Electronic Monitoring and Surveillance in the Workplace

Literature review and policy recommendations

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Abstract

This report re-evaluates the literature about surveillance/monitoring in the standard workplace, in home working during the COVID 19 pandemic and in respect of digital platform work. It utilised a systematic review methodology (see Appendix I). A total of 398 articles were identified, evaluated and synthesised. The report finds that worker surveillance practices have extended to cover many different features of the employees as they work. Surveillance in the workplace targets thoughts, feelings and physiology, location and movement, task performance and professional profile and reputation.

In the standard workplace, more aspects of employees' lives are made visible to managers through data. Employees' work/non-work boundaries are contested terrain. The surveillance of employees working remotely during the pandemic has intensified, with the accelerated deployment of keystroke, webcam, desktop and email monitoring in Europe, the UK and the USA. Whilst remote monitoring is known to create work-family conflict, and skilled supervisory support is essential, there is a shortage of research which examines these recent phenomena. Digital platform work features end-to-end worker surveillance. Data are captured on performance, behaviours and location, and are combined with customer feedback to determine algorithmically what work and reward are offered to the platform worker in the future. There is no managerial support and patchy colleague support in a hyper-competitive and gamified freelance labour market. Once again there is a shortage of research which specifically addresses the effects of monitoring on those who work on digital platforms.

Excessive monitoring has negative psycho-social consequences including increased resistance, decreased job satisfaction, increased stress, decreased organisational commitment and increased turnover propensity. The design and application of monitoring, as well as the managerial practices, processes and policies which surround it influence the incidence of these psycho-social risks. Policy recommendations target at mitigating the psycho-social risks of monitoring and draw upon privacy, data justice and organisational justice principles. Numerous recommendations are derived both for practice and for higher level policy development.

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Executive summary

This report analyses the research literature about surveillance/monitoring in the workplace. It reviews recent developments in workplace surveillance. It then establishes the psycho-social risk factors associated with employee surveillance/monitoring and identifies where policy may develop in respect of its use.

There are four new developments in workplace surveillance.

1. A wider range of technologies have been identified which enable surveillance to extend beyond the realm of performance management and into the thoughts, feelings and behaviours, location and movement, and professional profile and reputation of the employee.

2. The implications of these new surveillance technologies for employees concern:

   ● the extent to which they are more controlled personally and more aspects of their person are made visible to managers

   ● the extent to which surveillance intrudes into workers' private lives beyond work

   ● consequences including increased resistance, decreased job satisfaction, increased stress, decreased organisational commitment and increased turnover propensity

3. The surveillance of employees forced to work remotely has intensified during the pandemic, with an acceleration in the deployment of keystroke, webcam, desktop and email monitoring in Europe, the UK and the US. Where remote working was enforced, monitoring was linked to perceptions that work was interfering in home life and increased the likelihood of work-family conflict. In pre-pandemic times, where remote working was a choice, monitoring just performance outputs was preferable as it provided remote workers with autonomy. Its success depended upon:

   ● whether the remote worker's job characteristics featured enough autonomy

   ● whether the remote worker's job had measurable outputs

   ● whether the supervisor had the knowledge, skills, experience and an appropriate style to select employees for remote work, support them socially, and integrate their work into that of their team and department

   The enforced and rapid transition to remote working during the pandemic will have precluded the consideration of these factors for many organisations and their employees.

4. Platform work features end-to-end employee surveillance. Platform work is short-term subcontracted work which is engaged, executed and rewarded on a digital labour platform and is increasingly a work option for Europeans. Data are captured on performance, behaviours and location and combined with customer feedback to determine algorithmically what work and reward are offered to the platform worker in future. It was found that:

   ● The psychological impacts of platform surveillance are under-researched.

   ● Platform surveillance is more likely to be perceived as intrusive because of the breadth of surveillance targets and purposes.

   ● Output monitoring of tasks is acceptable to platform workers as it acts as a form of protection, as an extrinsic motivator in the short term, and allows for autonomy when the task is completed.

   ● An autonomy paradox then arises because platform workers have no control over the onset or process of surveillance/monitoring.

   ● Workers are completely exposed to an opaque platform, producing information asymmetries.

   ● Workers learn to anticipate what the algorithms want them to do and adapt their behaviour accordingly, managing how they are seen by the platform.

   ● There is no managerial support for workers, but they support each other using online fora and other digital means.

- The negative outcomes of algorithmic platform surveillance include frustration, reduced fairness perceptions, reduced well-being, reduced voice and increased employment precarity, loss of privacy, problems with data accuracy, discrimination.

- Unique resistant strategies include practical action, platform action, discursive framing and legal mobilisation alongside traditional industrial action such as striking.

Monitoring, psycho-social risks and psycho-social risk factors:

Monitoring can cause negative psycho-social outcomes. These outcomes are numerous: they include increased resistance (or counterproductive work behaviours), decreased job satisfaction, increased stress, decreased organisational commitment and increased turnover propensity. Depending on how it is configured, monitoring can also cause negative privacy, trust, procedural and distributive justice perceptions as well as negative impacts on autonomy and creativity. Should these adverse consequences occur, as well as detrimental impacts on individuals they will also impact the organisation in terms of labour costs, performance, values and culture.

Psycho-social risk factors relate to the design and use of monitoring, as well as with the managerial processes and policies which surround it, which increase the likelihood of these psycho-social risks arising, as follows:

- Function creep in the purpose for which monitoring is deployed; unclear or absent monitoring purpose: Safety monitoring and monitoring for training purposes are more acceptable to employees providing the purpose for which the information is used does not change over time without employees' knowledge. Surveillance whose purpose is unclear or absent will seem excessive to employees. If surveillance is perceived as excessive it will reduce fairness, justice and satisfaction perceptions, trust in management, commitment to the organisation, creativity and autonomy.

- The presence of personality traits which provoke angry reactions to monitoring: Certain personality traits – trait reactance and ethical orientation - can increase the likelihood of an angry, emotional or resistant reaction to the prospect and actuality of being monitored. This then increases the emotional labour employees deploy to cope with monitoring, which may affect workplace relationships and may damage the psychological contract.

- Configuring monitoring in a way which increases invasiveness perceptions: Monitoring will be perceived as more invasive if it gathers proportionately more information about individuals than it does about a group, team or department; if it uses technology which can target workers' thoughts, feelings and physiology; location and movement or profile and reputation as well as task performance. The extent to which workers can place constraints on data sharing and access to data; and the extent to which individuals can control the onset of monitoring and have autonomy in the way that they respond to it also influence invasiveness perceptions.

- Configuring monitoring in a way which damages trust: Monitoring is a proxy for the extent to which managers trust employees. As monitoring can 'meta communicate' organisational value systems to employees, exacting monitoring may be interpreted by employees as questioning their competence, organisational commitment (as an aspect of benevolence) and honesty (as an aspect of integrity). Competence, benevolence and integrity are the three components of trust. Excessive monitoring will leave employees feeling they are not trusted by managers. Low trust relationships impact justice, fairness and privacy perceptions in the workplace. A negative cycle may result which will be difficult to break, with punitive surveillance becoming a self-fulfilling prophecy.

- Monitoring processes and policy which are not transparent and open: Monitoring processes which are perceived as opaque, secretive and which are not fully explained to employees will result in reduced feelings of task satisfaction, procedural and informational justice, trust, reduced performance and increased perceptions of monitoring as purposeless and authoritarian.

- Job designs of monitored employees which do not allow for autonomy in response to monitoring: Professional jobs which feature greater autonomy afford employees greater control in their response to monitoring. Monitored low paid service jobs feature less autonomy so employees will experience less control in their response. Public sector employees have the added pressure of public interest and public accountability when performing monitored tasks.

- Low managerial support on monitored tasks: Appropriate consideration behaviour, a human-centred supervisory style, skill and expertise of supervisors with monitoring can mitigate some of the negative effects.

- Using hard wired surveillance technologies: Past studies have focused on employee participation in the design of monitoring rather than the technology itself. Technology design does make a difference where surveillance is hard wired into the technology – such as body cameras, webcams or digital CCTV – and cannot be circumvented. This type of technology design risks provoking the behaviours it was installed to prevent. There are fewer psycho-social risks if any surveillant aspects can be adapted and accommodated into supportive and fair managerial processes.

- Discriminatory outcomes and poor distributive justice in monitoring processes: Discriminatory outcomes arise when surveillance is disproportionately targeted at particular groups over others and discriminates between them in terms of reward or opportunity. In respect of platform work there are concerns about differential wages, work allocations and precarity between geographic territories, groups and individuals. Surveillance intensity can also reproduce gender, race, class and immigration status inequalities in terms of the extent to which these groups are represented in lower paid service roles.

- Procedural unfairness in monitoring processes: A monitoring process is fair if employees have been able to express their views and influence the outcome, if the procedure is consistently applied to all, if it is free of bias, based on accurate information, if that outcome can be appealed, and if moral and ethical standards are upheld. When AI or algorithmic surveillance is being utilised, there is a risk that these opportunities will be side-lined.

- The amount of emotional labour and identity work undertaken by individuals as they come to terms with surveillance may increase psycho-social risks if surveillance crosses established public-private boundaries. Surveillance provokes a raft of emotions in which individuals labour to manage their visibility and control their exposure to surveillance. Such phenomena are documented in a wide range of standard work contexts, remote work and platform work.

The research produced several policy recommendations which specifically address each of these psycho-social risk factors to ameliorate the psycho-social risks associated with monitoring.

They combine legal thinking with principles of data justice and organisational justice. Set out on pages 78 – 80, it is suggested that:

- These policy recommendations apply to monitoring process and to the way in which they are managed in standard, remote and platform work.

- In remote working, policy concerning the configuration of monitoring is crucial not only in terms of its lawfulness but in terms of the way it may exacerbate the social isolation and workload difficulties of remote working.

- The configuration and purpose of monitoring on platforms would be considered unnecessary and disproportionate in the standard workplace. Through a surveillance lens, the paucity of managerial and social support for platform workers in the face of such exacting surveillance is ethically unacceptable.

Based on the research reviewed, future research priorities include:

- the replication and extension of Occupational Psychology and Organisational Behaviour (OP/OB) research in remote and platform work surveillance contexts

- the identification and testing of ethical principles which can underpin fair monitoring practices

- the development of high trust employee monitoring practices

- technical and practical ways in which employees can gain autonomy over data collection and sharing and the impact on performance and efficiency

- the potential for non-surveillant alternatives and employee self-reporting of information

- exploration of the boundary work undertaken by surveilled workers in all settings, and the articulation/contestation of the work/private life boundary

- legal and regulatory research which considers the ways in which employment law may be updated and extended to protect workers from the abuse of their personal data in the workplace. How may workers make the most of their full range of GDPR rights?

- the use of co-design processes to create ethical monitoring solutions

- the use of collective representation to challenge and negotiate workplace surveillance

- effective resistant strategies, wider media campaigns and legal restriction of workplace surveillance.

1   Introduction

Surveillance has always been a feature of organisations and organising. In recent years, changes in available technologies, management culture as well as new organisational forms have extended and intensified the opportunities for employee surveillance. This report re-evaluates the existing research literature about surveillance/monitoring in light of these new developments. It establishes the psycho-social risks associated with employee surveillance/monitoring, points out research gaps and identifies where policy may develop. In this chapter we explore definitions and terminology, examine what is new in the world of workplace surveillance/ monitoring, present what was already known prior to the current review, and set out the structure of the remaining report.

1.1   What is surveillance?

Surveillance is 'any collection and processing of information, whether personally identifiable or not, for the purposes of influencing and managing those whose data have been garnered (Lyon 2001: 2[1]). An act of surveillance always involves the purposeful gathering of information about something or someone. That information is then rationally and systemically analysed and the outcome of that analysis is then used to influence the behaviour of the original surveillance target. For a phenomenon to qualify as surveillant, two elements need to be present: data must be gathered and analysed, and then applied in a process of influence over the original data target. Surveillance always involves an exercise of power.

Examples of surveillance found in the employment sphere include *inter alia* a manager using call handling statistics and call recording to feed back to a call centre worker on their performance so that they can improve; a recruitment company looking into the social media profile of job applicants to decide whether to short list them or a platform algorithm gathering information on a freelancers' reputation to allocate them work and decide what pay they should receive. The latter is also an example of 'social sorting' (Gandy 2010[2]): the use of data-derived electronic profiles of employees to drive decision-making about them. This core surveillance concept, common in studies of consumer profiling, credit scoring or voter surveillance, is now emerging as relevant to the employment relationship as it becomes more data intensive.

Surveillance itself is a way of organising. Clocking in, counting and weighing output and payment by piece-rate are older forms of workplace surveillance. Histories of early large-scale organisations emphasise how the development of information 'systems' gave businesses the ability to police their internal structures and their employees to gain competitive advantage. More recently, two sets of factors have contributed to an increase in workplace surveillance. The first is a heightened visibility of employees and their activities through data. A combination of datafied people management technologies and management culture emphasise the measurement, analysis and modelling of a wider range of individual worker characteristics and link them analytically to enhanced efficiency (Hafermalz, 2020[3]; Schafheitle, Weibel, Ebert, Kasper, Schank and Leicht-Deobald, 2020[4]). The second is the gathering of these data across the employee's public-private boundaries, as well as organisational boundaries (McDonald and Thompson 2016[5]; Thompson, McDonald and O'Connor 2020[6]). New organisational forms in which existing external organisational boundaries are broken down and reconnected via Information Technology (Anand and Daft 2007[7]), such as remote work and platform work, are both current examples.

Surveillance is thus a taken-for-granted element of working life. Employees expect to have their performance reviewed, objectives set, and information gathered on their activities – indeed, this is seen as good management practice. Employers are entitled to monitor their employees to ensure that resources are used efficiently, to protect commercial confidentiality and management risk, and to ensure that laws are complied with and that no crimes are committed by their employees. Nonetheless, employee surveillance can become controversial in three instances:

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[1] Lyon, D (2001) Surveillance Society: Monitoring Everyday Life Cambridge: McGraw Hill

[2] Gandy, O (2010) Coming to Terms with Chance: Engaging Rational Discrimination and Cumulative Disadvantage Farnham: Ashgate

[3] Hafermalz, E (2020) Out of the panopticon and into exile: Visibility and control in distributed new culture organizations Organization Studies DOI: 10.1177/0170840620909962.

[4] Schafheitle, S; Weibel, A; Ebert, I; Kasper, G; Schank, C; Leicht-Deobald, U (2020) No Stone Left Unturned? Toward a Framework for the Impact of Datafication Technologies on Organizational Control Academy of Management Discoveries 6 (3) pp. 455–487.

[5] McDonald, P; Thompson, P (2016) Social Media(tion) and the Reshaping of Public/Private Boundaries in Employment Relations International Journal of Management Reviews18 pp. 69–84.

[6] Thompson, P; McDonald, P; O'Connor, P (2020) Employee dissent on social media and organizational discipline Human Relations 73(5) pp. 631– 652.

[7] Anand, N and Daft, R (2007) What is the right organization design? Organizational Dynamics 36 (4) pp. 329 – 344.

- When it goes beyond what is proportionate or necessary, for example, if monitoring reveals more about the lives employees lead outside work. Current examples would be the tracking of employee vehicles in real time or the use of webcams and keystroke monitoring to track remote workers.
- When employers demand exacting and precise information about a wider range of employee characteristics beyond performance. Current examples include the automated monitoring and recognition of employees' facial features and expressions and the use of biometrics for access control. There is currently a legal grey area surrounding whether employers can process the biometric data of employees.
- Third, when the application of monitoring compromises working practices and negatively affects existing levels of control, autonomy and trust, which then results in counterproductive work behaviours and resistance. A recent example is the monitoring of communications using sentiment analysis, which has a risk of false positives.

Surveillance and monitoring in the workplace elicit ambiguous responses from employees, because some of it is conducted pursuant to a legitimate business interest which ultimately provides employment. Workers can simultaneously support some of the protective aspects of surveillance and oppose some of its more intrusive aspects. Employers need to provide clear policies which govern how monitoring is undertaken and which prevent its misuse and abuse.

1.2   A note on terminology and method

Throughout this review we will be using the terms 'monitoring' and 'surveillance' interchangeably. The review draws upon Occupational Psychology/Organisational Behaviour (OP/OB) literature and Organisational Sociology/Employment Relations (OS/ER) literature. Scholars have investigated the effects of monitoring and surveillance in these two disciplinary clusters, but use different terminology with which to do so. OS/ER scholars use the term 'surveillance'. They are concerned with power, politics, resistance and meaning-making by employees and call the legitimacy of managerial control into question (Sewell and Barker, 2006[8]; Sewell, Barker and Nyberg, 2008[9]; Ball and Margulis 2011[10]). The term 'monitoring' tends to be used by OP/OB scholars. For many OP/OB scholars who write about monitoring, there are no explicitly political or social-theoretical issues raised by it. Instead, it is a question of how monitoring is used: whether it is effective and at what cost (e.g. stress, 'playing the system'). Nonetheless an important similarity between these strands of literature is that they are both concerned with the psycho-social risks of monitoring. Concerns about worker health and well-being, turnover propensity, counterproductive work behaviours, privacy invasion, discretionary effort, commitment, trust and all manner of employment ethics are shared across these disciplines. This bifurcation in terminology was reflected in the literature search terms and the common interest was reflected in the coding of the search results. The methodological description in Appendix I sets out the study design in more details and explains how these disciplinary differences were incorporated.

1.3   What is new in workplace surveillance/monitoring?

There are four new developments in workplace surveillance/monitoring literature. The first is that a wider range of technologies have been identified which enable surveillance to extend beyond the realm of performance management and into the behaviours and personal characteristics of the employee. The second development concerns the implications of these new surveillance technologies for (a) the manner in which the employee is visible to employers and thus the aspects which are controlled (b) the boundaries of worker surveillance in respect of their private lives and life beyond work and (c) negative consequences including declines in trust and increases in stress and resistance. The third and fourth developments concern two new workplace surveillance contexts: remote work brought about by the pandemic and work mediated by digital labour platforms.

Recent press coverage and industry reports which concern workplace surveillance hint at the extension of workplace surveillance/monitoring, and its consequences, in practice. In 2019, for example, a Gartner report found that 50% of the 239 large corporations they surveyed were already using some type of 'non-traditional employee tracking' technique, which was expected to rise in 2020. By 'non-traditional', Gartner means "analyzing the text of emails and social-media messages, scrutinizing who's meeting with whom, gathering

[8] Sewell, G. and J. Barker (2006), 'Coercion Versus Care: Using Irony to Make Sense of Organizational Surveillance', Academy of Management Review 31 (4) pp. 934–961.
[9] Sewell, G. and J. Barker (2008), Performance Measurement as Surveillance: When (If Ever) Does "Measuring Everything That Moves" Become Oppressive?, Presented at Windows Into the Soul: Surveillance and Society in an Age of High Technology, a Hixon-Riggs Forum on Science, Technology and Society, Harvey Mudd College, Claremont, California, March 27–29, 2008.
[10] Ball, K and Margulis, T (2011) Monitoring and Surveillance in Call Centres: A Review and Synthesis New Technology, Work and Employment 26 (2) pp. 113 – 126.

biometric data and understanding how employees are utilizing their workspace."[11] It was unclear how many of the companies Gartner surveyed were based in Europe. In 2017 Management Consultancy Price Waterhouse Coopers[12] asserted that AI was entering the mainstream in Human Resources practice. Specific applications such as AI-based video interviewing which analyses candidates' facial expressions, tones of voice and language use are said to speed up hiring but may be illegal in Europe (Manokha 2019[13]). Early in 2019[14] the Australian Broadcasting corporation reported on the working conditions within Amazon warehouses who are algorithmically surveilled on their shifts amid a culture of fear, casualised work and high-pressure targets. In the same year, the UK head office of Barclays received negative press coverage for piloting a system which tracked employees' computer use, after receiving similar coverage in 2017 for secretly placing black boxes under employees' desks to track their whereabouts (BBC, 2019[15]). Notwithstanding the questionable legality of secretly surveilling employees who were not suspected of any crime, the media outcry ended these two technology pilots. The Royal Society for Arts and the Trades Union Congress independently published reports expressing concern for the extent of surveillance in the workplace (BBC 2019[16]).

