations and launch a new round of bargaining on monitoring instruments, including at a decentralized level, with the aim of opening "black boxes" and reaping the good opportunities offered by technology. Beyond the conventional logic of compromise, there is an urgent need to make sure that technologies serve workers and not the other way around.

3.1. Omnipresent surveillance turning workers into data and the expansion of managerial powers

There is little exposure of the ways that remote monitoring, management by algorithms, and micro-assessment are altering power relationships in the workplace, which already have a built-in layer of (legitimate) surveillance. The main question confronting theoretical analysis around employee monitoring is whether we are "dealing simply with quantitative changes, changes in the *extent* of surveillance, or with qualitative changes that affect the very *nature* of employee surveillance" (Manokha 2019). Is authority today the same as authority in the past?

There are several legitimate grounds for the lawful monitoring of the workforce: protecting assets, optimizing processes, enforcing policies on rest periods, complying with all the safety and health requirements (including the need to prevent stress and psychosocial risk) and preventing hazards and fraud and other detrimental activities. A degree of supervision is embedded in the employment relationship, conceived as an "infrastructure" where contractual forces are in equilibrium (Landes 1969). While providing management with ample unilateral power to organize, monitor and discipline human energies in exchange for economic security and stability, thus enhancing operational proficiency, labour regulation is meant to "reconcile these almost 'seigniorial' prerogatives with the respect of the human dignity of workers" (De Stefano 2018, 15). This contractual model pursues the paramount aims of rationalizing managerial powers and containing employers' juridical domination in order to protect human dignity (Deakin 2002).

This article contends that a "genetic mutation" is occurring in terms of the comprehensiveness and instantaneity of information collected and analysed. This change also affects the nature of the monitoring power, which now exceeds the capacity of the human gaze or any analogue surveillance system. Essential workers are witnessing a shift from direct observation to technocratic monitoring, while white-collar workers are experiencing an aggrandizement of managerial prerogatives through deceitful and rigid forms of power (Allen and Masters 2021). Both groups are exposed to a form of omnipresent, real-time and relentless surveillance that is not confined to the workplace or to working

time: there is a change in its locus and temporal scope (Katsabian 2019). Such augmentation is not matched by the attendant counterweights defined by the supranational and local legislators or collectively negotiated by social partners.

The nature of the new computerized tools involved and the possibilities of developing predictive capabilities "differ fundamentally from the traditional management structures around which employment law has been designed" (Adams-Prassl 2019, 134). They are enlarging the managerial prerogative upon which labour regulation is premised. Although it is true that large firms have already developed methods of organizations that are "more formalized and more consciously contrived than simple control" (Edwards 1979, 20), the canonical limits to managerial powers were conceived at a time when the potential of new techniques was unknown and supervision was exercised by human beings in a more direct, physical manner. The changing situation has resulted in an unprecedented intensification of the authoritarian nature of the contract of employment (Collins 2018) and even the most effective traditional counterpowers may prove blunt instruments if not suitably updated in a timely manner (Estlund 2018).

Worse still, technology-coded authority is far less open-minded than human hierarchies, since it optimizes previous and current trend disparities, stratified in a wealth of granular data sets (based on age, sex, race and educational background) that renders them non-verifiable, which may also nullify the operability of existing legal remedies and dilute the responsibilities of the employer (or the service provider or technology deployer). Although it is indisputable that human decision-makers may have the same systemic flaws, less control can be exerted over a digital tool with embedded biases that reflect developers' explicit or implicit preconceptions. Algorithmic management is too rigid to diverge from predetermined solutions, not to mention the scenario of machine learning that spirals out of programmers' control and acquires the capacity to ascribe positive or negative weight to attributes that are then used as "proxies" for the protected characteristics, thus infringing equal treatment rules (Kelly-Lyth 2021).

For instance, when women are under-represented in some sectors, an efficient AI system sifting through candidates in hiring processes may exclude female workers in the recruitment phase to match the patterns observed in previous cohorts. The same kind of thing may happen with software trained to promote employees with consistent career paths, which could penalize those who have taken maternity or sick leave. According to an Italian court order,[8] the "blindness" of the algorithm in question was discriminatory because the system was not designed to distinguish whether a food-delivery rider's absence was the result of sickness or lawful strike action. Moreover, software able to draw heat maps, which could potentially be used to track (and avert) "unionization" risk, has sparked outrage (Palmer 2020). Thus assumptions about the objective or neutral nature of AI-driven governance are largely mistaken.

[8] Tribunale di Bologna, Order No. 2949/2019 of 31 December 2020.

3.2. Without collective scrutiny, privacy law could not be enough

All around the world, the near horizon is populated by a breadth of new practices, some of which look very extreme. If deployed indiscriminately and irresponsibly, they are likely to infringe workers' privacy rights and a long list of other fundamental rights (Hendrickx 2019). A contact-tracing app can inform managers of all exchanges between co-workers and even record minute details of these encounters, including with whom and where they happened, how long they lasted and – if the app has access to microphones or cameras – the subject of conversations (or at least the tone of voice). In the case of work from home, cameras can record a worker's surroundings and infer information about private and sensitive matters. Even worse, such tools may defer, interfere with and ultimately have "a chilling effect on the fundamental rights of employees to organise, set up workers' meetings, and to communicate confidentially" (Article 29 Data Protection Working Party 2017).