Two new workplace surveillance contexts have also emerged. When millions of people across the world had to work remotely during the pandemic, demand for employee monitoring applications soared. In 2020, global demand for employee monitoring software had increased by 108% in April and 70% in May 2020 compared to 2019. Search engine queries for "How to monitor employees working from home" increased by 1,705% in April and 652% in May 2020 compared with searches carried out the preceding year. Employee surveillance software providers also reported huge increases in sales enquiries. Time Doctor, for example, reported increases of 202% in April 2020 compared to the previous year; Teramind had increased by 169%, Desk Time by 333% and KickIdler by 139%[17]. Communication screening, desktop monitoring, sometimes via webcam and social media screening were the main techniques used[18]. In 2021 the BBC then reported that a global contact centre provider, Teleperformance, was periodically using webcams to take photographs of employees at their desks (BBC 2021)[19], which was reported as unnecessary and disproportionate in the context of the home (Morrison 2020[20]; Holmes 2020[21]). A TUC survey reported that one in seven British workers experienced an increase in work surveillance in the pandemic, beyond what they had experienced in the pre-pandemic co-present workplace[22].

The second new surveillance context is work within the platform economy. Defined as 'the matching of supply and demand for paid work through an online platform'' (Eurofound, 2018[23]), approximately 11% of people surveyed in 16 EU countries had provided services via digital labour platforms at least monthly in the 12 months preceding the survey (September 2018). A much smaller proportion, about 1.4% have earned significant income or put in substantial hours in platform work[24]. Nearly 20% of the European workforce are considering platform work. The platforms which provide on-demand labour, such as ride-hail services, food delivery and routine administrative work surveil workers in two ways. First, they monitor performance intensively. The New Economics Foundation (2018[25]) note how platforms such as Upwork records all keystrokes

[11] https://www.gartner.com/smarterwithgartner/the-future-of-employee-monitoring/ (accessed 10th May 2021).

[12] https://www.pwc.at/de/publikationen/verschiedenes/artificial-intelligence-in-hr-a-no-brainer.pdf (accessed 10th May 2021).

[13] https://theconversation.com/facial-analysis-ai-is-being-used-in-job-interviews-it-will-probably-reinforce-inequality-124790 (accessed 10th May 2021).

[14] https://www.abc.net.au/news/2019-02-27/amazon-australia-warehouse-working-conditions/10807308?nw=0 (accessed 10th May 2021).

[15] https://www.bbc.co.uk/news/business-51570401 (accessed 10th May 2021).

[16] https://www.bbc.com/worklife/article/20190705-we-were-constantly-watched-it-felt-like-we-were-in-prison (accessed 10th May 2021)

[17] https://www.zdnet.com/article/employee-surveillance-software-demand-increased-as-workers-transitioned-to-home-working/ (accessed 5th May 2021).

[18] https://www.peoplemanagement.co.uk/news/articles/one-in-seven-workers-say-employer-monitoring-has-increased-during-covid#gref (accessed 5th May 2021).

[19] https://www.bbc.co.uk/news/uk-scotland-56724105 (accessed 13th April 2021).

[20] Morrison S (2020) Just because you're working from home doesn't mean your boss isn't watching you. Vox, 2 April. Available at: https://www.vox.com/recode/2020/4/2/21195584/coronavirus-remote-work-from-home-employee-monitoring (accessed 14 April 2020).

[21] Holmes A (2020) Employees at home are being photographed every 5 minutes by an always-on video service to ensure they're actually working - and the service is seeing a rapid expansion since the coronavirus outbreak. Business Insider Australia, 24 March. Available at: https://www.businessinsider.com.au/work-from-home-sneek-webcam-picture-5- minutes-monitor-video-2020-3 (accessed 6 April 2020).

[22] https://www.tuc.org.uk/news/intrusive-technology-work-rise-during-coronavirus (accessed 10th May 2021).

[23] Eurofound (2018), Employment and Working Conditions of Selected Types of Platform Work, Eurofound, Luxembourg.

[24] Urzì Brancati, M.C., Pesole, A., Férnandéz-Macías, E (2020) New evidence on platform workers in Europe. https://publications.jrc.ec.europa.eu/repository/handle/JRC118570. (accessed 10th May 2021).

[25] https://neweconomics.org/uploads/files/Data_and_work_FINAL.pdf (accessed 10th May 2021)

and can access a worker's camera to take pictures of them as they work. The Financial Times' (2016[26]) coverage of Deliveroo riders highlights how their performance is extensively tracked including their average time to accept orders, average travel time to restaurants, average travel time to customers, and the number of late and unassigned orders. New orders are supposed to be accepted within 30 seconds on average. Second, they then combine performance ratings with customer reviews to calculate the type of work someone is offered in future: in other words, they socially sort the workers on the platform. Whilst some can control and resist the exacting performance monitoring, there is little control over the output of the work allocation algorithms.

1.4 What do we already know about surveillance/monitoring in the workplace?

Early efforts by OP/OB researchers in the first two decades of electronic monitoring research (1980s – 2000) were summarised in a seminal review piece by Stanton (2000)[27]. Based on published research, Stanton develops a model which connects the factors which shape the psycho-social risks of electronic monitoring, shown in Figure 1. Psycho-social risk factors are "those aspects of work design and the organisation and management of work, and their social and environmental context, which may have the potential to cause psychological or physical harm" (EU-OSHA)[28]. At the time of Stanton's publication, the literature had identified several psycho-social risk factors: the organisational context, monitoring characteristics, trust in supervisors and management, employee cognitions or beliefs about monitoring, physiological arousal, the feedback process and individual difference. These were thought to contribute to the likelihood of adverse outcomes in terms of job satisfaction, stress, turnover and organisational commitment.

Employees perceive different monitoring characteristics which influence their thoughts, beliefs and evaluations of monitoring and the monitored work. In addition to cognitive factors, motivation and physiological arousal are important as they are directly connected with performance. Feedback quality and stress reactions then influence whether monitoring has any detrimental outcomes for performance, turnover, job satisfaction and organisational commitment.

Figure 1. Stanton's Conceptual Framework (2000: 89)
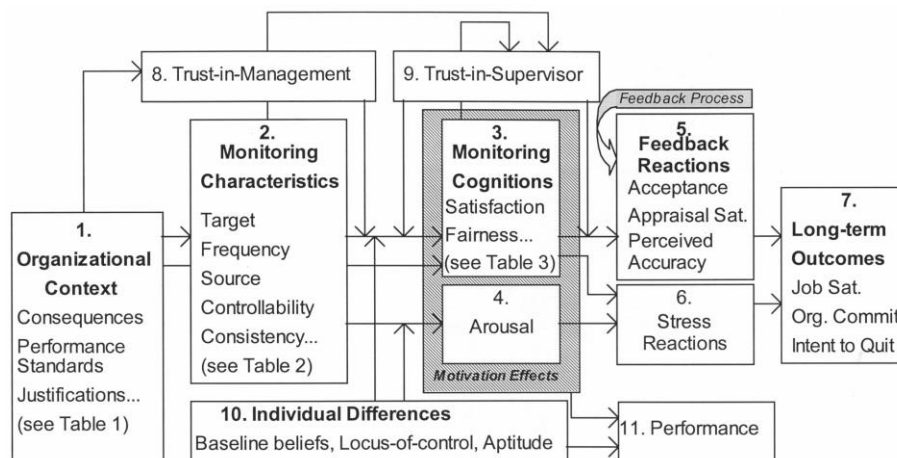
Stanton (2000[29]) summarises findings which establish how organisational context, the monitoring characteristics and individual differences are psycho-social risk factors in relation to the negative psycho-social outcomes shown in boxes 3, 5, 6 and 7. **Organisational contextual variables** include (Stanton 2000: 91):

- the degree to which monitoring processes are connected with feedback and appraisal processes (Amick & Smith, 1992[30])

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[26] https://www.ft.com/content/88fdc58e-754f-11e6-b60a-de4532d5ea35 (accessed 10th May 2021)

[27] Stanton, J (2000) reactions to Employee Performance Monitoring: Framework, Review and Research Directions Human Performance 13 (1) pp. 85 – 113.

[28] https://osha.europa.eu/en/themes/psychosocial-risks-and-stress. Accessed 29th June 2021.

[29] ibid note 27.

[30] Amick, B. C., & Smith, M. J. (1992). Stress, computer-based work monitoring and measurement systems: A conceptual overview. Applied Ergonomics, 23 pp. 6–16.

- the extent to which employees control the scheduling, pacing, order, and so forth of monitored job activities (Amick & Smith, 1992[31]; Carayon, 1993[32])

- the workload on monitored activities (Carayon, 1993[33])

- the degree to which monitored workers feel that they are at risk for termination (Hales et al., 1994[34])

- the nature of the outcomes – disciplinary, punitive, or remedial – which result from failing to meet a performance standard on a monitored task (Nebeker & Tatum, 1993[35]; Smith, Carayon, Sanders, Lim, & LeGrande, 1992[36])

- the adequacy and clarity of performance rating criteria used with monitoring (Chalykoff & Kochan, 1989[37])

- the degree to which employees affected by monitoring have or had a say in the design, implementation, and usage of the system (… Pearson, 1991[38]; Westin, 1992[39])

- the degree to which performance criteria or standards on monitored activities are difficult to attain (Nebeker & Tatum, 1993[40]; Smith et al., 1992[41])

- the length of time for which performance records from monitoring are kept in employee files (Aiello & Kolb, 1995b[42])

- the extent to which monitored individuals interact and identify with co-workers who are similarly monitored (Aiello & Kolb, 1995a[43])

The **monitoring characteristics** which constitute psycho-social risks include (Stanton 2000: 94):

- the degree to which a worker can control the onset or timing of monitoring (Stanton & Barnes-Farrell, 1996[44])

- the frequency of monitoring per unit time (Niehoff & Moorman, 1993[45])

- whether monitoring is continuous or intermittent (Aiello & Kolb, 1995b[46]; Lund, 1992[47])

- who reviews and makes judgments based on the data generated from monitoring (Aiello & Kolb, 1995b[48])

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[31] ibid. note 30.

[32] Carayon, P. (1993). Effects of electronic performance monitoring on job design and worker stress: Review of the literature and conceptual model. Human Factors, 35 pp. 385–395.

[33] ibid. note 32.

[34] Hales, T. R., Sauter, S. L., Peterson, M. R., Fine, L. J., PutzAnderson, V., Schleifer, L. R., Ochs, T. T.,& Bernard, B. P. (1994). Musculoskeletal disorders among visual display terminal users in a telecommunications company. Ergonomics, 37 pp. 1603–1621.

[35] Nebeker, D. M., & Tatum, B. C. (1993). The effects of computer monitoring, standards and rewards on work performance, job satisfaction, and stress. Journal of Applied Social Psychology, 23 pp. 508–536.

[36] Smith, M. J., Carayon, P., Sanders, K. J., Lim, SY.,&LeGrande, D. (1992). Employee stress and health complaints in jobs with and without electronic performance monitoring. Applied Ergonomics, 23 pp. 17–27.

[37]Chalykoff, J and Kochan, T (1989) Computer-aided monitoring: Its effect on job satisfaction and turnover Personnel Psychology 42 (4) pp. 807 – 834.

[38] Pearson, C. A. L. (1991). An assessment of extrinsic feedback on participation, role perceptions, motivation and job satisfaction on a self-managed system for monitoring group achievement. Human Relations, 44 pp. 517–537.

[39] Westin, A. F. (1992). Two key factors that belong in a macroergonomic analysis of electronic monitoring: Employee perceptions of fairness and the climate of organizational trust or distrust. Applied Ergonomics, 23 pp. 35–42.

[40] ibid. note 35.

[41] ibid. note 36.

[42] Aiello, J. R., & Kolb, K. J. (1995b). Electronic performance monitoring: A risk factor for workplace stress. In S. L. Sauter & L. R. Murphy (Eds.), Organizational risk factors for job stress (pp. 163–179). Washington, DC: American Psychological Association.

[43] Aiello, J. R., & Kolb, K. J. (1995a). Electronic performance monitoring and social context: Impact on productivity and stress. Journal of Applied Psychology, 80 pp. 339–353.

[44] Stanton, J. M., & Barnes-Farrell, J. L. (1996). Effects of electronic performance monitoring on personal control, satisfaction and performance. Journal of Applied Psychology, 81 pp. 738–745.

[45] Niehoff, B. P., & Moorman, R. H. (1993). Justice as a mediator of the relationship between methods of monitoring and organizational citizenship behavior. Academy of Management Journal, 36 pp. 527–556.

[46] ibid. note 42

[47] Lund, J. (1992). Electronic performance monitoring: A review of research issues. Applied Ergonomics, 23 pp. 54–58.

[48] ibid. note 42.

- which agent performs the monitoring (e.g., supervisor, self; Critchfield & Vargas, 1991[49]; ... McCurdy & Shapiro, 1992[50])

- the consideration behaviour of the supervisor conducting the monitoring (Chalykoff & Kochan, 1989[51])

- the expertise of the supervisor conducting the monitoring (Chalykoff & Kochan, 1989[52])

- whether individuals or groups of workers are monitored (Aiello & Kolb, 1995a[53]; Brewer,1995[54])

- which task or tasks are monitored (e.g., individual, work group; Brewer, 1995[55]; ... Larson & Callahan, 1990[56])

- what aspect of the task (e.g., quality or quantity) is monitored (Brewer & Ridgeway 1998[57]).

Finally, a priori **employee attitudes and judgements** about monitoring also present psycho-social risks, and they include (Stanton 2000: 96):

- the extent to which monitoring of a task enhances awareness of the performance-reward contingency for that task (Brewer, 1995[58])

- the degree to which workers evaluate monitoring practices affecting them as reasonable and appropriate (Niehoff & Moorman, 1993[59])

- the extent to which employees perceive monitoring practices as an invasion of privacy (U.S. Congress, Office of Technology Assessment, 1987[60])

- the generalised positive or negative evaluation of monitoring practices (Chalykoff & Kochan, 1989[61]; Kidwell & Bennett, 1994[62])

- the experienced feeling or ability to modify characteristics of or eliminate the occurrence of monitoring (Smith et al., 1992[63]; Stanton & Barnes-Farrell, 1996[64])

- the perceived relative importance of different aspects of performance (e.g., the importance of speed vs. quality; Brewer & Ridgway, 1998[65]; Larson & Callahan, 1990[66])

- the perceived degree to which the organisation or supervisor values different work tasks (Brewer, 1995[67]; Larson and Callahan, 1990[68])."

A major limiting factor in the first twenty years of research was that the vast majority, although not all, of the empirical work undertaken only tested whether the mere presence of electronic monitoring made a difference to employee outcomes. Typically a very broad definition of monitoring was adopted which conceptualised

[49] Critchfield, T. S., and Vargas, E. A. (1991). Self-recording, instructions, and public self-graphing: Effects on swimming in the absence of coach verbal interaction. Behavior Modification, 15 pp. 95–112.

[50] McCurdy, B. L., & Shapiro, E. S. (1992). A comparison of teacher, peer, and self-monitoring with curriculum-based measurement in reading among students with learning disabilities. Journal of Special Education, 26 pp. 162–180.

[51] ibid. note 37.

[52] ibid. note 37.

[53] Ibid. note 43.

[54] Brewer, N. (1995). The effects of monitoring individual and group performance on the distribution of effort across tasks. Journal of Applied Social Psychology 25pp. 760–777.

[55] ibid. note 54.

[56] Larson, J. R., & Callahan, C. (1990). Performance monitoring: How it affects work productivity. Journal of Applied Psychology 75 pp. 530–538.

[57] Brewer, N.,& Ridgway, T. (1998). Effects of supervisory monitoring on productivity and quality of performance. Journal of Experimental Psychology: Applied 4 pp. 211–227.

[58] ibid. note 54.

[59] ibid. note 45.

[60] Office of Technology Assessment (1987) The Electronic Supervisor? New Technologies, New Tensions https://ota.fas.org/reports/8708.pdf Accessed 16th April 2021.

[61] ibid. note 37.

[62] Kidwell, R. E., and Bennett, N. (1994). Employee reactions to electronic control systems. Group and Organization Management 19 pp. 203–218.

[63] ibid. note 36.

[64] ibid. note 44.

[65] ibid. note 57.

[66] ibid. note 56.

[67] ibid. note 54.

[68] ibid. note 56.

electronic monitoring *per se* as an alternative to face-to-face observation by supervisors. Variation within monitoring configurations was not routinely studied. With the digitisation and datafication of the workplace set out in chapter 2, a greater level of detail is now required in order to study the variation within electronic monitoring techniques, their antecedents and their outcomes.

1.5 Contemporary analytical frameworks

Ravid, Tomczak, White and Behrend (2020)[69] build on Stanton's framework and present an updated OP/OB focused meta-analysis which focuses on the wide range of electronic monitoring techniques now deployed. They identify several psycho-social risk factors associated with monitoring: the purpose for which it is used, its relative invasiveness (intrusion that it poses to privacy, autonomy or one's personal boundary), its synchronicity, its transparency, effect and organisational climate each influence employee outcomes. The following paragraphs summarise the main observations from the last 20 years of research and feature selected references.

Regarding monitoring **purpose**, we know that:

- Different monitoring purposes communicate different organisational values. This, in turn, influences beliefs about purpose and responses to electronic monitoring (Jeske & Kapasi, 2018[70]; Wells, Moorman & Werner, 2007[71]). For example, a focus on quantity and outputs may then undermine work quality as employees will focus just on the quantity of work they produce (Stanton and Julian, 2002[72]).

- If used constructively, performance monitoring may increase motivation, task satisfaction, dedication and perceptions of procedural justice; if used punitively the opposite happens (Bartels & Nordstrom, 2012[73]; Moorman & Wells, 2003[74]; Wells, Moorman & Werner, 2007[75])

- Where it is used in development and training, it can provide valuable feedback to trainees so that they may learn (Holman, Chissick and Totterdell, 2002[76]). It is associated with trainee feelings of job satisfaction, organisational commitment and reciprocity (Wells, Moorman & Werner, 2007[77])

- Where it is used to ensure safety, it can assure employees that they are being protected in hazardous settings (Sewell, Barker and Nyberg, 2012[78]).

- Where there is no explicit purpose, and information is collected for its own sake, monitoring can result in negative attitudes including: perceptions of decreased fairness and justice perceptions (e.g. McNall and Roch, 2007[79]), decreased satisfaction and increased stress with negligible impact on performance (Becker and Marique, 2014[80]).

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[69] Ravid, D, Tomczak, D, White, J and Behrend, T (2020) EPM 20/20: A review, framework and research agenda for electronic performance monitoring Journal of Management 46 (1) pp. 100 - 126

[70] Jeske, D., & Kapasi, I. 2018. Electronic performance monitoring: Lessons from the Past and Future Challenges. In F. Cabitza, A. Lazazzara, M. Magni, & S. Za (Eds.), Organizing for digital economy: Societies, communities and individuals. Proceedings of the 14th annual conference of the Italian chapter of the AIS: 119-132. Rome, Italy: LUISS University Press.

[71] Wells, D. L., Moorman, R. H., & Werner, J. M. 2007. The impact of the perceived purpose of electronic performance monitoring on an array of attitudinal variables. Human Resource Development Quarterly, 18 pp. 121-138.

[72] Stanton, J. M., & Julian, A. L. 2002. The impact of electronic monitoring on quality and quantity of performance. Computers in Human Behavior, 18 pp. 85-101.

[73] Bartels, L. K., & Nordstrom, C. R. (2012) Examining big brother's purpose for using electronic performance monitoring. Performance Improvement Quarterly, 25 pp. 65-77.

[74] Moorman, R. H., & Wells, D. L. (2003) Can electronic performance monitoring be fair? Exploring relationships among monitoring characteristics, perceived fairness, and job performance. Journal of Leadership & Organizational Studies, 10 pp. 2-16.

[75] ibid. note 71

[76] Holman, D., Chissick, C., & Totterdell, P. (2002) The effects of performance monitoring on emotional labor and well-being in call centers. Motivation and Emotion, 26 pp. 57-81.

[77] ibid. note 71

[78] Sewell, G., Barker, J. R., & Nyberg, D. (2012) Working under intensive surveillance: When does "measuring everything that moves" become intolerable? Human Relations, 65 pp. 189-215.

[79] McNall, L. A., & Roch, S. G. (2007) Effects of electronic monitoring types on perceptions of procedural justice, interpersonal justice, and privacy. Journal of Applied Social Psychology, 37 pp. 658-682.

[80] Becker, T. E., & Marique, G. (2014) Observer effects without demand characteristics: An inductive investigation of video monitoring and performance. Journal of Business and Psychology, 29 pp. 541-553.

Regarding **invasiveness,** we know that:

- Individualised monitoring is likely to be perceived as an invasion of privacy (Zweig and Webster, 2003[81]).

- Task-focused monitoring is more acceptable than location- or person-focused monitoring. Employees are concerned about the latter two capturing non-work information (Jeske and Santuzzi, 2015[82]).

- Employees perceive monitoring to be more just and less intrusive when they were able to place constraints on how the information is used (Alge 2001[83]).

- Employee perceive monitoring to be more just and less intrusive when they can control when monitoring takes place. Giving employees the ability to switch off monitoring can result in better performance (e.g. McNall and Stanton 2011[84]).

Regarding **synchronicity,** we know that:

- There are no significant differences between unpredictable intermittent and continuous monitoring, as employees act as if they are about to be monitored in both situations. There is a slight attitudinal preference to continuous monitoring because it is more predictable (Jeske and Santuzzi 2015[85]). These findings contrast with earlier conclusions (Aiello and Kolb 1995b; Lund 1992) which favoured intermittent monitoring. The differences may be explained by either differences in the monitoring configuration used in the study, or differences in cultural expectations around work monitoring.

Finally, regarding **transparency**, we know that:

- There are strong positive relationships between the transparency of electronic monitoring – i.e. the extent to which employees are given information about it – and perceptions of fairness, justice and task satisfaction (e.g. Hovorka-Mead, Ross, Whipple and Renchin, 2002[86]).

- Greater positive affect resulting from transparency can increase performance (e.g. McNall and Roch 2009[87]).

- Greater transparency results in greater perceptions of informational justice and trust in management and, indirectly, decreased turnover.

- Low transparency is likely to result in perceptions of monitoring as purposeless and authoritarian (Alder, Ambrose and Noel, 2006[88]).

In addition to the individual and contextual influences explored in previous studies, **new individual and contextual differences** are understood as follows:

- Personality factors such as low extraversion and emotional stability resulted in negative attitudes towards monitoring. Those higher in neuroticism were less likely to perceive monitoring as fair (e.g. Brown, Badger, Behrend, and Jensen, 2012[89]).

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[81] Zweig, D., & Webster, J. (2003) Personality as a moderator of monitoring acceptance. Computers in Human Behavior, 19 pp. 479-493.

[82] Jeske, D., & Santuzzi, A. M. (2015) Monitoring what and how: Psychological implications of electronic performance monitoring. New Technology, Work and Employment 30 pp. 62-78.

[83] Alge, B. J. (2001) Effects of computer surveillance on perceptions of privacy and procedural justice. Journal of Applied Psychology, 86 pp. 797-804.

[84] McNall, L. A., & Stanton, J. M. (2011) Private eyes are watching you: Reactions to location sensing technologies. Journal of Business and Psychology, 26 pp. 299-309.

[85] ibid. note 82.

[86] Hovorka-Mead, A. D., Ross, W. H., Jr., Whipple, T., & Renchin, M. B. (2002) Watching the detectives: Seasonal student employee reactions to electronic monitoring with and without advance notification. Personnel Psychology, 55 pp. 329-362.

[87] Ibid. note 79.

[88] Alder, G. S., Ambrose, M. L., & Noel, T. W. (2006) The effect of formal advance notice and justification on Internet monitoring fairness: Much about nothing? Journal of Leadership & Organizational Studies, 13 pp. 93-108.

[89] Brown, A. R., Badger, J. M., Behrend, T. S., & Jensen, J. M. (2012) Personality predicts acceptance of performance monitoring at work. Paper presented at 27th annual meeting of Society for Industrial and Organizational Psychology, San Diego, CA.

- Employees' ethical orientations – whether they favoured a rule-based or an outcomes-based approach – affected their perceptions of invasiveness and appropriateness of monitoring (Alder, Schminke and Noel 2007[90]).

- Those in manual jobs associated electronic monitoring with low trust in management. (Holland, Cooper and Hecker, 2015[91]).

- Those in more professional roles with a higher degree of autonomy were more likely to show counterproductive behaviours than those in jobs which featured less autonomy because they had more leeway in how to respond (Holland, Cooper and Hecker, 2015[92]).

- Caring organisational climates were more likely to result in negative attitudes to monitoring and more resistance to it because of the human-centred focus found in those types of organisation (Spitzmüller and Stanton 2016[93]).

Table 1 provides an overview of Ravid et al's (2020) results. Whilst OP and OB research into monitoring continues apace, employee monitoring and worker surveillance has been a topic of enquiry in the more critical fields of Organisation Studies (OS) and Employment Relations (ER). Although empirical studies of surveillance *per se* in these latter two fields have been comparatively rare, a body of literature addressing the experience of working in call centres has enabled an analytical framework to be derived which encompasses all four fields.

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[90] Alder, G. S., Schminke, M., & Noel, T. W. (2007) The impact of individual ethics on reactions to potentially invasive HR practices. Journal of Business Ethics, 75 pp. 201-214.

[91] Holland, P. J., Cooper, B., & Hecker, R. (2015) Electronic monitoring and surveillance in the workplace: The effects on trust in management, and the moderating role of occupational type. Personnel Review, 44 pp. 161-175.

[92] Ibid, note 91

[93] Spitzmüller, C., & Stanton, J. M. (2006) Examining employee compliance with organizational surveillance and monitoring. Journal of Occupational and Organizational Psychology, 79 pp. 245-272.

Table 1. Ravid et al's (2020) monitoring framework

Electronic Performance Monitoring (EPM) Element	Sub-element	Categories
Purpose The explicit or perceived rationale for EPM use		•• Performance appraisal, loss prevention, and profit EPM to incentivise effort and performance, make and discourage counterproductive work behaviours •• Development, growth, and training EPM to provide constructive feedback, identify strengths and weaknesses, and assist in skill acquisition over time •• Administrative and safety EPM to help protect employees and organisations from harm, including legal or civil liability •• Surveillance and authoritarian Data collection without clear instrumentality
Invasiveness The amount, target, and systematic constraints placed on EPM use	Scope	•• Breadth How much of an individual's work is monitored and the number of ways an individual is monitored •• Specificity The degree to which EPM data are individualised (e.g., group monitoring vs. individual monitoring)
	Target	•• Thoughts, feelings, and physiology EPM directed at individual attitudes (e.g., monitoring employee e-mail) and biodata •• Person and location EPM directed at the location/movement of employee and/or organisational property (e.g., vehicles) •• Task EPM directed at the amount of work completed and/or how well the work was completed
	Constraints	•• High Clear parameters on how EPM data are used and who can access it (e.g., manager only) •• Low Few parameters on how EPM data can be used or who has access to it
	Target control	•• High Those being monitored have control over monitoring (e.g, can delay monitoring) •• Low Those being monitored have little control over monitoring (e.g., timing of monitoring)
Synchronicity The temporal aspects of EPM use, including frequency and regularity of monitoring	Collection	•• High Continuous or real-time monitoring •• Low Intermittent or discontinuous monitoring
	Feedback delivery	•• High Continuous real-time feedback •• Low Aggregated, summarised or intermittent feedback
Transparency The extent to which employees are provided with information about the characteristics of monitoring		•• High Individuals are provided clear information about the purpose of monitoring, how data are collected (timing, specificity, monitoring targets), and how the data align with performance standards •• Low Individuals are provided with little information about the purpose of monitoring, how data are collected (timing, specificity, monitoring targets), and how the data align with performance standards

1.6 Incorporating Organisation Studies and Employment Relations

Ball and Margulis' (2011)[94] embedded framework incorporates surveillance/monitoring research from the OS/ER fields with OP/OB research. Historically, these two bodies of literature have not referenced, or learned from, each other. This framework explicitly integrates OS/ER perspectives which deal with the 'social' aspects of monitoring and which utilise qualitative, ethnographic and experiential methods with existing psychological research about monitoring. The framework rests on the idea that while an individual employee psychologically engages with a monitored task as part of their role (the concern of OP/OB), they are simultaneously embedded in a wider organisational social system which will shape their experience (the concern of OS/ER) (Sewell 1998[95]). Contrasting terminologies from the two perspectives are integrated and their common concerns are identified. It has been used in the current analysis to code the new literature which has been gathered. Further information on method can be found in Appendix 1.

As well as incorporating the OP/OB literature already discussed, Ball and Margulis' (2011) analysis opens analytical space to include the social phenomena concerning control, resistance, social relationships, trust, procedural justice and the value systems which surround monitoring. At the individual level it was found that resistance to monitoring/surveillance involves employees:

- utilising monitoring processes and outcomes to create their own, informal social orders within the workplace which ran counter to the version put forward by management (Ball and Wilson 2000[96]; Di Domenico and Ball 2011[97])

- deliberately subverting managerial values (Richardson and Howcroft 2006[98])

- sabotaging customer interactions (Skarlicki et al 2008[99])

- developing their own 'work arounds' to improve monitoring statistics (Russell 2007[100])

- exploiting the system's weaknesses (Bain and Taylor 2000[101])

- turning the tables on management by using reverse surveillance (Sewell and Barker 2006[102])

- being willing to exercise job mobility and quit altogether because of monitoring and punitive supervision (Tepper 2000[103]).

Evidence suggests that burnout (Nahrgang et al 2011[104]), stress and repetitive strain injury (Byrne and Hochwater 2006[105]) and musculoskeletal discomfort (Sprigg et al 2007[106]) may be connected with monitoring. At the social system level it was found that:

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[94] Ball, K and Margulis, T (2011) Monitoring and Surveillance in Call Centres: A Review and Synthesis New Technology, Work and Employment 26 (2) pp. 113 – 126.

[95] Sewell, G. (1998). The discipline of teams: The control of team-based industrial work through electronic and peer surveillance. *Administrative Science Quarterly, 43*(2) pp. 397–428. https://doi.org/10.2307/2393857.

[96] Ball, K. and D. Wilson (2000), 'Power, Control and Computer Based Performance Monitoring: Subjectivities, Repertoires and Resistance', Organization Studies 21 (5) pp. 536–565.

[97] DiDomenico, M and Ball, K (2011) A Hotel Inspector Calls: Exploring Surveillance at the Home-Work Interface Organization 18(5) pp. 615-636.

[98] Richardson, H. and D. Howcroft (2006), 'The Contradictions in CRM—A Lens on Call Centres', Information and Organization 16 (2) pp. 143–168.

[99] Skarlicki, D., D. van Jaarsveld and D. Walker (2008), 'Getting Even for Customer Mistreatment:The Role of Moral Identity in the Relationship between Customer Interpersonal Injustice and Employee Sabotage', Journal of Applied Psychology 9 (6) pp. 1335–1347.

[100] Russell, B. (2007), ' "You Gotta Lie to It": Software Applications and the Management of Technological Change in a Call Centre', New Technology, Work and Employment 22 (2) pp. 132–145.

[101] Bain, P. and P. Taylor (2000), 'Entrapped by an "Electronic Panopticon"? Working in the Call Centre', New Technology, Work and Employment 15 (1) pp. 2–18.

[102] Ibid. note 8.

[103] Tepper, B. (2000), 'Consequences of Abusive Supervision', Academy of Management Journal 4 (2) pp. 178–190.

[104] Nahrgang, J., F. Morgeson and D. Hofmann (2011), 'Safety atWork:A Meta-Analytic Investigation of the Link between Job Demands, Job Resources, Burnout, Engagement, and Safety Outcomes', Journal of Applied Psychology 96 (1) pp. 71–94.

[105] Byrne, Z. and W. Hochwarter (2006), 'I Get by with a Little Help from My Friends: The Interaction of Chronic Pain and Organizational Support on Performance', Journal of Occupational Health Psychology 11 (3) pp. 215–227.

[106] Sprigg, C., C. Stride, T. Wall, D. Holman and P. Smith (2007), 'Work Characteristics, Musculoskeletal Disorders, and the Mediating Role of Psychological Strain: A Study of Call Center Employees', Journal of Applied Psychology 92 (5) pp. 1456–1466.

- The meanings accorded to a monitoring system are organisation-culture specific (Ball and Wilson 2000[107]; Sewell and Barker 2006[108]) and involve humour as a form of resistance as well as direct sabotage (Zirkle and Staples 2005[109]).

- Punitive supervision with monitoring destroys trust on both sides of the management-worker relationship (Botan and Vorvoreanu 2005[110]) and damages the effort-reward bargain (Zweig 2005[111]; Edwards 2000[112]).

1.7 How this report is structured

Having established a starting point, the rest of this report explores the themes set out in this introductory chapter. Chapter 2 reviews how surveillance technologies in the workplace have extended in terms of scale and scope, primarily as a result of datafication. Then in chapter 3, and following Ball and Margulis' analytical framework, new literature which explores the individual and social dimensions of work monitoring is discussed. Chapter 4 explores developments in surveillance that have been brought about by remote working in the pandemic. It assesses the extent to which these new phenomena are already understood in the combined OP/OB and OS/ER surveillance literature as well as in existing literature focused on teleworking. Chapter 5 has the same objective, but in relation to platform work. The final chapter sets out some key points of comparison, establishes a future research agenda and develops some policy recommendations. These recommendations will reflect on legal guidance for workplaces. The chapter then builds upon the psycho-social risk factors identified from the research, as well as drawing on privacy, data justice and organisational justice principles to generate policy recommendations.

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[107] Ibid. note 74.
[108] Ibid. note 72.
[109] Zirkle, B. and W. Staples (2005), 'Negotiating Workplace Surveillance', in J. Weckert (ed.), Electronic Monitoring in the Workplace: Controversies and Solutions (Melbourne: Idea Group Publishing), pp. 79–100.
[110] Botan, C. and M. Vorvoreanu (2005), 'What Do Employees Think about Electronic Surveillance at Work?', in J. Weckert (ed.), Electronic Monitoring in the Workplace: Controversies and Solutions (Hershey, PA: Idea Group Publishing), pp. 123–144.
[111] Zweig, D. (2005), 'Beyond Privacy and Fairness Concerns: Examining Psychological Boundary Violations as a Consequence of Electronic Performance Monitoring', in J. Weckert (ed.), Electronic Monitoring in the Workplace: Controversies and Solutions (Melbourne: Idea Group Publishing), pp. 101–122.
[112] Edwards, P. (2000), 'Discipline: Towards Trust and Self-Discipline', in S. Bach and K. Sisson (eds), Personnel Management: A Comprehensive Guide to Theory and Practice, 3rd edn (Oxford: Blackwell), pp. 317–339.

2 New workplace surveillance practices

2.1 Introduction

This section examines the new monitoring and surveillance practices to which employees are now subject. Over the last twenty years surveillance/monitoring practices have developed in such a way that there are now four wide-ranging employee surveillance targets: thoughts feelings and behaviours, location, task and reputation[1] (Ravid et al, 2020[2]). Ravid et al (2020) note:

> ...employers who use EPM [Electronic Performance Monitoring] can track individual employees continuously, randomly, or intermittently; discreetly or intrusively; and with or without warning or consent ... As a result, EPM captures behavior in great detail, generating rich, permanent records that managers can quickly access and that may or may not relate directly to performance ... EPM can also target internal states and private behaviors. For example, e-mail monitoring allows organizations to track employee thoughts, feelings, and attitudes that are expressed in electronic exchanges but not outwardly. Social media monitoring allows organizations to track the social networks and relationships that employees build inside and outside of the workplace. Recent EPM technologies allow for the tracking of employees' physiological states, providing organizations with biometric information, such as heart rates and body heat emissions (2020: 102[3]).

Schafheitle et al (2020[4]) call this process 'datafication' and set out how it has transformed people-related organisational control practices. Datafication is a process whereby artifacts of social life are transformed into computerised, quantitative data and relies upon:

> ubiquitous and low- cost data collection technologies, such as smart ID badges, wearable GPS devices, or bio–radio frequency ID (bio-RFID) chips, which all allow for increased employee tracking and the translation of analog data into a digitized form. In addition, contextual and unstructured data are collected by sensors in "smart things."... datafication is [also] driven by data interpretation technologies, which are based on algorithmic decision-making, [Machine Learning] ML, or [Artificial Intelligence] AI, to identify patterns, trends, and relationships in data. These technologies allow a more fine-grained description of digitized social action and, in some cases, a prediction, or even a prescription, of employee behavior (Schafheitle et al 2020: 456 – 457[5]).

Both Ravid et al (2020[6]) and Schafheitle et al (2020[7]) note that there is a shortfall in academic studies of these new types of employee surveillance/monitoring practices. They speculate that these transformations pose ethical challenges as well as changes to social relations in the workplace. The following pages report on research evidence which explores these new practices and their impact on employees. Literature reviewed in this chapter tells us that this increase in monitoring breadth increases the psycho-social risks of enhanced privacy invasiveness perceptions, procedural unfairness perceptions, low trust perceptions and low transparency perceptions. Furthermore if the purpose of monitoring is unclear and not governed by an effective policy, these types of surveillance risk being perceived as excessive.

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[1] Surveillance/Monitoring has also extended into a wider range of occupational groups, which is covered in chapter three.

[2] Ravid, D, Tomczak, D, White, J and Behrend, T (2020) EPM 20/20: A review, framework and research agenda for electronic performance monitoring *Journal of Management* 46 (1) pp. 100 – 126.

[3] Ibid note 2.

[4] Schafheitle, S; Weibel, A; Ebert, I; Kasper, G; Schank, C and Leicht-Deobald, U (2020) No Stone Left Unturned? Toward a Framework for the Impact of Datafication Technologies on Organizational Control *Academy of Management Discoveries* 6 (3) pp. 455–487.

[5] Ibid note 4.

[6] Ibid note 2.

[7] Ibid note 4.

2.2   Current worker surveillance/monitoring practices

Four employee surveillance targets have now been identified:

- Thoughts, feelings and physiology: where monitoring is directed at individual attitudes and biometric data.
- Movement and location: where monitoring is directed at the location and movement of the employee and organisational property (e.g. vehicles or devices).
- Task: where monitoring is directed at the amount of work completed and/or how well it was completed, including behaviours as well as outputs.
- Relationships and reputation: where monitoring it directed at the workers' social connections (e.g. customer and peer ratings; social network monitoring).