The boom in productivity and biometric technologies is raising new privacy questions. Meanwhile, the existing legal framework is often accused of failing to keep pace with the ongoing shift towards despotic attitudes. What is worse, the scope of application of certain provisions on monitoring and privacy – based on a static understanding of information and communications technologies – may fail to provide an up-to-date model capable of addressing disruptive developments (Aloisi and Gramano 2019). As surveillance is being replicated by imposing the most basic tenets of Taylorism at a relatively low cost (hyper-standardization and micro-measurement through the calibration and tailoring of each task), stakeholders should revive the key principles of the inviolability of private and professional lives to limit abuses of workers' human dignity.

EU and US law differ in this regard, the latter giving employers ampler surveillance powers (Kidwell and Sprague 2009). In US workplaces, the expectation of privacy on the part of the employees is "reasonably" limited according to the rationale that they are using equipment owned by the employers and fulfilling business needs. On an excessively pragmatic basis, "there is no legal protection against surveillance *per se*" (Bodie et al. 2017, 988). However, some forms of surveillance used in certain places or at certain times are subject to potentially multidimensional legal constraints (Sachs 2014; Otto 2016). EU countries have a different tradition, but some US states, such as California and Illinois, have recently legislated specific pockets of protection with a view to updating the most anachronistic provisions (Finkin 2017).

In the EU, several GDPR provisions have been used to legitimize data processing.[9] Among others, Article 9(2) offers the bases on which health data that are normally non-processable (Article 4, GDPR) can be lawfully treated by adopting measures to prevent the identification of individuals, in line with the relevant jurisprudence of the Court of Justice of the European Union. This has been made possible under letter (b), which provides for data processing for the purpose

[9] EDPB (European Data Protection Board), Statement on the Processing of Personal Data in the Context of the COVID-19 Outbreak, adopted 19 March 2020.

of "exercising specific rights of the controller or of the data subject in the field of employment and social security"; letter (i), which provides an exception for "reasons of public interest in the area of public health, such as protecting against serious cross-border threats to health" (with Recital 46 referring to the control of an epidemic as a circumstance in which the processing may serve both the public interest and the vital interests of the data subject); and letter (j), which allows processing "for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes". The case of the COVID-19 outbreak falls under the scope of the GDPR provisions, but suitable and specific safeguards of the fundamental rights and interests of the data subject must be put in place. Similarly, the paramount principles of proportionality, purpose limitation, lawfulness, fairness and transparency must be preserved to ensure that the exercise of surveillance power is well founded and respects the legal requirements (Article 5, GDPR). The GDPR should be read in conjunction with the guidelines adopted by the European Data Protection Board (EDPB),[10] whose approach is praiseworthy because it advocates reinforced levels of meaningful consent in unbalanced situations. In this case, domestic data protection authorities have also proved themselves to be vigilant and proactive (Suder 2021).

Although the importance of these rules is not to be underestimated, we argue that the effectiveness of the GDPR has been profoundly undermined by a long list of specific derogations, found in its Articles 6 and 9. Moreover, Article 89(2) of the GDPR allows domestic lawmakers to restrict (some) of the data subject's rights as set out in Chapter 3 of the Regulation. This creates a rather heterogeneous situation depending on the Member State and national data protection authority. Moreover, in the context of the pandemic, employers' responses "have mirrored state policies meant to track and monitor the spread of the disease" (Nguyen 2020b, 11). Yet, the conditions under which public institutions are permitted to process data are not necessarily the same for private employers. Although panoptic tools have been offered on a strictly voluntary basis, fears and threats of adverse consequences may have led to submissive acceptance.

The GDPR's ban on automated individual decision-making processes aims to provide a counterweight to the automatization of organizational procedures (Article 22, GDPR). Decisions in human resources management departments, such as e-screening and performance appraisal, could fall into the scope of exceptions allowed by Article 22(2), as being "necessary for entering into, or performance of, a contract". However, since workers are rarely "in a position to freely give, refuse, or revoke consent", according to the EDPB, the "lawful basis [for data processing at work] cannot and should not be the consent of the employees".[11] Moreover, appropriate measures must be adopted by the employer "to safeguard the [worker]'s rights and freedoms and legitimate interests, at least the right to obtain human intervention on the part of the controller, to express his or her point of view and to contest the decision" (Article 22, GDPR).

[10] EDPB, Guidelines 03/2020 on the Processing of Data concerning Health for the Purpose of Scientific Research in the Context of the COVID-19 Outbreak, adopted 21 April 2020.

[11] EDPB, Guidelines 05/2020 on Consent under Regulation 2016/679, Version 1.1, adopted 4 May 2020.