The first three were identified by Ravid et al (2020[8]) and the last was identified by the author of the current report. The level of intrusiveness relating to each target is known to decrease with thoughts, feelings and physiology being the most intrusive, to task being the least intrusive. Even though the above framework is comprehensive, new literature which covers phenomena associated with these monitoring practices in the workplace is patchy.

2.3   New monitoring targets: Thoughts, feelings and physiology

Where employee surveillance/monitoring is targeted at thoughts, feelings and physiology, the lived body of the employee is subject to data collection and analysis. Whilst this has been on the theoretical agenda since 2005 (Ball, 2005[9]) bodily surveillance has only recently become established in the workplace. Small discrete literatures on the use of biometrics, emotion monitoring and self-tracking wearables in the workplace were uncovered in the current review. The social scientific studies covered in the following sections illustrate how biometrics can provoke emotional reactions in employees as they encounter technologies which are simultaneously intrusive, consequential and unreliable.

2.3.1 Biometrics

Biometrics are technologies which attempt to measure and analyse unique characteristics of the individual which cannot be changed (Holland and Tham 2020[10]). Literature on this topic comprises technical meta-analyses, critical commentaries on self-quantification, reviews of legal cases and a small number of social scientific empirical studies.

Holland and Tham (2020: 2[11]) note that biometrics:

> *...fall into two categories: physiological, which can include blood type, fingerprints and hand geometry; and physical and behavioural, for example, a person's gait, voice patterns or facial identification ... Biometric recognition technologies are becoming a common feature of the workplace with iris, facial or fingerprint scanners replacing the conventional text-based passwords, swipe-cards and pin numbers.*

Biometrics are primarily used for access purposes, but have also been deployed in 'corporate wellness' programmes in which employees are encouraged to self-track via body-worn devices (see section 2.3.3). In respect of the former, fingerprints, the face, retina and iris scans, hand geometry, palm print, hand vein, lip motion, gait and signature have workplace applications. These include access to buildings, rooms, systems and devices, in organisational contexts ranging from the military, construction, hospitals, retail and transportation among other things (Dargan and Kumar 2020[12]). Critically framed as a system of 'algorithmic governance' by Crampton (2019)[13], shortcomings of biometric systems in employment concern not only their technical accuracy, but also the extent to which they have detrimental effects on social relations in the workplace. This debate has arisen primarily in the context of employee self-tracking and wellness. Moore, 2018[14] discusses the potential for work intensification, alienation and emotional labour as data are gathered about more aspects of the

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[8] Ibid note 2.
[9] Ball, K (2005) Organization, Surveillance and The Body: Towards a Politics of Resistance *Organization* 12 (1) pp. 89 – 108.
[10] Holland, P and Tham, TL (2020) Workplace biometrics: Protecting employee privacy one fingerprint at a time *Economic and Industrial Democracy* https://doi.org/10.1177/0143831X20917453.
[11] Ibid note 10.
[12] Dargan, S and Kumar, M (2020) A Comprehensive Survey on the Biometric Recognition Systems based on Physiological and Behavioral Modalities *Expert Systems with Applications* 143 10.1016/j.eswa.2019.113114.
[13] Crampton, JW (2019) Platform Biometrics *Surveillance & Society* 17 (1-2) pp54 – 62 10.24908/ss.v17i1/2.13111.
[14] Moore, PV (2018) Tracking Affective Labour for Agility in the Quantified Workplace *Body & Society* 24(3) pp. 39–67.

employees' person and body. Strong policy, such as that which is found in the EU's GDPR, is preferred to address concerns about the infringement of bodily privacy and whether its use will creep beyond its intended purposes and finally whether employees' biometric data are stored securely (Holland and Tham 2020[15]).

Three empirical studies highlight the emotional and practical impact of false results from biometric access technologies. The first two concern the effect of fingerprinting on marginalised and disadvantaged groups and their access to the workplace. In the first, Goldstein and Alonso-Bejarano (2017[16]) report how a US Immigration department tool 'E-Verify' is used in workplaces to identify those who are allowed to work legally in the US, with terrifying consequences for those who are not. Rao (2018[17]) explores how older workers, and those who had completed a lot of manual work in their lives, were often met with 'failure to enrol' and 'false rejects' when presenting their fingerprints to the Aadhar biometric interface at their workplaces. They struggled to verify their identities in other ways. The fallibility of fingerprint scanners, and its effect on people, is discussed by van Oort (2019[18]). She notes the emotional labour involved in coping with sweat-sensitive fingerprint scanners in fashion retail:

> *Biometric fingerprinting cues physical and emotional responses, while its regular malfunctioning causes workers to worry about the accuracy of their paychecks. Point-of-sale monitoring amplifies an already stressful task, and reminds workers that they—not the company—must shoulder the burden of any mistakes. In the world of data-driven just-in-time retail, the labor process itself has shifted. Although workers rarely engage in skilled or even semi-skilled selling, a less obvious form of emotional labor helps keep the store running. Amid life-jumbling automated schedulers, sweat- inducing biometric scanners, and anxiety-provoking point-of-sale monitoring, front-line workers must resist becoming overwhelmed, keeping clothes and customers moving. This work can be understood as the emotional labor of surveillance (2019: 1176).*

2.3.2 Emotion monitoring

Whilst the emotional labour of surveillance denotes a form of coping mechanism, emotion monitoring is targeted on something quite different. Emotions in the workplace are monitored using sentiment analysis to identify anything from employee stress (as a measure of well-being) to employees' affective reactions towards the organisation and their peers. It is unclear about the extent to which this practice is widespread and the extent to which the technologies used are reliable. Papers are again divided into those which report technical case studies, where algorithms are identified and data are trained, and those which criticise its political foundations and social effects. An additional layer of complexity is that the literature indicates that merely being subject to this kind of surveillance provokes stress.

Only two papers which tested the technical side of emotion monitoring were found. One sentiment-analysed employee peer ratings and found differences between organisational regions, departments and genders (Maurya, Akoglu, Krishnan and Bay 2018[19]). Whilst this is hailed as a finding in the paper, more critical readers will note that this is an example of how analytics can reproduce and mobilise social biases. For example, in a tech company, female employees were reviewed as 'taking fewer risks' than their male counterparts, raising the prospect of problematic, essentialist gender discourses being valorised by algorithms. Service quality recordings from a call centre have also been analysed to identify emotion patterns using AI (Bromuri, Henkel, Iren and Irovi, 2020[20]). These authors claimed to be able to predict agent stress in 80% of cases, suggesting that managers may use this to measure agent stress level in real time. In critical perspective Moore (2018[21]) argues that emotion monitoring makes the affective world of the employee visible and subject to control. Her studies detail how employees resist or ignore employers' attempts to track their emotions, indicating that it may be off limits and that for some, a personal boundary has been crossed.

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[15] Ibid note 10.

[16] Goldstein, DM; Alonso-Bejarano, C (2017) E-Terrify: Securitized Immigration and Biometric Surveillance in the Workplace *Human Organization* 76 (1) 10.17730/0018-7259.76.1.1.

[17] Rao, U (2018) Biometric Bodies, or How To Make Electronic Fingerprinting Work in India *Body and Society* 24 (3) pp. 69 – 94.

[18] Van Oort, M (2019) The Emotional Labor of Surveillance: Digital Control in Fast Fashion Retail *Critical Sociology* 45 (7-8) pp. 1167 – 1179.

[19] Maurya, A; Akoglu, L; Krishnan, R and Bay, D (2018) A Lens into Employee Peer Reviews via Sentiment-Aspect Modeling 2018 *Ieee/Acm International Conference on Advances in Social Networks Analysis And Mining (Asonam)* pp. 670 – 677.

[20] Bromuri, S; Henkel, AP; Iren, D; Urovi, V Using AI to predict service agent stress from emotion patterns in service interactions *Journal of Service Management* https://doi.org/10.1108/JOSM-06-2019-0163.

[21] Ibid note 14.

2.3.3 Wearable devices for self-tracking

Wearable devices have two applications in the workplace: as part of corporate wellness programs and as part of performance management in highly automated settings such as logistics warehouses. A range of wearable devices are available to employers and attach to workers' bodies in a number of ways, worn on the head, wrist, chest, fingernail and feet. These devices can avail the organisation of a variety of performance, environment and body data.

Wearable devices, such as step counters can be accompanied by apps and digital personal coaches in wellness offerings (Maltseva 2020;[22] Charitsis, 2019[23]). As part of these offerings, gamified challenges are used to encourage people to use the output from their wearables to collaborate or compete with their colleagues, or to engage in charity fundraising to encourage physical activity (Richardson and MacKinnon 2018[24]). Whilst there may be wellness benefits of self-tracking for employees, there are also concerns. Schall, Sesek and Cavuoto (2018[25]) examined Occupational Safety and Health (OSH) professionals' concerns with self-tracking via wearables. Perceptions of being monitored were their number one concern, closely followed by concerns about privacy compliance[26]. Employee privacy concerns were often not acknowledged by vendors of corporate wellness wearables (Iliadis and Pederson, 2018[27]). Empirical studies of self-tracking reflect the OSH professionals' concerns. An organisational sleep tracking programme and found that employees became fixated with the data itself rather than the organisational wellness programme of which they were part (Elmholdt, Elmholdt and Haahr,2021[28]). In studying a rugby club's mandatory use of self-tracking to assist in training and performance, Manley and Williams (2019[29]) revealed that the players felt accountable for their private lives.

Wearables in the logistics setting are characterised as facilitating overt control and work intensification. Here, employees wear headsets through which a computer issues instructions and which integrate with tracking devices so that working time and productivity are monitored. Whilst the intensive nature of logistics warehouse surveillance via wearables has been reported in the media, comparatively few studies have examined it in practice. Elliott and Long (2016)[30] detail ethnographically how computer control engenders intensive, gamified work in a logistics warehouse which is difficult to resist. Incredibly, Mattig, Doltgen, Archut, and Kretschmer (2019[31]) attempt to establish whether it was possible to ameliorate stress in warehouse logistics work using wearables. They used a wristband which measured skin responses, in conjunction with an app, to help identify the need for rest breaks. As with other forms of biometric monitoring, they emphasised the need for its calibration with external and subjective stress indicators and for regulation using process and policy.

The critical literature which addresses self-tracking and surveillance reflects on its implications for organisational control. While all seem to agree that in practice worker health is likely to be secondary to corporate concerns with control and data gathering, a number of other points are made. A subset of research reported by Moore (2018[32]), for example, notes that self-tracking wearables have the effect of responsibilising employees for their workplace well-being and deflecting attention from poor working conditions. Moore and

[22] Maltseva, K (2020) Wearables in the workplace: The brave new world of employee engagement BUSINESS HORIZONS 63 (4) 493- 505 10.1016/j.bushor.2020.03.007.

[23] Charitsis, V (2019) Survival of the (Data) Fit: Self-Surveillance, Corporate Wellness, and the Platformization of Healthcare *Surveillance & Society* 17(1/2) pp. 139-144.

[24] Richardson, S and MacKinnon D (2018) Becoming Your Own Device: Self-Tracking Challenges in the Workplace *Canadian Journal of Sociology-Cahiers Canadiens de Sociologie* 43(3) pp. 265 – 289.

[25] Schall, MC; Sesek, RF; Cavuoto, LA (2018) Barriers to the Adoption of Wearable Sensors in the Workplace: A Survey of Occupational Safety and Health Professionals *Human Factors* 60 (3) pp. 351 – 362 10.1177/0018720817753907.

[26] German-speaking readers may also wish to consult: Blumberg, VSL; Kauffeld, S (2020) Application scenarios and technology assessment of smart wearables and mobile smart devices in industrial work-results of an interview study with experts from science, politics and industrial practice *Gio-Gruppe-Interaktion-Organisation-Zeitschrift Fuer Angewandte Organisationspsychologie* 51 (1) pp. 5 – 24 10.1007/s11612-020-00506-0.

[27] Iliadis, A; Pedersen, I (2018) The fabric of digital life: Uncovering sociotechnical tradeoffs in embodied computing through metadata *Journal of Information Communication & Ethics in Society16* (3) 311- 327 10.1108/JICES-03-2018-0022.

[28] Elmholdt, KT; Elmholdt, C; Haahr, L (2021) Counting sleep: Ambiguity, aspirational control and the politics of digital self-tracking at work *Organization* 28 (1) pp. 164 – 185.

[29] Manley, A and Williams, S (2019) 'We're Not Run on Numbers, We're People, We're Emotional People': Exploring the Experiences and Lived Consequences of Emerging Technologies, Organizational Surveillance and Control among Elite Professionals *Organization* https://doi.org/10.1177/1350508419890078.

[30] Elliott, CS and Long, G (2016) Manufacturing rate busters: Computer control and social relations in the labour process *Work, Employment and Society* 30 (1) pp. 135 – 151.

[31] Mattig, B; Doltgen, M; Archut, D; Kretschmer, V (2019) Intelligent Work Stress Monitoring Prevention of Work-Related Stress with the Help of Physiological Data Measured by a Sensor Wristband In K. Arai et al. (Eds.): IntelliSys 2018, AISC 869, pp. 1211–1222, 2019. https://doi.org/10.1007/978-3-030-01057-7_90.

[32] Ibid. note 14.

Robinson (2016[33]) argue that it is a form of heightened Taylorism, where the labouring body is broken down and controlled while simultaneously encouraged to be entrepreneurial and self-managing. By contrast, O'Neill (2017[34]) characterises it as a form of bottom up 'soft domination' and normative control which moulds workers' physiological and social rhythms to the working day. Richardson and MacKinnon (2018[35]) identify a further interpretation, where the point of interest is how workers are locked in to ongoing companionship with data and their devices through an addictive interface design.

2.4   New monitoring targets: Location and movement

Comparatively few studies have focused specifically on location and movement tracking in the workplace. The idea of tracking employees spatially immediately brings technologies such as digital cameras, GPS and smartphone tracking to mind. Location and movement tracking are found in jobs such as utilities installation, cleaning, municipal home care, mental health wards, security, public transport, trucking, warehouse work and road maintenance (Tranvik and Braten, 2015[36]). Other recent developments include the routine installation of dashcams in delivery vehicles, corporate vehicle fleets and taxis. Extensions of cameras into home-based workspaces to cover the actions of autonomous workers such as home-based carers (Moore and Hayes 2017[37]), nannies and educators are anticipated (Heumann, Cassack, Laing and Twitchell 2016[38]) Sex work is another area where open space CCTV can function as a way of keeping sex workers out of communities, but at the same time can afford them some safety as they work by capturing them on camera (Wright, Heynen and van der Meulen, 2015[39]). The datafication of video images along with wider developments in spatial tracking which uses GPS technology also marks the first point where this review refers to remote work and platform work. The use of remote work in the pandemic has resulted in some workers being monitored by webcam to ensure they are at their home computers[40]. In the platform economy ride-hail drivers and food delivery riders' locations are constantly tracked. These topics are covered in chapters 4 and 5 respectively, although a brief introduction to the location tracking techniques used in platform-based delivery work is given in section 2.4.2 below.

Soderlund (2013: 164[41]) sets out the potential and the concern for location and movement tracking as a form of workplace surveillance:

> *Hybridized charting, tracking, and mapping systems produce vast quantities of real-time knowledge about particular social spaces and the behaviors that occur in them. They create visual, narrative, and quantitative records for later scrutiny, legal action, story writing, crime detection, border policing, job performance evaluation, bill collecting, and analysis. .... As producers of knowledge and its adherent political and economic power dynamics, these technologies generate new forms and quantities of knowledge that are promising, yet marked by an excess that is at once productive and disabling, creating vast amounts of data, signs, categories, and methods for assigning or extracting truth to/from the continuous flow of events "collected" by workers.*

Studies in this section are split into two sets of surveillance practices: digital camera surveillance and location tracking.

2.4.1   Digital camera surveillance

Camera surveillance is the iconic topic within surveillance studies. As a technique of workplace surveillance, however, it has not been routinely examined except in relation to police work and other security settings, such

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[33] Moore, P and Robinson, A (2016) The quantified self: What counts in the neoliberal workplace *New Media & Society* 18(11) pp. 2774–2792.

[34] O'Neill, C (2017) Taylorism, the European Science of Work, and the Quantified Self at Work *Science Technology & Human Values* 42(4) pp. 600-621.

[35] Ibid. note 24.

[36] Tranvik, T; Braten, M (2015) The Transparent Company: Ramifications of Electronic Surveillance in the Workplace *Tidsskrift for Samfunnsforskning* 28 (3) pp. 319 – 337.

[37] Moore, S; Hayes, LJB (2017) Taking worker productivity to a new level? Electronic Monitoring in homecare the (re)production of unpaid labour *New Technology Work and Employment* 32 (2) pp. 101 – 114.

[38] Heumann, M., Cassack, L., Kang, E., & Twitchell, T. (2016). Privacy and surveillance: Public attitudes on cameras on the street, in the home, and in the workplace. *Rutgers Journal of Law and Public Policy* 14(1) pp. 37-83.

[39] Wright, J; Heynen, R; van der Meulen, E (2015) It Depends on Who You Are, What You Are: 'Community Safety' and Sex Workers' Experience with Surveillance *Surveillance & Society* 13(2) pp. 265-282.

[40] https://www.bbc.co.uk/news/uk-scotland-56724105 accessed 13th April 2021.

[41] Soderlund, G (2013) Introduction to "charting, tracking and mapping: new technologies, labor and surveillance" *Social Semiotics* 23 (2) pp. 163 – 172.

as airports. Whilst a detailed review of the law enforcement literature is outside the scope of this work, readers may be referred to Newell (2020[42]) for an introduction to body-worn cameras in policing. In these domains, cameras installed for security purposes have been observed to function creep into devices used for worker monitoring, but the latter is rarely an object of study on its own. A notable exception is Anteby and Chan's (2018[43]) study of baggage handlers in a large US airport, who were required to use body-worn cameras to counter employee theft. Employees tried to hide from the cameras so they would not become unwitting suspects, which only resulted in a continuous cycle of more punitive surveillance from their supervisors.

The installation of cameras in the workplace is regulated: they are forbidden in places where employees have a reasonable expectation of privacy, such as changing rooms or bathrooms[44]. Contemporary concerns with digital cameras in the workplace, however, relate to matters of equality and fairness in the installation, capture, interpretation and use of images, reflecting data protection principles as well as concepts such as social sorting (Hagen, Bighash, Hollingshead, Shaikh and Alexander, 2018[45]). Video can now be quantified into data and metadata, potentially revealing information that could be gleaned from data analysis. Systems may be enabled with tracking or facial recognition capabilities, or may capture very high resolution images which reveal information which might be considered private even in public space (e.g. on a document or smartphone screen).

Concerns include the effectiveness of policy and management communication about:

- *Transparency*: the placement of cameras, what data are captured and why, technological capabilities and data storage and policies on data sharing and use purpose.

- *Access*: who has access to technology and data, who can control the data collection process, the security of data storage and who can use the footage.

- *Equality*: whether camera placement targets and thus only collects data about certain groups or individuals, whether data concerning all groups is processed and stored in the same manner and whether there are different outcomes for different groups caught on camera.

The comparatively rare studies of camera surveillance in the workplace reveal that these equality and fairness issues dominate how camera surveillance plays out. An important part of this process is the worker's opportunity to explain aspects of their performance to their supervisor, rather than be judged at-a-distance through video images (Claypoole and Szalma, 2019[46]). In an experimental study, these authors found that video surveillance only increased performance when a supervisor and a worker reviewed camera footage together. It has also been found that camera surveillance appears disproportionately in large retail settings as a security measure to counter employee and customer theft. It is most prevalent in non-unionised retail settings where trade union organisation is weak or absent, where work is disproportionately performed by "unskilled" workers, women, minorities and immigrants, and where job tasks can be easily observed (Vargas, 2017[47]). The least advantaged and lowest paid workers receive more intensive surveillance. Jeske and Santuzzi (2015[48]) confirm that those who conduct low skilled data entry work which is monitored by camera experience lower job satisfaction and lower affective commitment to the organisation. Stark, Stanhaus and Anthony (2020[49]) identify gender as another aspect of equality in camera implementation, finding that self-reporting female employees are much less likely to approve the use of cameras in the workplace, particularly those which have facial recognition capabilities. They also cite wider concerns with facial recognition training data which results in black people being disproportionately targeted (Stark, 2019[50]).

[42] Newell, BC (2020) *Police on Camera: Surveillance, Privacy, and Accountability* London: Routledge.

[43] Anteby,M and Chan, CK (2018) A Self-Fulfilling Cycle of Coercive Surveillance: Workers' Invisibility Practices and Managerial Justification. *Organization Science* 29(2) pp. 247-263.

[44] https://www.businesswatchgroup.co.uk/gdpr-and-cctv-a-guide-to-the-laws-of-cctv-in-the-workplace/#:~:text=Cameras%20should%20not%20be%20installed,to%20this%20within%20one%20month. Accessed 13th April.

[45] Hagen, C S, Bigash, L, Hollingshead, AB, Shaickh SJ and Alexander, KS (2018) Why are you watching? Video surveillance in organizations *Corporate Communications* 23 (2) pp. 274-291.

[46] Claypoole, VL; Szalma, JL (2019) Electronic Performance Monitoring and sustained attention: Social facilitation for modern applications *Computers in Human Behavior* 94 pp. 25 – 34.

[47] Vargas, TL (2017) Employees or Suspects? Surveillance and Scrutinization of Low-Wage Service Workers In U.S. Dollar Stores *Journal of Labor and Society* 20 pp. 207 – 230.

[48] Jeske D and Santuzzi, AM (2015) Monitoring what and how: psychological implications of electronic performance monitoring *New Technology, Work and Employment* 30 (1) 62 – 78.

[49] Stark, L, Stanhaus, A and Anthony, D (2020) "I Don't Want Someone to Watch Me While I'm Working": Gendered Views of Facial Recognition Technology in Workplace Surveillance *Journal of the Association for Information Science and Technology* 71 pp. 1074 – 1088.

[50] Stark, L. (2019). Facial recognition is the plutonium of AI. XRDS: *Crossroads, the ACM Magazine for Students*, 25(3) pp. 50–55. http://doi.org/10.1145/3313129

2.4.2   Location tracking

It has been known for some time that in the surveillance-intensive logistics industry, transport firms use real-time fleet management systems and GPS tracking in vehicles. Whilst this is partly to comply with working time regulations and to manage liability in the event of an accident, the performance of the driver and their vehicles are also monitored by these means (Levy 2015)[51]. Recent studies of platform work, particularly those of delivery and ride-hail drivers/riders, find the most intensive location tracking of workers.

Uber, for example, tracks drivers using its smartphone app. It collects GPS, gyroscope and accelerometer data from drivers' phones, which is stored long term by Uber for a number of purposes. The first is to inform its research into self-driving cars. The second is to provide feedback to drivers regarding the safety of their driving performance. Evidence of rapid acceleration, harsh braking, speeding, or dangerous cornering may result in a driver having their account deactivated. Uber also stores data to find long-term driver- or location-specific trends to inform interventions such as surge-pricing. Food delivery services track delivery staff again via an app. Deliveroo, for example, requires riders to log in at the start of a shift and go to a 'zone centre', where riders congregate waiting for orders. At each stage of the food delivery process, riders are required to indicate their location, but it is only when the food order was picked up from the restaurant that they would know the location of the customer.

The intensiveness of location tracking is marked by accounts of the ways in which mobile platform workers use knowledge of their physical and virtual locations to game or subvert the platforms. Indeed one of the first studies of worker location tracking, by McNall and Stanton (2011)[52], concludes that worker ability to control the onset of location tracking influences their perceptions of how fair it is. Asserting control over location tracking is a theme across this small body of literature. Chan and Humphreys (2018)[53] document how, due to inaccuracies in the driver version of the app, Uber drivers have to combine their tacit knowledge of the city itself, the likely behaviour of customers and the information presented to them in the app in order to maximise their income and ensure high customer ratings. In food delivery, workers have used similar strategies to generate spaces for protest (Briziarelli, 2018[54]; Thatcher & Dalton, 2017[55]; Waters & Woodcock, 2017[56]) as well as to maximise earning opportunities (Chan, 2019[57]). Newlands (2020)[58] discusses how workers can manipulate GPS signals through location-masking tools, or use software to deactivate auto-acceptance functions within the worker app (Veen, Barrett and Goods, 2020[59]), switching orders among themselves to ensure the best return (Sun, 2019[60]). A more extensive discussion of the surveillant phenomena which surround platform working is provided in chapter 5.

2.5   New Monitoring Practices: Task

Task monitoring focuses on the amount of work completed and how well it is completed. Its antecedents and its outcomes have been the traditional research focus of occupational psychologists since the 1980s, and of labour process and organisation theorists since the emergence of call centres in the 1990s. Task monitoring accounts for the vast proportion of research into monitoring and surveillance. Developments since then, which have not been covered in recent meta analyses, focus on how information technologies may be used not only to manage performance but also to regulate the way in which workers conduct themselves while they are at work through behavioural monitoring.

[51] Levy, K. E. C. (2015). The contexts of control: Information, power, and truck-driving work. *The Information Society* 31(2) pp. 160–174.

[52] McNall, LA; Stanton, JM (2011) Private Eyes Are Watching You: Reactions to Location Sensing Technologies *Journal of Business and Psychology* 26 (3) pp. 299-309

[53] Chan, NK and Humphreys L (2018) Mediatization of Social Space and the Case of Uber Drivers *Media and Society* 6 (2) pp. 29 - 38

[54] Briziarelli, M. (2018). Spatial politics in the digital realm: The logistics/precarity dialectics and Deliveroo's tertiary space struggles. *Cultural Studies*, 33 pp. 823–840.

[55] Thatcher, J., & Dalton, C. M. (2017). Data derives: Confronting digital geographic information as spectacle.
THE SPECTACLE 2.0. Reading Debord in the Context of Digital Capitalism. pp. 135–150. London: University of Westminster Press. DOI: https://doi.org/10.16997/book11.h. License: CC-BY-NC-ND 4.0

[56] Waters, F., & Woodcock, J. (2017, Sep. 20). Far from seamless: A workers' inquiry at Deliveroo. *Viewpoint Magazine*. Available at https://www.viewpointmag.com/2017/09/20/far-seamless-workers-inquirydeliveroo/

[57] Chan, N. K. (2019). 'Becoming an expert in driving for Uber': Uber driver/bloggers' performance of expertise and self-presentation on YouTube. *New Media & Society*, online first. https://doi.org/10.1177/1461444819837736

[58] Newlands, G (2020 Algorithmic Surveillance in the Gig Economy: The Organization of Work through Lefebvrian Conceived Space *Organization Studies* https://doi.org/10.1177%2F0170840620937900

[59] Veen, A., Barratt, T., and Goods, C. (2020). Platform-capital's 'app-etite' for control: A labour process analysis of food-delivery work in Australia. *Work, Employment and Society*, 34 pp. 388–406.

[60] Sun, P. (2019). Your order, their labor: An exploration of algorithms and laboring on food delivery platforms in China. *Chinese Journal of Communication*, 12 pp. 308–323.

Behavioural monitoring primarily has safety and security applications. To monitor behaviour, software, systems, algorithms and sentiment analysis are used to make workplace behaviours observable, quantifiable and subject to evaluation. Rather than observing behaviour directly, behaviour monitoring identifies patterns or motives in employee data from which behaviour can then be inferred and predicted (Leonardi and Treem 2020) [61]. Whilst behavioural monitoring can now have technical elements, these must be used in conjunction with clear, enforceable and fair HRM policies and processes (Elifoglu, Abel and Tasseven 2018[62]; Cantor (2016[63]).

The first example of behavioural monitoring is directed at cyberloafing. Cyberloafing is workers' use of the internet for shopping, entertainment, social networking and other non-work communications during work time, which may present a security risk, but also affects performance. Cyberloafing is a contemporary problem which arises from the need to use the internet for work tasks. Two studies investigate the extent to which internet monitoring deters workers from cyberloafing. Framing the problem as one of policy compliance, Glassman, Proch and Shao (2015[64]) advocate a multi-pronged approach. As well as blocking websites, they demonstrated experimentally that by warning employees periodically about internet use monitoring and then encouraging them to self-report browsing time resulted in decreased cyberloafing. Employees felt that this approach was procedurally fair. A similar approach based on shared understanding and transparency is seen as preferable for the future (Kim, 2018[65])

The second example is the use of behavioural monitoring to detect legally non-compliant or dangerous employee behaviours. Sentiment analysis tools have been used to detect sexual harassment in employee communications (Bishop, 2017[66]) and insider threat (Elifoglu, Abel and Tasseven 2018[67]). Smart digital cameras and semantic analysis have been used to manage construction safety by identifying a wide range of unsafe behaviours, including health and safety violations or failure to follow operational procedures. A total of 522 separate behaviours were identified and tracked by Guo, Ding, Luo and Jiang (2016)[68].

Critical papers debate whether the implementation of behaviour monitoring results in a self-fulfilling prophecy, where behaviours are identified, prompted and then reinforced in a way which confirms managers' existing beliefs. Whitman (2020[69]), for example, sets out how administrators, data scientists and computer programmers worked to identify 'behaviours' in an educational setting. They defined behaviours as students' actions over which they have control (e.g. attendance engagement with learning management systems, class attendance (derived from network activity) posting on discussion boards and downloading of course materials) which correlated with higher marks on assessment. Students were then subject to behavioural 'nudges' which sought to align what they did with the behavioural markers previously identified as important. Ambiguous worker responses to behavioural visibility via ICTs are documented by Namatovu and Kanjo (2019[70]) who outline how it is negotiated in different ways: as valorising professional identity and recognition in the community, but as controlling in relation to supervisors.

2.6   New monitoring practices: Professional profiles and reputation

The final part of this chapter addresses new monitoring practices which are not taken account of in the literature thus far. These practices relate to the capture of data on employee profiles and reputation as part of People Analytics (PA), noting that reputation is also under scrutiny in the context of digital platform work. The latter will be discussed in chapter 5. People analytics is defined as: "an area of HRM practice, research and innovation concerned with the use of information technologies, descriptive and predictive data analytics and visualisation tools for generating actionable insights about workforce dynamics, human capital, and individual and team

[61] Leonardi, PM and Treem, JW (2020) Behavioral Visibility: A New Paradigm for Organization Studies in the Age of Digitization, Digitalization, and Datafication *Organization Studies* 41 (12) pp. 1601 – 1625.

[62] Elifoglu, IH; Abel, I and Tasseven, O (2018) Minimizing Insider Threat Risk with Behavioral Monitoring *Review of Business* 38 (2) pp. 61 – 73.

[63] Cantor, DE (2016) Maximizing the Potential of Contemporary Workplace Monitoring: Techno-Cultural Developments, Transactive Memory, and Management Planning *Journal of Business Logistics* 37(1) pp. 18–25.

[64] Glassman, J; Prosch, M and Shao, BBM (2015) To monitor or not to monitor: Effectiveness of a cyberloafing countermeasure *Information & Management* 52 pp. 170 – 182.

[65] Kim, S (2018) Managing millennials' personal use of technology at work *Business Horizons* 61 pp. 261 – 270.

[66] Bishop, J (2017) Detecting Sexual Harassment in Workplace Electronic Communications Networks: The Role of PROTEGER for Augmentive Behaviour Monitoring *Handbook of Research on Organizational Culture and Diversity in the Modern Workforce* Advances in Human Resources Management and Organizational Development Book Series.

[67] ibid. note 52.

[68] Guo, SY; Ding, LY; Luo, HB and Jiang, XY (2016) A Big-Data-based platform of workers' behavior: Observations from the field *Accident Analysis and Prevention* 93 pp. 299 – 309.

[69] Whitman, M (2020) We Called That a Behavior: The Making of Institutional Data *Big Data & Society* 7 (1) 10.1177/2053951720932200

[70] Namatovu, E and Kanjo, C (2019) Visibility in community health work mediated by mobile health systems: A case of Malawi *Electronic Journal of Information Systems in Developing Countries* 85:e12071. https://doi.org/10.1002/isd2.12071.

performance that can be used strategically to optimise organisational effectiveness, efficiency and outcomes, and improve employee experience" (Tursunbayeva, Di Lauro and Pagliari, C, 2018: 231[71]). Four of the most well-known tools for monitoring employees on aggregate across HR processes are dashboards, scorecards, survey scores and benchmarking (Peeters, Paauwe and Van de Voode, 2020[72]). Despite this aggregation, notable system vendors, including Accenture, IBM and Deloitte extend their PA offerings to employee experience and satisfaction based on individual employee data. Deloitte (2017[73]) state: "The concept of 'total employee experience', focused on design thinking and the simplification of work, will become a major focus in HR".

The proliferation of data gathering opportunities about employees' behaviours, emotions, bodies, location and movement as well as their performance is noteworthy, indicated in Table 2. Currently in the literature there are few thoroughgoing studies of people analytics in practice and many overviews, indicating that this field of study has not reached maturity. Concerns about people analytics address the strategic relevance of the information gathered and its relationship with key strategic performance indicators. Multiple barriers to the implementation of analytics have been identified (Fernandez and Gallardo-Gallardo, 2020[74]) alongside governance and implementation models[75].

Table 2. Information gathered from individual employees to fuel people analytics

Data related to...	Type of data
Employees outside the organisation	- Demographic data - Education - Participation in social networks
The position of the employee in the organisation	- Type of hire - Status of the position - Salary and benefits - Changes in the organisation - Date of last promotion
Work carried out in the organisation	- Individual performance - Performance evaluations - Sentiments and assessments - Content and the receivers of their messages in organisational platforms
The employee herself/himself/themselves	- Personality traits - Cognitive abilities and skills - Expertise - Training undertaken

Source: Fernandez and Gallardo-Gallardo, 2020

2.6.1 People analytics in practice: Studies of cybervetting and social network analysis

Studies of people analytics in practice are limited to the use of social media to manage recruitment and to predict turnover. The initial concern expressed by Berkelaar and Buzzannel (2014[76]) was that cybervetting was transforming the way in which HR professionals assessed person-organisational fit. Whilst HR professionals studied legitimised cybervetting as a way of managing risk, the authors noted a distinctive lack of moral, ethical and legal considerations by the practitioners. They observe:

> *workplace surveillance has moved from surveilling conventional work places and times to surveilling potential workers across work and nonwork contexts, times, and roles.*

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[71] Tursunbayeva, A; Di Lauro, S and Pagliari, C (2018) People analytics-A scoping review of conceptual boundaries and value propositions *International Journal of Information Management* 43 pp. 224 – 247 10.1016/j.ijinfomgt.2018.08.002.

[72] Peeters, T; Paauwe, J and Van de Voorde, K (2020) People analytics effectiveness: developing a framework *Journal of Organizational Effectiveness-People and Performance* 7 (2) 10.1108/JOEPP-04-2020-0071.

[73] Deloitte (2017). *2017 Deloitte Global Human Capital Trends report: Rewriting the rules for the digital age.*

[74] Fernandez, V; Gallardo-Gallardo, E (2020) Tackling the HR digitalization challenge: key factors and barriers to HR analytics adoption *Competitiveness Review* 10.1108/CR-12-2019-0163.

[75] Ibid. note 71.

[76] Berkelaar, BL; Buzzanell, PM (2014) Cybervetting, Person-Environment Fit, and Personnel Selection: Employers' Surveillance and Sensemaking of Job Applicants' Online Information *Journal of Applied Communication Research* 42 (4) pp. 456 – 476.

Employers' taken-for-granted assumptions of cybervetting as comprehensive, inevitable, and legitimate invoke economic justifications to extend workplace surveillance into nonwork contexts and roles...Despite viewing cybervetting as risk work, employers rarely questioned increased access to information considered illegal, irrelevant, and/or unethical for personnel selection ... Findings highlight persistent tendencies toward increasing the amount of information acquired rather than improving information use in selection (2014: 471).

Since then ethical issues, particularly those of fairness and privacy, have tended not to be considered in practice. Holland and Jeske (2017[77]) confirmed these observations in their study of social media use by HR professionals in recruitment processes. Some employers have even been observed to request Facebook passwords from job applicants (McEwan and Flood 2018[78]). The moral aspects of algorithmic recruitment decisions are also taken up by Newman, Fast and Harmon (2020[79]) who note that while HR professionals assume algorithms eliminate bias, applicants took a different view. Applicants perceived that algorithms operated in a reductionist way and decontextualised their professional profiles in a way that they found procedurally unfair. The scope for human interpretation involved in the design of algorithmically-driven recruitment systems – and hence the opportunity for the consideration of ethical matters - can be observed in Necula and Strimbei's (2019[80]) account of the algorithmic design process for a talent acquisition system.

Social media analysis has also been a focus of attention, but research is at a very embryonic stage. Corporate social media systems have been found to enhance opportunities for innovation and knowledge management (Alberghini, Cricelli and Grimaldi, 2014[81]) and to identify the way in which employees interact (Leonardi and Contractor, 2018[82]). The latter authors claim that relational analytics may identify human capacities such as ideation, influence, efficiency and innovation as well as structural issues such as silos and vulnerable path dependencies. Although they discuss privacy concerns, they also suggest:

Every time employees send one another e-mails in Outlook, message one another on Slack, like posts on Facebook's Workplace, form teams in Microsoft Teams, or assign people to project milestones in Trello, the platforms record the interactions. This information can be used to construct views of employee, team, and organisational networks... (2018: 80[83]).

Utilising the same 'digital exhaust' to predict employee turnover is also briefly discussed in the literature, with two empirical studies to report. The first, a technical paper (Fallucchi, Coladangelo, Giuliano and De Luca 2020[84]) sets out how an algorithm was selected to best explain the reasons why employees left a company. Again, the paper sets out the multiple moments in which human interpretation – and hence ethics – could enter the discussions. A second empirical study attempts to predict academic staff turnover based on bibliometrics, which indicated research performance outcomes (Ryan 2020[85]).

2.7 Conclusion

This chapter has reviewed new literature in relation to four workplace surveillance/monitoring practices: employee thoughts, feelings and behaviours, location and movement, task performance and professional profile, and reputation. These categories reflected the surveillance targets set out by Ravid et al (2020) and the author added the final target during the course of this review. Table 3 sets out the chapter's findings.

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[77] Holland, P; Jeske, D (2017) Changing Role of Social Media at Work: Implications for Recruitment and Selection In Bondarouk, T, Ruel, H and Parry, E (eds) *Electronic HRM in the Smart Era* Bingley: Emerald Publishing pp. 287 – 309.

[78] McEwan, B; Flood, M (2018) Passwords for jobs: Compression of identity in reaction to perceived organizational control via social media surveillance *New Media & Society* 20(5) pp. 1715– 1734.

[79] Newman, DT, Fast, NJ and Harmon, DJ (2020) When eliminating bias isn't fair: Algorithmic reductionism and procedural justice in Human Resource decisions *Organizational Behaviour and Human Decision Processes* 160 pp. 149 – 147.

[80] Necula, SC and Strimbei, C (2019) People Analytics of Semantic Web Human Resource Resumes for Sustainable Talent Acquisition *Sustainability* 11 (13) 10.3390/su11133520.

[81] Alberghini, E; Cricelli, L and Grimaldi, M (2014) A methodology to manage and monitor social media inside a company: a case study *Journal of Knowledge Management* 18 (2) pp. 255 – 277.