In order to prevent the ambitious purpose of Article 22 being confined to statutes on the books,[12] at the local level, legislation and collective bargaining are the most convincing response to the widening of managerial prerogatives that has been facilitated by new surveillance equipment and more informed day-to-day decision-making. Legislation and collective agreements could, for instance, "lay down specific limits to data collection and processes, to ensure that decision-making complies with transparent criteria and that human agents retain final control and accountability for any decision affecting workers" (De Stefano 2020, 441). This solution is backed up by the GDPR, which states that Member States may introduce, by law or by collective agreements, "specific rules to ensure the protection of the rights and freedoms in respect of the processing of employees' personal data in the employment context, in particular for the purposes of the recruitment, the performance of the contract of employment … management, planning and organisation of work, equality and diversity in the workplace, health and safety at work … and for the purpose of the termination of the employment relationship". Such rules shall "include suitable and specific measures to safeguard the data subject's human dignity, legitimate interests and fundamental rights" (Article 88, GDPR).

To give a concrete example, in June 2020 the European social partners signed a landmark framework agreement on digitalization.[13] While acknowledging the significant contributions of digitalization to security, health and safety, and efficiency, the agreement stresses the risk of deterioration of working conditions and the well-being of workers and calls for "data minimisation and transparency along with clear rules on the processing of personal data [that] limits the risk of intrusive monitoring and misuse of personal data". Interestingly, the framework agreement advocates the involvement of worker representatives to address issues of consent, privacy protection and surveillance.

The GDPR, which remains the overarching framework for data protection law in the EU, does not operate in isolation; rather, it is a cornerstone of a very complex, perhaps patchy, multi-source regulatory architecture with various institutional settings. Member States are competent to introduce specific internal measures with regard to employee monitoring and data processing at work. Moreover, a hands-on role of data protection authorities is also crucial to ensuring that workers' private sphere is not invaded by the electronic surveillance of their activities. According to a solid legal tradition, in most EU jurisdictions, a prior consultation phase with, or authorization from, workers' representatives is an essential precondition for the introduction of surveillance equipment. Domestic legislation and case law ensure that workers' representatives are involved through information, discussion and co-determination (Aloisi and Gramano 2019). Failure to comply with these requirements may result in the prohibition of remote employee monitoring, as well as the impossibility of using data and information that have been unlawfully collected. Thus, should these

[12] Concerning the right not to be subject to automated decision-making without human intervention, see also Article 9 of the revised Council of Europe's Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data.

[13] ETUC, BusinessEurope, CEEP and SMEunited, European Social Partners Framework Agreement on Digitalisation, 2020.

processes have been skipped for reasons of urgency, now is the time to carry out a large oversight, enforcement and renegotiation procedure with the aim of implementing more privacy-friendly measures.

Unfortunately, recent policymaking at the EU level does not seem to address adequately the risks of abusive remote monitoring. In April 2021, the European Commission presented a proposal for a Regulation on AI (known as the Artificial Intelligence Act).[14] AI systems "used in employment, workers management and access to self-employment, notably for the recruitment and selection of persons, for making decisions on promotion and termination and for task allocation, monitoring or evaluation of persons in work-related contractual relationships" are classified as high-risk systems (Recital 36, Artificial Intelligence Act). They shall be subject to specific transparency and oversight requirements for the protection of their users. However, under the proposal, assessment of the conformity of these systems with existing rules will only be subject to an *ex ante* self-evaluation by the very same provider, with no "involvement of a notified body" – and, thus, no external supervision (Article 43(2), Artificial Intelligence Act). Moreover, the draft Regulation seems to take for granted that any workplace AI system that complies with the procedural requirements it sets forth should be allowed.

This approach is extremely problematic. As mentioned above, several EU national legislations ban or severely limit the use of technological tools to monitor workers. The draft Regulation threatens to prevail over these more protective frameworks and to trigger a deregulating landslide in labour and industrial relations systems around Europe. Whereas national rules often require trade unions and works councils to be involved before tools are introduced to enable any form of technology-enabled surveillance, the draft Regulation never specifies any role for the social partners in co-regulating AI systems at work. Since the legal basis of the proposed Regulation is a "liberalizing" one,[15] aiming to harmonize governance standards across the EU, more protective national legislations could be overruled by this instrument, which is at risk of functioning as a "ceiling" rather than a "floor" for labour protection.

This regulatory approach seems questionable also because, in December 2021, the European Commission proposed a draft "Directive on improving working conditions in platform work" that acknowledges the role of the social partners and regulates algorithmic monitoring of platform workers.[16] If both the proposed Regulation and draft Directive were adopted without amendments, EU law would afford protection to platform workers while weakening protective standards against the same forms of abusive monitoring for all other workers – a scenario that seems difficult to justify (De Stefano and Wouters, forthcoming).

---

[14] European Commission, Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, Brussels, 21 April 2021, COM(2021) 206 final.

[15] EU, Consolidated Version of the Treaty on the Functioning of the European Union, *Official Journal of the European Union* C 326, 26 October 2012, Article 114.

[16] European Commission, Proposal for a Directive of the European Parliament and of the Council on Improving Working Conditions in Platform Work, Brussels, 9 December 2021, COM(2021) 762 final.