[82] Leonardi, P and Contractor, N (2018) Better PEOPLE Analytics Measure Who THEY KNOW, Not Just Who THEY ARE *Harvard Business Review* 96 (6) https://hbr.org/2018/11/better-people-analytics .

[83] ibid note 82.

[84] Fallucchi, F; Coladangelo, M; Giuliano, R and De Luca, EW (2020) Predicting Employee Attrition Using Machine Learning Techniques *COMPUTERS* 9 (4) 10.3390/computers9040086.

[85] Ryan, JC (2020) Retaining, resigning and firing: bibliometrics as a people analytics tool for examining research performance outcomes and faculty turnover *Personnel Review* 10.1108/PR-12-2019-0676

A number of conclusions may be drawn. The first is that empirical research which documents the impacts of these phenomena *as monitoring or surveillance* is patchy, even though it is clear that worker surveillance practices continue to extend to cover many different features of the employee as they work. The latest target, professional profile and reputation through people analytics, is a newly identified area and the subject of much consultancy hype. It has the potential to combine a raft of employee surveillance measures. The second is that the intensity of privacy concerns mirrored the assertions of Ravid et al (2020) which were set out at the start of the chapter. Literature concerning surveillance of employee thoughts, feelings and physiology presented more privacy concerns than any of the other areas. Strong reactions were documented due to deeply unique and authentic aspects of the individual were being placed under surveillance which prompted resistance and low compliance from workers as well as strong critique from academics. Location and movement monitoring is widespread throughout the public and private sector in the form of camera surveillance. Literature about these surveillance practices moved towards policy suggestions which foregrounded equality of outcomes and procedural fairness should they be used. The importance of worker voice, control and management support – features of procedural justice - was found in both digital camera and location tracking. Worker autonomy and choice as also seen to be an important component of a successful internet monitoring policy designed to combat cyberloafing during task performance. To ameliorate these psycho-social risks associated with intrusiveness, procedural fairness, low trust and low transparency, clear and strong policy was preferred. Many studies counselled against using more intrusive surveillance outside a management process and policy framework.

Table 3. Findings, new workplace surveillance practices

Surveillance target	Surveillance practice	Findings
Thoughts, feelings and physiology	Biometrics	• Used for access purposes • Concerns arise due to accuracy, impact on bodily privacy, function creep and data security. • Strong emotional responses and adverse practical consequences occur when it does not work properly.
	Emotion monitoring	• Used to identify stress • Often resisted or avoided by employees due to privacy concerns
	Wearables for self-tracking	• Used to identify stress and promote wellness • Employees and professionals express privacy and compliance concerns
	All	• Major privacy and compliance concerns. Strong policy is essential
Location and movement	Digital camera surveillance	• Widespread diffusion but rarely studied in workplace: • Found in delivery vehicles, corporate vehicle fleets and taxis as well as security intensive workplaces such as airports and other transport hubs • Also used in home-based workspaces to monitor home based carers nannies and educators • Human review of footage helps fairness perception
	Location tracking	• Found in electrical installation, cleaning, municipal home care, security, public transport, trucking, warehouse work and road maintenance as well as 'on location' platform work • Worker control over onset determines fairness • Platform workers manipulate and resist location tracking
	All	• Found in a wide range of industries, including remote work and platform work. • Concern that they collect a disproportionate amount of data and equality-centred and procedurally fair implementation and policy required
Task	Internet monitoring	• Cyberloafing is a current application of task monitoring and is most procedurally just when workers self-report their online time
	Behaviour monitoring	• Applied for safety, security and legal compliance purposes. • Identifying behaviours may be a self-fulfilling prophecy; employee responses are ambiguous.
	All	• The vast majority of surveillance/monitoring research so far has addressed task monitoring focusing on performance. A focus on behaviour monitoring is a more recent development.
Professional profiles and reputation	People analytics	• Wide ranging data collection seen as desirable • Ethics not foregrounded enough in the discussion • Cybervetting and social media analysis studied so far with concern about reductionism and procedural justice. • Strong policy needed.
	Platform work	• See chapter 5

3 The impacts of monitoring at the individual and social process levels of analysis

3.1 Introduction

This chapter sets out newly published OP/OB and OS/ER research which examines the impacts of monitoring at the individual and social process levels of analysis. The chapter underlines the complexities involved in monitoring workers and confirms that personality factors, the management-worker relationship, job characteristics and systems design are psycho-social risk factors. Subjective coping strategies are also revealed. Furthermore, the increased breadth of monitoring targets as well as the job categories which are now subject to monitoring raises concern about the organisational values which are reinforced by surveillance/monitoring. A new visibility-centred organisational control paradigm is identified as well as a new contested terrain which relates to the public/private boundary around work. Due to the recent meta-analysis of the OP/OB surveillance/monitoring research by Ravid et al (2020[86]), the vast majority of the new research reported hails from the OS/ER disciplines.

Ball and Margulis' (2011[87]) analytical framework is used to combine and compare newly discovered research with existing knowledge covered in chapter 1. This framework is derived from the literature on monitoring and surveillance in call centres and other workplaces. They combine works from OP/OB and OS/ER research to create an integrated analytical framework so that work from these disciplines can be viewed together. At the individual level the categories relate to:

- The individual boundary: designed to encompass research which addresses individual difference and individuals' perceptions of the boundary between work and private life.
- Compliance and resistance: designed to encompass OP/OB research about counterproductive work behaviours, as well as OS/ER- based ethnographies of individual resistance.
- Controlling or limiting the effects of monitoring: designed to encompass work on psychological stress and the system work-arounds that are developed by employees.

The social level of analysis focuses on the social processes which surround the monitored worker as they complete their tasks. The codes are as follows:

- Negotiated order: designed to highlight power differentials and conflicts of interest which may ascribe collective action around monitoring.
- Meta communication: how monitoring generates organisational meaning systems and may come to signify what the organisation values.
- Managerial support: designed to highlight how supervisory behaviour and relationships can influence workers' experience of being monitored.

The majority of the literature discussed in this chapter relates to standard work rather than platform or remote work. Reflecting new research, a code relating to gender was added to this list during the analysis. The chapter now reviews each code.

3.2 The individual level of analysis

3.2.1 The individual level of analysis: The individual boundary

This section explores new literature addressing the influence of individual difference on reactions to surveillance/monitoring, as well as how individual workers manage their personal boundaries and privacy. The psycho-social risks of perceived intrusiveness, perceived procedural unfairness and perceived low trust as well as decreased commitment and increased likelihood of counterproductive behaviours/resistance are emphasised. A new psycho-social risk of distributive justice concern arising from equal treatment and discrimination is also identified. In this code we find that:

- There are certain psychological traits which determine how individuals respond to being monitored. Different monitoring formats appeal to different psychological traits concerning ethical and performance orientations.

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[86] Ravid, D, Tomczak, D, White, J and Behrend, T (2020) EPM 20/20: A review, framework and research agenda for electronic performance monitoring *Journal of Management* 46 (1) pp. 100 – 126.

[87] Ball, K and Margulis, T (2011) Monitoring and Surveillance in Call Centres: A Review and Synthesis *New Technology, Work and Employment* 26 (2) pp. 113 – 126.

- Employees' sense of what should and should not be monitored influences their perceptions of fairness and trust in the workplace.
- Privacy concerns can elicit a strong emotional reaction from employees.
- Employees' privacy concerns extend to how data are used over time as well as the act of data collection, especially in the cases of biometric monitoring and location tracking.
- More legal regulation of biometric surveillance in the workplace is needed.

Just one OP/OB paper has been published in this area in 2020. It is a summary piece which guides the reader through experimental findings about individual differences, job characteristics and their relationship to monitoring outcomes (White, Ravid and Behrend 2020[88]). It suggests that there are individual differences which influence how people respond to monitoring, as follows:

- Trait reactance: Trait reactance refers to the likelihood of an individual having an in-built emotional response to privacy invasiveness, because it represents a loss of freedom to them. If an individual has trait reactance to monitoring they are likely to experience feelings of privacy invasion, anger and negative cognitions. They are also more likely to perform counter productive work behaviours (e.g. sabotage, resistance) and are less likely to help others in the same situation (Yost et al 2019[89]).
- Self-efficacy: Self efficacy refers to the extent to which we feel in control over the achievement of outcomes that we are working towards. Individuals with high self-efficacy have been shown to perform better when being monitored (Laird, Bailey and Hester 2018[90]).
- Rule-based ethical orientation: A person with a high rule-based ethical orientation is someone who places great emphasis on following rules. Such a person will be more likely to pick up on fairness and trust issues surrounding monitoring practices and is likely to benefit from performance monitoring (Alder et al 2008[91]).
- Outcomes-based ethical orientation: A person with a high outcomes-based ethical orientation is someone who has a utilitarian view of the world. They see the achievement of outcomes as more important than the means used to obtain those outcomes. Such a person is likely to pick up on the usefulness of monitoring and perceive greater organisational trust if they regard monitoring as useful.[92]
- Performance prove goal orientation: A person with high performance prove goal orientation seeks positive affirmation about their ability from others. Such a person would feel apprehensive about being evaluated under real time monitoring (Watson et al 2013[93]).
- Performance avoid goal orientation: A person with high performance avoid goal orientation worries about receiving negative judgements from others. Such a person would feel apprehensive about being evaluated under asynchronous monitoring[94].

The above research shows that while the employer may be entitled to surveil/monitor workers as part of the employment contract, employees also have in-built attitudes and expectations regarding how they are to be treated during the course of their work. Employees therefore harbour their own beliefs about what should and should not be monitored, imputing their sense of trust in their employer and their sense of organisational justice. Even though monitoring may be legal, exacting monitoring may not be accepted by employees who seek a work environment characterised by mutual respect and trust.

A number of OS/ER papers explore this facet of individual reactions to monitoring. Research in the public sector established that employees experienced greater privacy concerns with techniques which had a less clear link with task performance and collected personal information which was judged to be unnecessary. Strong emotive language was used by newer employees who said they were 'repulsed' by technologies such as instant photo capture and internet monitoring (Charbonneau and Doberstein, 2020[95]). In the context of online communications monitoring, *a priori* privacy concerns led employees to perceive that organisational monitoring policies were

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[88] White, JC; Ravid, DM and Behrend, TS (2020) Moderating effects of person and job characteristics on digital monitoring outcomes *Current Opinion in Psychology* 31 pp. 55-60.

[89] Yost, AB; Behrend, TS; Howardson, G; Darrow, JB and Jensen, JM (2019) Reactance to Electronic Surveillance: a Test of Antecedents and Outcomes *Journal Of Business And Psychology* 34 pp. 71–86.

[90] Laird BK, Bailey CD and Hester K (2018) The effects of monitoring environment on problem-solving performance. *Journal of Social Psychology* 158 pp. 215-219.

[91] Alder GS, Schminke M, Noel TW and Kuenzi M (2008) Employee reactions to internet monitoring: the moderating role of ethical orientation. *Journal of Business Ethics* 80 pp. 481.

[92] ibid note 5.

[93] Watson AM, Foster Thompson L, Rudolph JV, Whelan TJ, Behrend TS and Gissel AL (2013) When big brother is watching: goal orientation shapes reactions to electronic monitoring during online training. *Journal of Applied Psychology* 98 pp. 642.

[94] ibid note 7.

[95] Charbonneau, E; Doberstein, C (2020) An Empirical Assessment of the Intrusiveness and Reasonableness of Emerging Work Surveillance Technologies in the Public Sector *Public Administration Review* 80 (5) pp. 780–791.

less fair. The employees experienced lower levels of trust in and were less committed to the organisation in the face of monitoring. Procedural justice was found to mediate (i.e. the relationship worked through) the relationship between privacy concern and organisational commitment and moderate (i.e. make less strong) the relationship between privacy concern and organisational trust (Chory, Vela and Avtgis, 2016[96]). Privacy invasion also negatively impacts the extent to which employees are willing to go the extra mile for their colleagues (Hassan, Shabbir, Bashir and Akram, 2019[97]).

A small cluster of studies which focus on the importance of the public/private boundary to individuals echo the concerns expressed by Charbonneau and Doberstein (2020[98]). One study finds that employees are more likely to accept what they term 'tracking technologies' – forms of employee surveillance which track mobility and location – if they have a priori positive attitudes towards monitoring and if the monitoring is more efficient in terms of productivity (Abraham, Niessen, Schnabel, Lorek, Grimm, Moslein, and Wrede, 2019[99]). In many ways this reflects what is already known, but these authors conclude by saying that the public/private boundary is still important for determining acceptance (see also Richardson and MacKinnon 2019[100]). In the context of health tracking technologies a number of studies report good initial compliance but over time growing privacy concerns can result in employees withdrawing from data collection, ignoring the results or challenging the validity of the data (Giddens, Leidner and Gonzalez, 2017; Moore 2018[101]). Esmonde's (2021[102]) work recounts the case of a teachers' strike following the instruction to wear Fitbits as part of work-based health insurance provision. Employee concerns stemmed not only from the act of collection itself but also from concerns over the way in which the data are used over time. Concerns about data breaches, unethical data use by third parties and discrimination were observed. If data were used to identify employees as unhealthy (and more costly for insurance purposes), unfair consequences such as termination or unequal treatment due to health status were deemed undesirable. Holland and Tham (2020[103]) echo Esmonde in that they observe that the crossing of individual boundaries without consent is likely to result in resistance, sabotage or industrial action. This strongly emotional response to biometric surveillance technologies is also found in ethnographic studies of biometrics which were reported in chapter 2 (Rao, 2018[104], Van Oort, 2019[105]). Furthermore there is also a lack of legal regulation in this area which still requires attention (Moore and Piwek 2017[106]; O'Rourke and Pyman, 2011[107]; Thornthwaite 2016[108]).

3.2.2 The individual level of analysis: Compliance and Resistance

This section examines the question of individual compliance and resistance to surveillance in more detail. The overwhelming majority of papers coded in this section confirm two long-held truisms about workplace surveillance. The first is that when surveillance is experienced as too punitive, it prompts the behaviours it was put in place to prevent, which then results in more exacting surveillance. The second is that punitive surveillance compromises the inter-personal aspects of the management process. To some extent interpersonal management support ameliorates the psycho-social risks of surveillance/monitoring. The main findings are:

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[96] Chory, RM; Vela, LE; Avtgis, TA (2016) Organizational Surveillance of Computer-Mediated Workplace Communication: Employee Privacy Concerns and Responses *Employee Responsibilities and Rights Journal* 28 (1) pp. 23 – 43.

[97] Hassan, W; Shabbir, R; Bashir, M; Akram, J (2019) Electronic Surveillance Consequences: The Dark Side of Technology at Workplace *Pacific Business Review International* 11 (9) pp. 157 – 170.

[98] ibid. note 10.

[99] Abraham, M; Niessen, C; Schnabel, C; Lorek, K; Grimm, V; Moslein, K; Wrede, M (2019) Electronic monitoring at work: The role of attitudes, functions, and perceived control for the acceptance of tracking technologies *Human Resource Management Journal* 29 pp. 657–675.

[100] Richardson, S and MacKinnon D (2018) Becoming Your Own Device: Self-Tracking Challenges in the Workplace Canadian Journal of Sociology-Cahiers Canadiens de Sociologie 43(3) pp. 265 – 289.

[101] Giddens, L., D. Leidner, and E. Gonzalez. (2017) "The Role of Fitbits in Corporate Wellness Programs: Does Step Count Matter?" Paper presented at the *International Conference on System Sciences*, Honolulu, HI, 3627–4635; Moore, P. (2018) "Tracking Affective Labour for Agility in the Quantified Workplace." *Body & Society* 24(3) pp. 39–67. doi:10.1177/1357034X18775203.

[102] Esmonde, K (2021) 'From fat and frazzled to fit and happy': governing the unhealthy employee through quantification and wearable technologies *Qualitative Research in Sport Exercise and Health* 13 (1) pp. 113-127.

[103] Holland, P and Tham, TL (2020) Workplace biometrics: Protecting employee privacy one fingerprint at a time *Economic and Industrial Democracy* DOI: 10.1177/0143831X20917453.

[104] Rao, U (2018) Biometric Bodies, or How To Make Electronic Fingerprinting Work in India *Body and Society* 24 (3) pp. 69 – 94.

[105] Van Oort, M (2019) The Emotional Labor of Surveillance: Digital Control in Fast Fashion Retail *Critical Sociology* 45 (7-8) 1167 - 1179

[106] Moore, P and Piwek K (2017) Regulating well-being in the brave new quantified workplace *Employee Relations* 39 (3) pp. 308 – 316.

[107] O'Rourke, A; Julian, T and Pyman, A (2011) Internet and Email Monitoring in the Workplace: Time for an Alternate Approach *Journal of Industrial Relations* 53 (4) pp. 522 – 533.

[108] Thornthwaite, L (2016) Chilling Times: Social Media Policies, Labour Law and Employment Relations *Asia Pacific Journal of Human Resources* 54 pp. 332 – 351.

- Patterns of individual compliance and resistance are a product of how technology is designed and how uses change over time. Surveillance may be 'hard wired' into technologies such as digital and body cameras, making them difficult to avoid.
- Attempts to work around hard wired surveillance can result in more intense and punitive surveillance which can be perceived as excessive.
- Whether surveillance intensifies in this way is partly dependent on whether an interpersonal management style is adopted or not.
- At an individual level, excessive surveillance reduces trust in management, commitment to the organisation, creativity and autonomy and produces more resistance and less compliance.
- There are some workplaces where individual resistance is outflanked by absorbing gamification (logistics warehouses) or domination over all working time and tasks (call centres).

Technology use over time is the first dimension to consider. There are two important determinants of whether individual compliance/resistance will emerge. The first is referred to in the previous section: resistance is partly determined by whether new technology has unintended effects, for example, unwelcome insight into workers' private lives. The second is the degree to which those effects are 'hard wired' into the technology, or whether the technology can be adapted or repurposed so that those undesirable unintended effects may be avoided (Sulzhenko and Holmgren, 2020[109]; see also Edwards and Ramirez, 2016[110]).

Research addressing camera surveillance in the workplace has emphasised the importance of management style. Camera surveillance has been observed in different types of occupation: baggage handlers, sports umpires, home care workers and software developers have been studied. Baggage handlers' attempts to hide from CCTV and wearable camera surveillance resulted in more surveillance. Their resistance stemmed from the fact that they felt constantly watched as potential thieves, but were unnoticed by their managers as individuals. Rather than forge an alternative path with a more personal management process, cycles of more punitive visual and locational surveillance by managers were the result (Anteby and Chan, 2018[111]). Bradbury (2019[112]) also confirms the counterproductive nature of excessive monitoring using the case of Major League Baseball umpires. In their view monitoring does not necessarily prevent loafing or shirking and excess monitoring may destroy trust in the management process. In the context of care work, Brown and Korczynski (2010[113]) observe that excessive monitoring reduces carers' organisational commitment but strengthens their commitment to the client in spite of the surveillance. In a software house, enhanced internet monitoring decreased intrinsic motivation and affective organisational commitment (Jiang, Tsojou, Sophenen and Li, 2020[114]). It also has a negative effect on creativity (Kim, 2019[115]) and autonomy (Barrenechea-mendez, Ortin-Angel and Rodes (2016[116]). Some of these settings – umpiring, software development, care work - are ones in which employees already have a degree of autonomy. OP/OB work confirms that excessive surveillance in such settings will give mixed messages, produce more counterproductive work behaviours and damage trust (Jensen and Raver, 2012[117]).