4. Concluding remarks: Shaping the post-Covid world of work

Besides aggressively turning all aspects of people's private and professional lives upside down, the COVID-19 pandemic has also delivered an unprecedented shock to labour markets, entrenching social inequalities and stratifications. Many governments reacted with contingency plans aiming both to mitigate the risk of contagion and to support distressed economic sectors. We have witnessed the concomitant adoption of exceptional rules, defining a parallel legal order that often strains paramount legal principles, and new experiments of self-regulation or even deregulation by companies to maintain service levels. In line with the new divide between front-line jobs and remotable activities (Sostero et al. 2020), we have described the key elements of this reality from the perspective of two groups of workers, conceding that the distinction between them is not necessarily clear-cut. The ambiguity is evident when one considers that employees whose tasks could plausibly be completed remotely were also called back to work on-site after restrictions were relaxed.

From an economic perspective, apart from one-time thank-you bonuses, very little has been done for essential workers. Regrettably, public attention, as well as the debate about their contractual and working conditions, soon started to fade through a depressing habituation to the harsh realities. On the other side of the fence, office spaces are not doomed to disappear because of work-from-anywhere schemes; they are destined to be used to develop new projects, generate innovative ideas, stimulate exchanges and cultivate social bonds. The extent to which remote work remains popular depends on bargaining between the social partners. There are several aspects that need to be discussed and negotiated, including: time dominion and "no-online zones"; the digital tools to be used and the related utility costs; supervisory mechanisms; and arrangements for reporting on results achieved. The goal must be to enable authentic spatial, temporal and decision-making autonomy for all, allowing businesses and workers to reap the full benefits of a more sustainable work environment.

Indeed, in an "autonomy-supportive context" (Rigby and Ryan 2018), allowing more discretion in selecting meaningful outcomes and the means of attaining them correlates positively with successful performance (Manganelli et al. 2018). If accompanied by significant feedback and guidance, intrinsic motivation is key to engagement and efficiency and facilitates the learning of new skills. It is now crucial to guarantee that social partners have a genuine voice and play a decisive role in discussions about the availability of flexible working templates, the implementation of new monitoring devices and the transparency of data processing. This should be regarded not as a mere bureaucratic box-ticking exercise but rather as a design journey through all stages of all tracking activities (Rubinstein 2011), from the selection of tools to their roll-out, seeking the least intrusive arrangement in a privacy-by-default paradigm.

The pandemic is a perfect storm that has put socio-legal foundations under extreme pressure, demanding that policymakers test the suitability of regulative instruments (OECD 2020). Admittedly, this event is also a landmark opportunity for experimentation in the adoption of technologies designed to

amplify managers' capabilities in a full range of functions, including the recruitment process, monitoring activities, workload allocation and the setting of remuneration, for all categories of workers, regardless of their legal status, and in all industries. This tailspin could be irreversible; hence policymakers should be wary of tolerating a prolonged state of exception. The transformative legacy of this barely controlled surveillance will hinge on how the (power) relationship between contractual parties is redefined. This will be strongly affected by enforcement or the lack thereof, especially in a moment of economic downturn. Since this tectonic shift is causing rising discontent, it will be important to ensure a fair transition, striking a more sustainable balance among seemingly conflicting values that are too often presented as mutually exclusive options (lives and livelihoods, privacy and well-being, occupational safety and health and business continuity, flexibility and work–life balance) (Ponce Del Castillo 2020).

The aim of this article was to gain a better grasp of longer-term, technology-enabled shifts that portend a new normal after the pandemic has abated. As we hope to have demonstrated, companies now seem to have additional leeway in monitoring a scattered workforce. In most cases, managers and employers, both public and private, were left to decide whether their activity was essential, whether to allow or impose remote work and the use of annual leave and whether to discontinue the employment of precarious and non-standard workers. Surveillance has been heightened for all categories of workers. This has resulted in the dismaying expansion of monitoring prerogatives and prompted a severe reaction from the EU and national data protection authorities (Drozdiak and Fouquet 2020). As management by algorithms and AI-driven performance insights have become commonplace, massive amount of quantitative data have been collected and stored. This seemingly unrestrainable phenomenon urges us to reconsider how labour regulation will uphold unilateral managerial powers. There are two perils that we need to escape: normalizing the emergency and seeking solace in digital solutions (Chesler 2020).

In addressing the long-term consequences of this shift, people-centred organizational policies are advantageous and much needed. Since AI and algorithms are substituting managers in various processes, solutions must be systemic and wide-ranging, encompassing complementary tools from different legal domains, such as data protection, anti-discrimination law and occupational health and safety, as appropriate. Given the rapidity of this transformation and despite the gradual decline in trade union density, in order to realize an alternative "new normal" paradigm, collective bargaining agreements are likely to be among the most successful tools to bring about comprehensible, verifiable and fair organizational practices in a swift and bespoke fashion. Co-determination is a way to enhance workers' agency and build trust in professional communities. More comprehensive agreements should also aim to include provisions covering workers regardless of their contractual classification in order to forestall further labour market segmentation. Similarly, critical digital literacy and firm-sponsored training must be used to guide data rights, exposing and challenging the logic behind excessive surveillance. As with any upsetting crisis, a high degree of inventiveness is required.

References

Adams-Prassl, Abigail, Teodora Boneva, Marta Golin, and Christopher Rauh. 2020. "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys", CEPR Discussion Paper No. 14665. London: Centre for Economic Policy Research.

Adams-Prassl, Jeremias. 2019. "What if Your Boss Was an Algorithm? Economic Incentives, Legal Challenges, and the Rise of Artificial Intelligence at Work". *Comparative Labor Law & Policy Journal* 41 (1): 123–146.

Ajunwa, Ifeoma, Kate Crawford, and Jason Schultz. 2017. "Limitless Worker Surveillance". *California Law Review* 105 (3): 735–776.

Ajunwa, Ifeoma, and Daniel Greene. 2019. "Platforms at Work: Automated Hiring Platforms and Other New Intermediaries in the Organization of Work". In *Work and Labor in the Digital Age*, edited by Steven P. Vallas and Anne Kovalainen, 61–91. Bingley: Emerald.

Allen, Robin, and Dee Masters. 2021. *Technology Managing People: The Legal Implications*. London: Trades Union Congress.

Aloisi, Antonio. 2022. "Platform Work in Europe: Lessons Learned, Legal Developments and Challenges Ahead". *European Labour Law Journal* 13 (1): 4–29.

Aloisi, Antonio, and Valerio De Stefano. 2022. *Your Boss Is an Algorithm: Artificial Intelligence, Platform Work and Labour*. Oxford: Hart.

Aloisi, Antonio, and Elena Gramano. 2019. "Artificial Intelligence Is Watching You at Work: Digital Surveillance, Employee Monitoring and Regulatory Issues in the EU Context". *Comparative Labor Law & Policy Journal* 41 (1): 95–121.

Aneesh, A. 2002. "Technologically Coded Authority: The Post-industrial Decline in Bureaucratic Hierarchies". Paper presented at the 7th International Summer Academy on Technology Studies, Deutschlandsberg, Austria, 27–31 August 2002.

Article 29 Data Protection Working Party. 2017. Opinion 2/2017 on Data Processing at Work. WP249. Brussels: European Commission.

Bender, Felix, and Magdalena Ulceluse. 2020. "Valuing Life Differently: Migrants and the Coronavirus Crisis". *Social Europe*, 1 May 2020. https://www.socialeurope.eu/valuing-life-differently-migrants-and-the-coronavirus-crisis.

Benner, Chris, Sarah Mason, Françoise Carré, and Chris Tilly. 2020. *Delivering Insecurity: E-commerce and the Future of Work in Food Retail*. Berkeley, CA: University of California, Berkeley Labor Center and Working Partnerships USA.

Bittle, Jake. 2020. "Your Boss Wants to Know whether You Washed Your Hands". *Slate*, 5 May 2020. https://slate.com/technology/2020/05/rfid-technology-handwashing-social-distancing-coronavirus-workplace.html.

Blau, Francine D., Josefine Koebe, and Pamela A. Meyerhofer. 2020. "Who Are the Essential and Frontline Workers?" NBER Working Paper No. 27791. Cambridge, MA: National Bureau of Economic Research.

Bodie, Matthew T., Miriam A. Cherry, Marcia L. McCormick, and Jintong Tang. 2017. "The Law and Policy of People Analytics". *University of Colorado Law Review* 88 (4): 961–1042.

Bodie, Matthew T., and Michael McMahon. 2021. "Employee Testing, Tracing, and Disclosure as a Response to the Coronavirus Pandemic". *Washington University Journal of Law & Policy* 64 (1): 31–61.

Bonacini, Luca, Giovanni Gallo, and Sergio Scicchitano. 2021. "Working from Home and Income Inequality: Risks of a 'New Normal' with COVID-19". *Journal of Population Economics* 34 (1): 303–360.

Browne, Ryan. 2020. "The Gadgets and Software that Could Help Us Return to the Office". *CNBC*, 3 August 2020. https://www.cnbc.com/2020/08/03/the-gadgets-and-software-that-could-help-us-return-to-the-office.html.

Burdin, Gabriel, Simon D. Halliday, and Fabio Landini. 2020. "Why Using Technology to Spy on Home-Working Employees May Be a Bad Idea". *Qruis*, 19 June 2020. https://qrius.com/why-using-technology-to-spy-on-home-working-employees-may-be-a-bad-idea/.

Cetrulo, Armanda, Dario Guarascio, and Maria Enrica Virgillito. 2020. "The Privilege of Working from Home at the Time of Social Distancing". *Intereconomics* 55 (3): 142–147.

Chesler, Caren. 2020. "Coronavirus Will Turn Your Office into a Surveillance State". *Wired*, 4 May 2020. https://www.wired.co.uk/article/coronavirus-work-office-surveillance.

Collins, Hugh. 2018. "Is the Contract of Employment Illiberal?" In *Philosophical Foundations of Labour Law*, edited by Hugh Collins, Gillian Lester and Virginia Mantouvalou, 48–67. Oxford: Oxford University Press.