In some workplaces surveillance is so intensive that the possibility of resistance is outflanked either through totally dominant working conditions or absorbing gamification practices. Call centres are an example of the former, although it should be noted that not all call centres are run in this way (Wickham and Collins, 2004[118]). The forms of surveillance-driven domination seen in some call centres force individual employees to resist by denouncing their employers publicly in online fora (Johnston, Johnston, Sanscartier and Ramsey, 2019[119]). In

[109] Shulzhenko, E and Holmgren, J (2020) Gains from resistance: rejection of a new digital technology in a healthcare sector workplace *New Technology, Work and Employment* 35 (3) pp. 276 – 296.

[110] Edwards, P. and P. Ramirez (2016), 'When Should Workers Embrace or Resist New Technology?', *New Technology, Work and Employment* 31 (2) pp. 99–113.

[111] Anteby, M; Chan, CK (2018) A Self-Fulfilling Cycle of Coercive Surveillance: Workers' Invisibility Practices and Managerial Justification *Organization Science* 29 (2) pp. 247 – 263.

[112] Bradbury, JC (2019) Monitoring and Employee Shirking: Evidence From MLB Umpires *Journal of Sports Economics* 20 (6) pp. 850-872

[113] Brown, K; Korczynski, M (2010) When Caring and Surveillance Technology Meet: Organizational Commitment and Discretionary Effort in Home Care Work *Work and Occupations* 37 (3) pp. 404 – 432.

[114] Jiang, HM, Tsohou, A, Sophonen M and Li, Y (2020) Examining the side effects of organizational Internet monitoring on employee *Internet Research* 30 (6) pp. 1613-1630.

[115] Kim, SL (2019) The interaction effects of proactive personality and empowering leadership and close monitoring behaviour on creativity *Creativity and Innovation Management* 28 (2) pp. 230 – 239.

[116] Barrenechea-mendez, MA; Ortin-Angel, P; and Rodes, EC (2016) Autonomy and Monitoring *Journal of Economic and Management Strategy* 25 (4) pp. 911 – 935.

[117] Jensen JM and Raver, JL (2012) When Self-Management and Surveillance Collide: Consequences for Employees' Organizational Citizenship and Counterproductive Work Behaviors *Group and Organization Management* 37 (3) pp. 308 – 346.

[118] Wickham, J. and Collins, G. (2004). 'Call centres as innovation nurseries'. *The Service Industries Journal,* 24 (1) pp. 1–18.

[119] Johnston, MS; Johnston, G; Sanscartier, MD; Ramsay, M (2019) 'Get paid, get out': online resistance to call centre labour in Canada *New Technology, Work and Employment* 34(1) pp. 1 – 17.

other call centres, individual resistance does take place, some of it directly provoked by surveillance (Chai, Rahim and Fat 2017[120]). Nyberg and Sewell (2014[121]) have explored the micro-practices and micro-logics of resistance in the call centre further. They describe the mobilisation of resistance as a long-term game, in which there are episodes of polarised antagonism and compliance, but at other times there is a shorter term middle ground when the different parties compromise with each other, either by colluding, co-operating or collaborating. Resistant behaviours include withholding effort, but they also include scrutinising and undermining surveillance technologies. In their 2012 paper, Sewell, Barker and Nyberg (2012[122]) argue that workers' ascribed meaning to surveillance is as adaptable and episodic as resistance. Sometimes it was seen as legitimate and fair, serving everyone's interests, and at other times it was seen as intrusive and oppressive. They dwell on the ambiguity of worker responses to surveillance:

> *Able and motivated employees who are marked out as such by performance measurement systems are likely to see those systems as being an objective way of maintaining fairness ... In contrast, less able and poorly motivated employees who are also marked out as such by performance measurement systems are likely to see those systems as being an oppressive way of getting them to change their work habits...Worse still, performance measurement that is seen to be illegitimate may have the effect of getting poor performers to reduce their work effort. This is not to say, of course, that high-performing employees will always embrace performance measurement and low-performing employees will reject it (2012: 211).*

In a logistics warehouse, a self-organised game based on digital worker output monitoring had the effect of intensifying work as workers tried to beat the algorithmic work allocation system throughout their shifts (Elliott and Long, 2016[123]). Algorithmic control is also an important topic in relation to workers' diminished capacity to resist. While it will be discussed in detail in relation to platform work in chapter 5, here we note that it is also present in workplaces in the automotive (inventory management), logistics (order picking and delivery tracking), healthcare (image diagnostics, call centre employee monitoring), criminal justice (to assist with sentencing), penal (to predict recidivism), journalism (reader preference tracking), restaurants and hospitality (customer reviews and ratings) and construction (health and safety compliance) industries, where concerns about diminished agency have been noted (Kellogg, Valentine and Christin, 2020[124]).

3.2.3 The individual level of analysis: Controlling or limiting the effects of surveillance/monitoring

This section explores literature which examines the subjective journeys through which employees form their experiences and views about surveillance. Van Oort's (2019[125]) findings that working under surveillance requires a degree of emotional labour have already been referred to in chapter 2. The findings in this code build on this idea and establish, using ethnographic work from an OS/ER perspective, that employees experience a subjective journey which involves 'coming to terms with surveillance' (Ball, DiDomenico and Nunan 2016[126]) and managing one's 'exposure' (Ball 2009[127]). Introspection, self-surveillance, suspicion and anxiety, identity work, care, reflection and experimentation feature in the response. Occupations studied include clinicians, sports players and bed and breakfast owners. Iedema, Rhodes and Scheeres (2006[128]) note how:

> *workers fold these and other moments (sympathy, humour, difference, cynicism) dynamically and opportunistically into their performance. On the one hand, this highlights that identities are always in transit rather than just being 'present' and all at once accounted for: they are emergent, multiple and not fully predictable nor entirely foreclosed...organizational interaction*

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[120] Chai, LT; Rahim, FA and Yat, DNC (2017) Service Sabotage by Front Line Employees: A Study of Antecedents and Consequences *Pertanika Journal of Social Science and Humanities* 25 (s) pp. 173 – 180.

[121] Nyberg, D and Sewell, G (2014) Collaboration, Co-operation or Collusion? Contrasting Employee Responses to Managerial Control in Three Call Centres *British Journal of Industrial Relations* 52 (2) pp. 308 – 332.

[122] Sewell, G; Barker, JR and Nyberg, D (2012) Working under intensive surveillance: When does 'measuring everything that moves' become intolerable? *Human Relations* 65 (2) pp. 189 – 215.

[123] Elliott CS and Long, G (2016) Manufacturing Rate Busters: Computer Control and Social Relations in the Labour Process. *Work, Employment and Society* 30 (1) 131 – 151.

[124] Kellogg, KC; Valentine, MA; and Christin, A (2020) Algorithms at Work: The New Contested Terrain of Control *Academy of Management Annals* 14 (1) pp. 366 – 410.

[125] ibid note 20.

[126] Ball, K, DiDomenico, M and Nunan D (2016) Big data surveillance and the body-subject *Body and Society* 22 (2) pp. 58 – 81.

[127] Ball, K (2009) Exposure: Exploring the subject of surveillance. *Information, Communication and Society* 12 (5) pp. 639 – 657.

[128] Iedema, R, Rhodes, C and Scheeres, H (2006) Surveillance, resistance, observance: Exploring the Teleo-affective volatility of workplace interaction *Organization Studies* 27 (8) pp. 1111 – 1130.

calls on us to construe and perform identity across multiple and contradictory normative-affective models, juggling self- awareness, personal desires, others' judgements and (dis)affections, formal imperatives and accountabilities, as well as interpellations to participate, become self-steering and display initiative. (2006: 1126).

In a study of bed and breakfast owners (before Airbnb) DiDomenico and Ball (2011[129]) documented the lengths to which owners would go to manage their exposure in the face of covert tourist board inspections. Owners tried to decloak the inspectors using friendship and professional networks and second guess their identities and whereabouts. They also tested the assessment criteria and the fairness and consistency of their application by visiting other B&Bs. Exposure to surveillance in this study was experienced as tough, judgemental, soft, playful, thrilling, pleasing and performative. Recently another quality of exposure to ensure recognition by the organisation has been suggested (Sewell and Taskin 2015[130]; Hafermalz 2020[131]).

Another recently published and detailed study of exposure concerns rugby players' adaptations to their club's performance tracking system (Manley and Williams, 2019[132]). The club utilised a range of technologies to record and analyse player performance and well-being including '... *laptops, stadium/training camcorders, global positioning systems, heart rate monitors, body fat/skinfold recordings, mood score sheets, iPhones/iPads, central servers and mobile application software*' (2019:2). Key Performance Indicators were used to analyse performances, represented in an algorithmic 'work efficiency index' which then informed strategic and operational decisions as well as weekly individual performance reviews. The players had to self-report diet and training in an app. Whilst the players largely conformed to their club's demands, the analysis highlights the self-surveillance players and their families undertook to adapt their lives, manage their personal boundaries and overcome their anxiety to ensure that they were represented accurately in data. Players reported feeling highly visible, anxious that a slip-up in relation to any of the metrics, or a controversial interpretation of their data, may detrimentally affect their playing careers. During matches players reported making decisions based on what the stats would represent about them as an individual player, sometimes prioritising their own performance over that of the team.

From an OP/OS perspective McNall and Stanton (2011[133]) explore the identity work that is involved with adapting to the kind of location tracking seen in Manley and Williams' analysis. They distinguish between identity work through which we seek to establish our individuality, based on personal identities and a need for distinctiveness, and the identity work through which we seek to establish our group membership, based on a social identity and a need for belonging. In many ways, these different identity positions – of a distinctive player and a valuable team member - captures some of the dilemmas at the heart of Manley and Williams' analysis.

With much of the work covered so far having a distinctly negative flavour, the impetus to care for oneself and for others can also be a result of surveillance. Iedema and Rhodes (2010[134]) report on the implementation of an inspection control procedure in a hospital which was under video surveillance. Rather than a punitive flavour, the clinicians were observed helping each other and themselves to comply with the requirements, reflecting earlier claims about the importance of organisational climate and monitoring.

3.2.4 Conclusion: The individual level of analysis

To conclude the discussion at this level of analysis, the following table summarises our observations and we assess the extent to which these findings both confirm and augment the knowledge base about surveillance/monitoring in the workplace set out in chapter 1. The psycho-social risk factors documented include: technology design and adaptability over time, the existing psychological contract, personality traits, degree of emotional labour involved in adapting to surveillance, perceptions of surveillance as excessive and purposeless, quality of organisational climate, and supervisory and colleague support. The psycho-social risks themselves include: increased intrusiveness perceptions, decreased procedural and distributive fairness perceptions,

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[129] DiDomenico, M and Ball, K (2011) A Hotel Inspector Calls: Exploring Surveillance at the Home-Work Interface *Organization* 18 (5) pp. 635 – 636.

[130] Sewell, G., & Taskin, L. (2015). Out of sight, out of mind in a new world of work? Autonomy, control, and spatiotemporal scaling in telework. *Organization Studies* 36 pp. 1507–1529.

[131] Hafermalz, E (2020) Out of the panopticon and into exile: Visibility and control in distributed new culture organizations *Organization Studies* DOI: 10.1177/0170840620909962.

[132] Manley, A and Williams, S (2019) 'We're not run on Numbers, We're People, We're Emotional People': Exploring the experiences and lived consequences of emerging technologies, organizational surveillance and control among elite professionals *Organization* https://doi.org/10.1177/1350508419890078.

[133] McNall, LA and Stanton, JM (2011) Private Eyes are Watching You: Reactions to Location Sensing Technologies *Journal of Business and Psychology* 26 pp. 299 – 309.

[134] Iedema, R and Rhodes, C (2010) The undecided space of ethics in organizational surveillance *Organization Studies* 31 (2) pp. 199 – 217.

decreased trust, decreased commitment and likelihood of counterproductive behaviours/resistance. Table 4 summarises the findings.

Table 4. Findings, individual level of analysis

Code	Finding
The individual boundary	• There are certain psychological traits which determine how individuals respond to being monitored. Different monitoring formats appeal to different psychological traits. • Employees' sense of what should and should not be monitored influences their perceptions of fairness and trust in the workplace. Monitoring may breach the psychological contract if these expectations are not met by the employer. • Privacy concerns can elicit a strong emotional reaction from employees. • Employees' privacy concerns extend to how data are used over time as well as the act of data collection, especially in the cases of biometric monitoring and location tracking. • More legal regulation of biometric surveillance in the workplace is needed.
Compliance and resistance	• Patterns of individual compliance and resistance are a product of how technology is designed and how uses change over time. Surveillance may be 'hard wired' into technologies such as digital and body cameras, making them difficult to avoid. • Attempts to work around hard wired surveillance can result in more intense and punitive surveillance which can be perceived as excessive. • Whether surveillance intensifies in this way is partly dependent on whether an interpersonal management style is adopted or not. • For employees excessive surveillance reduces trust in management, commitment to the organisation, creativity and autonomy and produces more resistance and less compliance. • There are some workplaces where individual resistance is outflanked by absorbing gamification (logistics warehouses) or domination over all working time and tasks (call centres).
Controlling or limiting the effects of surveillance/monitoring	• Working under surveillance requires emotional labour. • Employees come to terms with surveillance and manage their exposure to it through subjective processes including: introspection, self-surveillance, suspicion and anxiety, identity work, care for self and others, reflection, experimentation, counter surveillance, networking. • Exposure is experienced as: tough, judgemental, soft, playful, thrilling, pleasing and performative, as well as being concerned with affirmation and recognition.

Some of these findings are completely novel in relation to the previously reviewed literature. Work which examines the subjective processes of adjusting to surveillance departs from both the OP/OB and the OS/ER research that has been previously meta-analysed. Other findings extend the existing knowledge base. The reported research on personality traits and monitoring adds a wider range of traits which explain employee attitudes and judgments about monitoring. Research which focuses on the design of monitoring technology, hard-wired surveillance and absorbing gamification adds explanation as to why employees might develop workarounds which avoid punitive surveillance and improve their performance. Research which documents how some employees denounce their employers outside the workplace augments the concept of externalising resistance which had previously focused on quitting as resistance. Having reviewed the individual level of analysis we now move on to examine the social processes which surround surveillance/monitoring.

3.3 The social processes surrounding monitoring: Negotiated order

This section examines the research covering the social processes which surround monitoring. Primarily emanating from the OS/ER tradition, papers under this theme relate not only to collective action, conflicts of interest and their resolution in the surveilled/monitored workplace, they also report on new conceptual developments. These conceptual developments tie together many of the themes discussed in this report, particularly intrusiveness concerns from new forms and contexts of monitoring, and as such are presented first. Empirical research then follows.

3.3.1 Conceptual developments

Two conceptual developments are reported in this subsection, as follows:

- Visibility: Visibility characterises new organising practices which arise specifically from the datafied and digitalised means by which work is now organised.
- Public-private boundary as contested terrain: The same datafied and digitalised means of organising position the public-private boundary as contested terrain for two reasons. First because employee surveillance now extends beyond the workplace and second because resistance now takes place outside the labour process.

3.3.1.1 *Visibility* [135]

'Behavioural visibility' is argued to be the latest organisational control paradigm (Leonardi and Treem, 2020[136]) and something which is done as part of contemporary organising (Van den Brink and Stobbe, 2009[137]). This theoretical discussion addresses the way in which visibility is pursued by organisations in respect of their employees, primarily through surveillant means. Employees need to display the appropriate performance and behaviours which are captured in data, not only to be evaluated, but also to be acknowledged and recognised for their efforts. Within such control structures, compliance stems from a fear of not being seen and resistance from the need to limit one's exposure (Hafermalz, 2020[138]). Echoing chapter 2's discussion of behavioural monitoring, Hafermalz' discussion focuses on *what 'counts' as worthy of attention, as well as how visibility and privacy are managed …[as] central concerns' (2020:15).* Employees engage in multiple visibility practices: making themselves seen in order to be ontologically recognised (see also Sewell and Taskin 2015[139]), as well as to expose their performance and limit the aspects of their person which are brought into the gaze. Resistant practices then take place in settings invisible to the organisation (Schoneboom 2011[140], see also Ball 2009[141]; DiDomenico and Ball 2011[142]; Wright, Heynen, van der Meulen 2015[143]).

3.3.1.2 *The public-private boundary as contested terrain*

Labour process theorists echo the concerns of organisation theorists regarding datafied and digital control efforts. They argue that the transgression of employees' public-private boundaries by the employer is now a conflict of interest in the labour process (McDonald and Thompson, 2016[144]). These authors base their arguments on the use of social media in the workplace. Yet, given the boundary-spanning potential of many forms of workplace surveillance featured in chapter 2, this model potentially has a much wider application (Thompson, McDonald and O'Connor 2020[145]). Three primary practices produce this conflict. The first is profiling, where employers use information from social media which is not traditionally available in recruitment processes. Information is used to facilitate employee recruitment and make judgements about how they are likely to perform once in post. From the employees' point of view, this threatens their private identity that they claim should remain beyond employer scrutiny. The second, posting denunciatory accounts online, such as

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[135] There is a philosophical backdrop to this concept which needs to be acknowledged but is not appropriate for the main body of the text. Authors such as Manokha (2020) argue that the contemporary workplace is more akin to Bentham's panopticon. Bentham's panopticon prison metaphor was utilised by Michel Foucault (1977) to illustrate an ideal type of disciplinary power based on surveillance. The relevance and applicability of the panopticon ideal type to discussions of the workplace has been debated since the early 1990s due to the fluidity of workplace boundaries and the varying capacities of employees to resist surveillant organizational control (See Sewell and Wilkinson 1992; Ackroyd and Thompson 2003; Lyon 2006; Caluya 2010). More recent scholarship has departed a different Foucaultian notion that 'visibility is a trap' (1977:200). Visibility is a trap in that the consequences of making oneself visible to organizational control will result in more intense surveillance and enmeshment in multiple visibility regimes (Ellerbrok 2010; Poster 2011, Wasserman and Frenkel 2020).

[136] Leonardi, PM and Treem, JW (2020) Behavioral Visibility: A New Paradigm for Organization Studies in the Age of Digitization, Digitalization, and Datafication *Organization Studies* 41 (12) pp. 1601 – 1625.

[137] Van den Brink M and Stobbe L (2009) Doing gender in academic education: The paradox of visibility. *Gender, Work and Organization* 16(4) pp. 451–470.

[138] Hafermalz, E (2020) Out of the panopticon and into exile: Visibility and control in distributed new culture organizations *Organization Studies* DOI: 10.1177/0170840620909962.

[139] ibid note 45.

[140] Schoneboom, A (2011) Workblogging in a Facebook age *Work Employment and Society* 25(1) pp. 132–140.

[141] ibid note 42.

[142] Ibid note 43.

[143] Wright, J; Heynen, R; van der Meulen, E (2015) It Depends on Who You Are, What You Are: 'Community Safety' and Sex Workers' Experience with Surveillance *Surveillance & Society* 13 (2) pp. 265 – 282.

[144] McDonald, P; Thompson, P (2016) Social Media(tion) and the Reshaping of Public/Private Boundaries in Employment Relations International Journal of Management Reviews 18 pp. 69–84

[145] Thompson, P; McDonald, P; O'Connor, P (2020) Employee dissent on social media and organizational discipline *Human Relations* 73(5) pp. 631– 652

those discussed by Johnston et al (2019[146]), is thought of by employees as a form of voice and as a means of expressing dissatisfaction external to the labour process. The competing employer interest is that of reputation, which may be damaged by public criticism. Finally the private use of social media during work time challenges the employer's control over working time, but also raises the question of whether that control is total. The employee counterclaim is that they may need to have autonomy during the working day to speak to those outside the workplace should they need to, while employers have an interest in the regulation of employee time, which they may monitor via surveillance strategies and enforce via disciplinary means. It is argued that each of these contestations reshape the traditional boundaries between the public and private spheres. Crucially whether and how those boundaries are shaped form the points at which employer and employee interests conflict with each other and are thus flashpoints for conflict.