Cyphers, Bennett, and Karen Gullo. 2020. "Inside the Invasive, Secretive 'Bossware' Tracking Workers". *Electronic Frontier Foundation*, 30 June 2020. https://www.eff.org/it/deeplinks/2020/06/inside-invasive-secretive-bossware-tracking-workers.

Deakin, Simon. 2002. "The Many Futures of the Contract of Employment". In *Labour Law in an Era of Globalization: Transformative Practices and Possibilities*, edited by Joanne Conaghan, Richard Michael Fischl and Karl Klare, 177–196. Oxford: Oxford University Press.

Deakin, Simon, and Tonia Novitz. 2020. "Covid-19, Labour Law, and the Renewal of the Social State". *Industrial Law Journal* 49 (4): 493–496.

DeFilippis, Evan, Stephen Michael Impink, Madison Singell, Jeffrey T. Polzer, and Raffaella Sadun. 2020. "Collaborating during Coronavirus: The Impact of COVID-19 on the Nature of Work", NBER Working Paper No. 27612. Cambridge, MA: National Bureau of Economic Research.

Delfino, Gianluca F., and Berend van der Kolk. 2021. "Remote Working, Management Control Changes and Employee Responses during the COVID-19 Crisis". *Accounting Auditing & Accountability Journal* 34 (6): 1376–1387.

De Stefano, Valerio. 2018. "'Negotiating the Algorithm': Automation, Artificial Intelligence and Labour Protection", Employment Working Paper No. 246. Geneva: ILO.

———. 2020. "'Masters and Servers': Collective Labour Rights and Private Government in the Contemporary World of Work". *International Journal of Comparative Labour Law and Industrial Relations* 36 (4): 425–444.

De Stefano, Valerio, and Mathias Wouters. Forthcoming. "AI and Digital Tools in Workplace Management Evaluation: An Assessment of the EU's Legal Framework". Study for the Panel for the Future of Science and Technology (2022). Brussels: Scientific Foresight Unit, European Parliamentary Research Services.

Dingel, Jonathan I., and Brent Neiman. 2020. "How Many Jobs Can Be Done at Home?" NBER Working Paper No. 26948. Cambridge, MA: National Bureau of Economic Research.

Drozdiak, Natalia, and Helene Fouquet. 2020. "Creepy Technologies Invade European Workplaces". *Bloomberg*, 19 May 2020. https://www.bloomberg.com/news/articles/2020-05-20/creepy-technologies-invade-european-post-pandemic-workplaces.

Edwards, Richard. 1979. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. New York: Basic Books.

Ekbia, Hamid R., and Bonnie A. Nardi. 2017. *Heteromation, and Other Stories of Computing and Capitalism*. Cambridge, MA: MIT Press.

Estlund, Cynthia. 2018. "Rethinking Autocracy at Work", review of *Private Government: How Employers Rule Our Lives (and Why We Don't Talk About It)*, by Elizabeth Anderson. *Harvard Law Review* 131 (3): 795–826.

ETUC (European Trade Union Confederation). 2020. "COVID-19 Watch ETUC Briefing on New Technologies Allowing More Surveillance at Work", COVID-19 Watch/ETUC

Briefing Note, 30 September 2020. Brussels. https://www.etuc.org/sites/default/files/publication/file/2020-12/20200930_covid-19%20Briefing%20on%20survelliance%20technologies.pdf.

Eurofound (European Foundation for the Improvement of Living and Working Conditions). 2020a. *Employee Monitoring and Surveillance: The Challenges of Digitalisation*. Luxembourg: Publications Office of the European Union.

———. 2020b. *Living, Working and COVID-19*. Luxembourg: Publications Office of the European Union.

Eurofound and ILO. 2017. *Working Anytime, Anywhere: The Effects on the World of Work*. Luxembourg and Geneva.

European Parliament. 2020. *Data Subjects, Digital Surveillance, AI and the Future of Work*. Brussels.

Fairwork. 2020. "The Gig Economy and Covid-19: Looking Ahead". September 2020. Oxford.

Fana, Marta, Santo Milasi, Joanna Napierala, Enrique Fernández-Macías, and Ignacio González Vázquez. 2020. "Telework, Work Organisation and Job Quality during the COVID-19 Crisis: A Qualitative Study", JRC Working Papers Series on Labour, Education and Technology, No. 2020/11. Seville: European Commission.

Finkin, Matthew W. 2017. "Chapter 7: Privacy and Autonomy". *Employee Rights and Employment Policy Journal* 21 (2): 589–621.

Foucault, Michel. 1975. *Surveiller et punir: Naissance de la prison*. Paris: Gallimard.

Gamio, Lazaro. 2020. "The Workers Who Face the Greatest Coronavirus Risk". *The New York Times*, 15 March 2020. https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html.

Hafermalz, Ella. 2021. "Out of the Panopticon and into Exile: Visibility and Control in Distributed New Culture Organizations". *Organization Studies* 42 (5): 697–717.

Hanley, Daniel A., and Sally Hubbard. 2020. "Eyes Everywhere: Amazon's Surveillance Infrastructure and Revitalizing Worker Power". 1 September 2020. Washington, DC: Open Markets Institute.

Hare, Stephanie. 2022. *Technology Is Not Neutral: A Short Guide to Technology Ethics*. London: London Publishing Partnership.

Harwell, Drew. 2020. "Managers Turn to Surveillance Software, Always-On Webcams to Ensure Employees Are (Really) Working from Home". *The Washington Post*, 30 April 2020. https://www.washingtonpost.com/technology/2020/04/30/work-from-home-surveillance/.

Hendrickx, Frank. 2019. "Privacy 4.0 at Work: Regulating Employment, Technology and Automation". *Comparative Labor Law & Policy Journal* 41 (1): 147–172.

Hodder, Andy. 2020. "New Technology, Work and Employment in the Era of COVID-19: Reflecting on Legacies of Research". *New Technology, Work and Employment* 35 (3): 262–275.

ILO. 2020a. "ILO Monitor: COVID-19 and the World of Work", 2nd ed., 7 April 2020. Geneva.

———. 2020b. *Teleworking during the COVID-19 Pandemic and Beyond: A Practical Guide*. Geneva.

Ivanova, Mirela, Joanna Bronowicka, Eva Kocher, and Anne Degner. 2018. "The App as a Boss? Control and Autonomy in Application-Based Management", Arbeit–Grenze–Fluss – Work in Progress interdisziplinärer Arbeitsforschung No. 2. Frankfurt (Oder): Europa-Universitat Viadrina.

Katsabian, Tammy. 2019. "Employees' Privacy in the Internet Age: Towards a New Procedural Approach". *Berkeley Journal of Employment and Labour Law* 40 (2): 203–255.

Kellogg, Katherine C., Melissa A. Valentine, and Angèle Christin. 2020. "Algorithms at Work: The New Contested Terrain of Control". *Academy of Management Annals* 14 (1): 366–410.

Kelly-Lyth, Aislinn. 2021. "Challenging Biased Hiring Algorithms". *Oxford Journal of Legal Studies* 41 (4): 899–928.

Kidwell, Roland E., and Robert Sprague. 2009. "Electronic Surveillance in the Global Workplace: Laws, Ethics, Research and Practice". *New Technology, Work and Employment* 24 (2): 194–208.

Landes, David S. 1969. *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present*. Cambridge: Cambridge University Press.

Lane, Marguerita. 2020. "Regulating Platform Work in the Digital Age", OECD Going Digital Toolkit Policy Note, No. 1. Paris: Organisation for Economic Co-operation and Development.

Leonardi, Paul M. 2021. "COVID-19 and the New Technologies of Organizing: Digital Exhaust, Digital Footprints, and Artificial Intelligence in the Wake of Remote Work". *Journal of Management Studies* 58 (1): 249–253.

Lund, Susan, Anu Madgavkar, James Manyika, Sven Smit, Kweilin Ellingrud, Mary Meaney, and Olivia Robinson. 2021. *The Postpandemic Economy: The Future of Work after COVID-19*. McKinsey Global Institute.

Mangan, David, Elena Gramano, and Miriam Kullmann. 2020. "An Unprecedented Social Solidarity Stress Test". *European Labour Law Journal* 11 (3): 247–275.

Manganelli, Lara, Anaïs Thibault-Landry, Jacques Forest, and Joëlle Carpentier. 2018. "Self-Determination Theory Can Help You Generate Performance and Well-Being in the Workplace: A Review of the Literature". *Advances in Developing Human Resources* 20 (2): 227–240.

Manokha, Ivan. 2019. "New Means of Workplace Surveillance: From the Gaze of the Supervisor to the Digitalization of Employees". *Monthly Review* 70 (9). https://monthlyreview.org/2019/02/01/new-means-of-workplace-surveillance/.

Mateescu, Alexandra, and Madeleine Clare Elish. 2019. "AI in Context: The Labor of Integrating New Technologies". *Data & Society*, 30 January 2019. https://datasociety.net/library/ai-in-context/.

Mateescu, Alexandra, and Aiha Nguyen. 2019. "Explainer: Workplace Monitoring & Surveillance". *Data & Society*, 6 February 2019. https://datasociety.net/library/explainer-workplace-monitoring-surveillance/.

Migliano, Simon, and Christine O'Donnell. 2022. "Employee Surveillance Software Demand Up 56% since Pandemic Started". *Top10VPN*, 10 February 2022. https://www.top10vpn.com/research/covid-employee-surveillance/.

Mundlak, Guy, and Judy Fudge. 2020. "The Future of Work and the Covid-19 Crisis". *Futures of Work*, No. 14. https://futuresofwork.co.uk/2020/06/05/the-future-of-work-and-the-covid-19-crisis/.

Nguyen, Aiha. 2020a. "On the Clock and at Home: Post-COVID-19 Employee Monitoring in the Workplace". *People + Strategy Journal*, Summer 2020. https://www.shrm.org/executive/resources/people-strategy-journal/summer2020/Pages/feature-nguyen.aspx/.

———. 2020b. "Watching the Watchers: The New Privacy and Surveillance under COVID-19". October 2020. Montreal: Centre for Media, Technology and Democracy, McGill University.

OECD (Organisation for Economic Co-operation and Development). 2020. "What Have Platforms Done to Protect Workers during the Coronavirus (COVID-19) Crisis?" 21 September 2020. Paris.

Otto, Marta. 2016. *The Right to Privacy in Employment: A Comparative Analysis*. Oxford: Hart.

———. 2019. "'Workforce Analytics' v Fundamental Rights Protection in the EU in the Age of Big Data". *Comparative Labor Law and Policy Journal* 40 (3): 389–404.

Pakes, Andrew. 2020. "High Visibility and COVID-19: Returning to the Post-lockdown Workplace". Ada Lovelace Institute Blog, 19 May 2020. https://www.adalovelaceinstitute.org/blog/covid-19-returning-to-post-lockdown-workplace/.

Palmer, Annie. 2020. "How Amazon Keeps a Close Eye on Employee Activism to Head Off Unions". *CNBC*, 24 October 2020. https://www.cnbc.com/2020/10/24/how-amazon-prevents-unions-by-surveilling-employee-activism.html.

Ponce Del Castillo, Aída. 2020. "COVID-19 Contact-Tracing Apps: How to Prevent Privacy from Becoming the Next Victim", ETUI Policy Brief No. 5/2020. Brussels: European Trade Union Institute.

Powell, Jessica. 2020. "The Rise of Remote Work Can Be Unexpectedly Liberating". *The New York Times*, 25 September 2020. https://www.nytimes.com/2020/09/25/opinion/remote-work-from-home-office.html?smid=tw-share.

Putzier, Konrad, and Chip Cutter. 2020. "Welcome Back to the Office. Your Every Move Will Be Watched". *The Wall Street Journal*, 5 May 2020. https://www.wsj.com/articles/lockdown-reopen-office-coronavirus-privacy-11588689725.

Rigby, C. Scott, and Richard M. Ryan. 2018. "Self-Determination Theory in Human Resource Development: New Directions and Practical Considerations". *Advances in Developing Human Resources* 20 (2): 133–147.

Ristuccia, Fulvia. 2020. "Essential Rights for Essential Workers". *COVID Blog in Social Sciences*, 26 May 2020. https://covidblogsocialsciences.wordpress.com/2020/05/26/essential-rights-for-essential-workers/.

Rogers, Brishen. 2020. "The Law and Political Economy of Workplace Technological Change". *Harvard Civil Rights–Civil Liberties Law Review* 55 (2): 531–584.

Rubinstein, Ira S. 2011. "Regulating Privacy by Design". *Berkeley Technology Law Journal* 26 (3): 1409–1456.

Sachs, Benjamin I. 2014. "Privacy as Sphere Autonomy". In *Protection of Employees' Personal Information and Privacy*, edited by Roger Blanpain, Hiroya Nakakubo and Takashi Araki, 233–247. Bulletin of Comparative Labour Relations, Vol. 88. Alphen aan den Rijn: Kluwer Law International.

Samek Lodovici, Manuela, ed. 2021. "The Impact of Teleworking and Digital Work on Workers and Society". Publication for the Committee on Employment and Social Affairs, Policy Department for Economic, Scientific and Quality of Life Policies. Luxembourg: European Parliament.

Sarpong, Sam, and Donna Rees. 2014. "Assessing the Effects of 'Big Brother' in a Workplace: The Case of WAST". *European Management Journal* 32 (2): 216–222.

Silverman, Jacob. 2020. "Do You Know Your Microsoft Productivity Score?" *The New Republic*, 25 November 2020. https://newrepublic.com/article/160388/microsoft-productivity-score-workplace-analytics-employee-surveillance.

Sostero, Matteo, Santo Milasi, John Hurley, Enrique Fernández-Macías, and Martina Bisello. 2020. "Teleworkability and the COVID-19 Crisis: A New Digital Divide?" JRC Working Papers Series on Labour, Education and Technology, No. 2020/05. Seville: European Commission.

Suder, Seili. 2021. "Processing Employees' Personal Data during the Covid-19 Pandemic". *European Labour Law Journal* 12 (3): 322–337.

The Economist. 2020. "Covid-19 Has Forced a Radical Shift in Working Habits". 12 September 2020. https://www.economist.com/briefing/2020/09/12/covid-19-has-forced-a-radical-shift-in-working-habits.

TUC (Trades Union Congress). 2020. *Technology Managing People: The Worker Experience*. London.

Tucker, Catherine. 2019. "Privacy, Algorithms, and Artificial Intelligence". In *The Economics of Artificial Intelligence: An Agenda*, edited by Ajay Agrawal, Joshua Gans and Avi Goldfarb, 423–437. Chicago, IL: University of Chicago Press.

UN (United Nations). 2020. “Policy Brief: The Impact of COVID-19 on Women”. 9 April 2020. New York, NY.

Whitaker, Reginald. 1999. *The End of Privacy: How Total Surveillance Is Becoming a Reality*. New York, NY: New Press.

Zuboff, Shoshana. 2015. “Big Other: Surveillance Capitalism and the Prospects of an Information Civilization”. *Journal of Information Technology* 30 (1): 75–89.