3.3.2 Negotiated order: New research contexts

With the impacts of the extension to employee monitoring captured in theory, newly published empirical work examines how monitoring configures, intersects with and renegotiates the social order in previously unresearched work contexts. Research confirms that job characteristics and organisational context are psycho-social risk factors:

- In municipal government, accountability to public officials and the public itself intensifies employee surveillance.
- In the professions, higher autonomy enables employees to mitigate the negative effects of surveillance.
- In lower paid retail and service work, employees are subject to very close surveillance and are positioned as potential criminals as well as workers. The high prevalence of marginalised groups in this kind of work raises concerns about surveillance as gendered, raced and classed. Algorithmic surveillance practices in digital platform work mirror these concerns.
- In the global manufacturing supply chain, workers have successfully mobilised collectively to resist surveillance and utilised technology to their advantage.

These findings resonate with those reported by White, Ravid and Behrend (2020[147]), who, from an OP/OB perspective, review how job characteristics can influence employee reactions to monitoring. They reviewed work which finds:

- Manual job holders experience decreased trust in management if monitoring is intensified (Holland, Cooper and Hecker, 2015[148]).
- Those in jobs with high autonomy may choose to put in less effort if monitoring is intensified (Tomczak, Wilform, White and Behrend, 2018[149]).
- Those with significant front line public service jobs, such as police officers or doctors, tend to perform better in the presence of monitoring (Jennings, Lynch and Freddell, 2015[150]).
- Police officers also are more likely to suffer from burnout and perceive less organisational support if they are monitored (Adams and Mastracci, 2018[151]).

These studies are now examined in more detail.

3.3.2.1 Municipal government

The new public management agenda has resulted in a diffusion of employee surveillance to public sector organisations (Fusi and Feeney, 2018[152]). Monitoring in the public sector differs from that of the private sector because public services are accountable to the public and to government. Public sector managers thus have to balance multiple demands relating to data protection, value for money organising, employee rights and citizens' freedoms. Public sector workers are thus subject to a level of scrutiny not only by their employers but also by

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[146] ibid note 34

[147] ibid note 3

[148] Holland PJ, Cooper B and Hecker R (2015) Electronic monitoring and surveillance in the workplace: the effects on trust in management, and the moderating role of occupational type. Personnel Review 44 pp. 161-175.

[149] Tomczak DL, Willford JC, White JC and Behrend TS (2018) When electronic monitoring encourages withdrawal: the mediating role of autonomy. *Poster Presented at the 33rd Annual Conference of the Society of Industrial and Organizational Psychology*, Chicago, IL. 2018.

[150] Jennings WG, Lynch MD, Fridell LA (2015) Evaluating the impact of police officer body-worn cameras (BWCs) on response-to- resistance and serious external complaints: evidence from the Orlando Police Department (OPD) experience utilizing a randomized controlled experiment. *Journal of Criminal Justice* 43 pp. 480-486.

[151] Adams I, Mastracci S (2018) Police body-worn cameras: effects on officers' burnout and perceived organizational support. *Police Quarterly*, 22 pp. 5-30 http://dx.doi.org/10.1177/1098611118783987.

[152] Fusi, F; Feeney, MK (2018) Electronic monitoring in public organizations: evidence from US local governments *Public Management Review* 20 (10) pp. 1465 – 1489.

the public. Following a comprehensive survey, Fusi and Feeney (2018[153]) confirmed that, first of all, there was within-sector variation in respect of the type of employee monitoring used. Most of the public sector organisations they studied blocked internet sites, used firewalls and monitored employee email. Half of them, however, utilised the more invasive web tracking, video monitoring and data flow, while a third monitored personal social media. The authors discovered that these monitoring practices were a deliberate choice and the intensity of the monitoring was partly determined by the socio-political context of the organisations they investigated. The participation of city officials in the running of public services, such as the mayor and their staff, for example, is positively related to monitoring intensity. This finding is echoed in a British study (Kayas, Hines, McLean and Wright, 2019[154]). Accountability to the general public – for example, through Freedom of Information requests – is associated with social media monitoring to ensure that employees have responded appropriately. Social media is thus used as a transparency mechanism in public services.

3.3.2.2 *The professions*

A key element of any kind of professional work is autonomy and in respect of surveillance a key part of that autonomy is being able to control one's visibility. This idea is reflected in three pieces of research with healthcare, higher education and IT consultancy professionals. The first, by Visser, Bleijenbergh, Benschop and van Riel (2018[155]) examines how healthcare professionals engage with the increased surveillance of their daily work. They focus on professionals' use of online health communities, where they communicate with patients and peers in the delivery of dementia care. Using a dramaturgical analysis, healthcare professionals made their professional authority visible in online communities as they expressed professional opinions to different audiences. By referring to their wider medical work as part of that performance, they legitimised their authority on the platform whilst keeping more intimate clinical discussions out of public view.

A similar observation was made by Stein, Wagner, Tierney, Newell and Galliers (2019[156]) who explore the increased datafication of Higher Education. Academic staff are routinely encouraged to make their contributions visible: whether that be in social media, institutionally hosted open source platforms, or on the bibliometrics-driven platforms of publishers. Far from this being a case of total visibility, Stein et al note that academics have some discretion as to what and to whom they are visible. This discretion is found to contribute to work meaningfulness. A lack of discretion over one's exposure is argued to be demotivating. Finally, Leclercq-Vandelannoitte, Isaac and Kalika (2014[157]) make a similar argument after researching with IT consultants and their use of mobile information systems to track their working time and activities. These authors characterise the consultant as co-constructing the control to which they were subject through their autonomous time accounting, high trust organisational norms and their sense of authority over their work.

3.3.2.3 *Retail and service work*

In a cluster of four studies, low paid retail and domestic work is singled out as a context wherein exacting monitoring intensifies and exacerbates already deskilled and stressful jobs (Sewell and Barker 2006[158], Van Oorts, 2019[159]). In particular, 'maximum security' employment arrangements are documented by Vargas (2017[160]) in their study of dollar store employees. Echoing long-standing arguments covered earlier in this chapter, Vargas argues that the punitive surveillance found in these workplaces reproduces the criminalisation it was installed to prevent. Similarly, echoing some of the earliest documented evidence on the impact of monitoring by Nussbaum and DuRivage (1986[161]), Vargas notes that these jobs are likely to be occupied by non-unionised and unskilled workers, who are more likely to be women, minorities and immigrants. In one US workplace, biometric surveillance was directly targeted at immigrants with the aim of alerting the authorities

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[153] ibid note 67.

[154] Kayas, OG; Hines, T; McLean, R; Wright, GH (2019) Resisting government rendered surveillance in a local authority *Public Management Review* 21 (8) pp. 1170 – 1190.

[155] Visser, LM; Bleijenbergh, IL; Benschop, YWM; van Riel, ACR (2018) Prying Eyes: A Dramaturgical Approach to Professional Surveillance *Journal of Management Studies* 55 (4) pp. 703- 727 10.1111/joms.12283.

[156] Stein, MK; Wagner, EL; Tierney, P; Newell, S; Galliers, RD (2019) Datification and the Pursuit of Meaningfulness in Work *Journal of Management Studies* 56 (3) pp. 685 – 717.

[157] Leclercq-Vandelannoitte, A; Isaac, H; Kalika, M (2014) Mobile information systems and organisational control: beyond the panopticon metaphor? *European Journal of Information Systems* 23 (5) pp. 543-557.

[158] Sewell, G and Barker J (2006) Coercion versus Care: Using irony to make sense of organizational surveillance *Academy of Management Review* 31 (4) pp. 934-961

[159] Ibid note 20.

[160] Vargas, TL (2017) Employees or Suspects? Surveillance and Scrutinization of Low-Wage Service Workers In U.S. Dollar Stores *Journal of Labor and Society* 20 pp. 207 – 230.

[161] Nussbaum, K. and V. duRivage (1986) 'Computer Monitoring: Mismanagement by Remote Control', *Business and Society Review* 56 pp. 16–20.

to their presence (Goldstein and Alonso-Bejarani 2017[162]). Recent, wider concerns about the disproportionate surveillance experienced by racial minorities are also signalled here, as are parallel concerns about the working conditions of digital platform workers around the world.

3.3.2.4 *Global manufacturing*

Accounts from manufacturing in global settings, both from a contemporary and historical perspective, describe moments when workers have mobilised technologies to exercise power and improve their working conditions. In Honduras and China, unionised workers used digital tools, such as emails, Skype and smartphone apps, to communicate cheaply and effectively in order to participate in transnational labour campaigns seeking to highlight the actions of exploitative firms and prompt government intervention (Helmerich, Raj-Reichert and Zajak, 2021[163]). In Honduras, digital tools enabled information about labour conflicts to be leaked in order to generate support. In China, they enabled workers to co-ordinate with each other in order to strike. The authors note that the success of digital tools to mobilise depended on worker knowledge and skills, but also the extent to which their communications were subject to government surveillance from the outside, as they were in China.

From a historical perspective, Godden (2020[164]) argues that, at times, engagement with labour law and the state can provide opportunities for successful worker resistance against surveillance. Again in the garment industry, but this time in Canada in the 1970s, 200 workers affiliated with the Canadian Textile and Chemical Union went on strike at Puretex, a knitting factory in Ontario. 190 of the strikers were immigrant women who opposed management's installation of nine security cameras, one of which was focused on the entrance to the women's toilets. Ultimately, the cameras were removed. Godden is keen to point out that there have been times in history when low paid, feminised and immigrant labour groups have mobilised against excessive surveillance, with the help of their unions.

3.4 The social processes surrounding monitoring: Meta communication and organisational value systems

It has long been recognised that the purpose for which surveillance is deployed can indicate to employees what is valued by the organisation. This finding was established in some of the earliest monitoring research in the context of tasks. Yet the increased breadth of surveillance/monitoring raises a series of more complex questions about a variety of organisational values. The first is that of trust: it is already known that excessive surveillance can damage trust in the management-worker relationship, and trust levels will partly determine how workers respond. Could it be more difficult to develop high trust working relationships with a wider range of monitoring targets? The third is that of procedural justice. With more complex data analytics being used in the workplace, could it be more difficult to develop procedurally just monitoring where employees feel well informed about how their data are used, protected by policy, and that they have a voice in the monitoring process? The third is distributive justice. If algorithms are used to inform management decision-making about worker performance, how may this affect equality and discrimination in the outcomes of monitoring? An allied issue relates to the value of interactional justice. Management support is a crucial factor in monitoring: could the sensitivity with which workers are treated in communication processes be adversely affected, both in terms of their equitable treatment as information seekers (informational justice) and their dignified treatment (interpersonal justice) (Colquitt, Conlon, Wesson, Porter and Ng 2001[165]).

Despite this wide range of questions, current research covers trust and procedural justice only. The configuration of monitoring may indicate first the extent to which employees are trusted, and the second, the extent to which the employer values and enacts fairness. It finds that:

- Monitoring fairness, privacy and trust are closely inter-related.
- The configuration of monitoring acts as a proxy for managerial trust in employees.
- Close monitoring leaves employees feeling that they are not trusted and they are not in control of their work process.

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[162] Goldstein, DM; Alonso-Bejarano, C (2017) E-Terrify: Securitized Immigration and Biometric Surveillance in the Workplace *Human Organization* 76 (1) pp. 1 – 14.

[163] Helmerich, N; Raj-Reichert, G; Zajak, S (2021) Exercising associational and networked power through the use of digital technology by workers in global value chains *Competition and Change* 25 (2) pp. 142 – 166.

[164] Godden, M (2020) Contesting Big Brother: Legal Mobilization against Workplace Surveillance in the Puretex Knitting Company Strike, 1978-1979 *Labour-Le Travail* 86 pp. 71 – 98.

[165] Colquitt, J.A. , Conlon, D. , Wesson, M. , Porter, C. , & Ng, Y.(2001) Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. Journal of Applied Psychology, 86 pp. 425-445.

- Monitoring which crosses the public-private boundary will be perceived as excessive and lead workers to trust managers less.
- Where employees perceive that the organisation's monitoring processes are fair and do not breach their privacy, organisational trust is improved.
- Where employees are worried that monitoring may breach their privacy, a procedurally just policy allays their fears.
- Algorithmic decision-making in personnel selection was perceived to violate procedural justice because they do not consider performance holistically.

3.4.1 Monitoring and trust

Trust in the organisational context has been defined as, "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party" (Mayer et al. 1995, p. 712[166]). Trust predicts job satisfaction, organisational citizenship behaviour, organisational commitment, turnover and job performance and exists irrespective of monitoring practice (Holland, Cooper and Hecker 2015[167]). Electronic monitoring and its configuration acts as a proxy for managerial trust in employees, containing cues as to appropriate behaviours and performance. Whether a person is trusted depends on a number of factors: whether they are perceived as competent, as acting beyond self-interest and in the interests of others, and as acting with moral integrity. A further dimension is whether they act with predictability – in other words – that they do what they say they will. Electronic monitoring, depending on how it is configured, may leave employees feeling that their competence, their commitment to organisational goals, their honesty (as part of integrity) and their dependability are being questioned by their supervisor, manager or employee.

Close electronic monitoring has thus been found to leave employees with a sense that they are not trusted and feeling that they are not in control of their work process (Berstrom and Svare 2017[168]). Employees also trust management less when they feel that monitoring has invaded their privacy (Chory et al 2016[169]; Kayas et al 2019[170]). Alternatives which do not utilise monitoring-driven performance measures are anecdotally reported to achieve better performance and higher levels of trust (Platts and Sobotka 2010[171]). The public-private workplace boundary is also significant here. Where employees have social media connections with their supervisors, mutual respect of private boundaries on social media (i.e. not using it for work monitoring purposes) has a positive impact on trust between employees and their supervisors. Furthermore employees with stronger privacy concerns over email surveillance trusted top management less and had lower quality relationships (less trust and likability) with them (Snyder and Cistulli 2020[172]; Van Gramberg, Teicher and O'Rourke 2014[173]).

3.4.2 Procedural justice

The perceived fairness of decision-making procedures is a key concern for organisations, particularly when evaluating employees. Since the 1990s there has been a strong tradition of OP/OB research which examines monitoring and fairness. Tabak and Smith (2005: 174[174]) summarise the concern with monitoring as relating to a sense of 'fair play' in the way that it is implemented. A procedurally just process would need to include unbiased decision-making, a mechanism for ensuring employee concerns are heard, the use of accurate and complete information, managerial responsiveness to employee requests, the consistent application of rules, and a mechanism for employees to challenge and/or appeal a decision (Neihoff and Moorman 1993[175]).

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[166] Mayer, R C., Davis, JH and Schoorman FD (1995) An Integrative Model of Organizational Trust. Academy of Management Review 20 (3) pp. 709-734. doi: 10.5465/AMR.1995.9508080335.

[167] ibid note 63.

[168] Berstrom, VH and Svare, H (2017) Significance of Monitoring and Control for Employees' Felt Trust, Motivation and Mastery Nordic Journal of Working Life Studies 7 (4) pp. 29 – 49.

[169] Chory, RM; Vela, LE; Avtgis, TA (2016) Organizational Surveillance of Computer-Mediated Workplace Communication: Employee Privacy Concerns and Responses Employee Responsibilities and Rights Journal 28 (1) pp. 23 - 43

[170] ibid note 17.

[171] Platts, KW and Sobotka, M (2010) When the Uncountable Counts: An Alternative to Monitoring Employee Performance Business Horizons 53 pp. 349 – 357.

[172] Snyder, J and Cistulli, MD (2020) Social Media Efficacy and Workplace Relationships Corporate Communications 25 (3) pp. 463 – 476

[173] Van Gramberg, B, Teicher, J and O'Rourke, A (2014) Managing electronic communications: A new challenge for human resource managers The International Journal of Human Resource Management 25 (16) pp. 2234 – 2252.

[174] Tabak, F and Smith WP (2005) Privacy and Electronic Monitoring in the Workplace: A Model of Managerial Cognition and Relational Trust Development Employee Rights and Responsibilities Journal 17(3) pp. 173-189.

[175] Niehoff, B and Moorman, R (1993) Justice as a Mediator of the Relationship between Methods of Monitoring and Organizational Citizenship Behavior The Academy of Management Journal 36 (3) pp. 527 – 556.

When monitoring employee communications (Chory, Vela and Avtgis 2016[176]) it has been established that where employees perceive that the organisation's monitoring processes are fair and do not breach their privacy, organisational trust is improved. Where employees are worried that the organisation may breach their privacy, a procedurally just policy allays their fears. In the case of monitoring for employee theft and sabotage, employees were more likely to accept punishment for such actions if they saw that the process by which they were caught was fair (Zoghbi-Manrique-de-lara 2011[177]). An example of an organisational communications policy which incorporates aspects of monitoring can be found on the UK Trades Union Congress Website[178]. It is shown in Table 5, below.

Very recent research has started to investigate the perceived procedural fairness of algorithmic personnel selection processes (Newman, Fast and Harmon 2020[179]). In an experimental study which compared individual reactions to human and algorithmic evaluations, the algorithmic decision was perceived as less procedurally fair by the study participants. The participants assumed that decisions made by algorithms were based on less accurate information because they were reductionistic and lacked context. The authors argue that 'the very characteristics that could make algorithms an attractive solution for organisational justice problems—the removal of humans and their (often biased) contextualised decision-making—may be precisely what leads to perceive algorithms as unfair'. Algorithms were subjectively perceived to violate procedural justice because they do not consider performance holistically.

Table 5. Trades Union Congress Suggested Communications Policy

To satisfy data protection requirements, a company's policy for the use of electronic communications should as a minimum:

- set out clearly the circumstances in which workers may or may not use the employer's phone systems (including mobile phones), email system and internet access for private communications;

- make clear the extent and type of private use that is allowed (e.g. any restrictions on overseas phone calls or limits on the size or type of email attachments, etc.);

- specify clearly any restrictions on website material that can be viewed or copied. A simple ban on 'offensive material' is unlikely to be sufficiently clear for workers to know what is and is not allowed. Employers should at least give examples of the sort of material that is considered offensive (e.g. material containing racist terminology, images of nudity, etc.);

- advise workers what personal information they are allowed to include in particular types of communication, or the alternatives that should be used;

- lay down clear rules regarding personal use of communication equipment when used from home (e.g. facilities that enable staff to dial in to a company network from outside);

- explain the purposes of any monitoring, its extent, and the means used; and

- outline how the policy is enforced and the penalties for breaching it.

3.4.3   The social processes surrounding monitoring: Managerial Support

The management-worker relationship has been shown to both shape and be shaped by monitoring practices (Ball and Wilson, 2000). Thus, the majority of OP/OB and some of the OS/ER research contains some advice for supervisors and managers as to how they should manage with electronic monitoring. Nonetheless, concerns

[176] Chory, RM, Vela, LE and Avtgis, TA (2016) Organizational Surveillance of Computer Mediated Workplace Communication: Employee Privacy Concerns and Responses *Employee Rights and Responsibilities Journal* 28 pp. 23 – 43.

[177] Zoghbi-Manrique-de-lara, P (2011) Predicting nonlinear effects of monitoring and punishment on employee deviance: The role of procedural justice *European Management Journal* 29 pp. 272 – 282.

[178] https://worksmart.org.uk/work-rights/discipline-and-policies/monitoring-work/what-should-be-good-electronic-communications accessed 17th May 2021.

[179] Newman, DT, Fast, NJ and Harmon, DJ (2020) When eliminating bias isn't fair: Algorithmic reductionism and procedural justice in Human Resource decisions *Organizational Behaviour and Human Decision Processes* 160 pp. 149 – 147.

also arise for the managers and supervisors who deal with the data and feed back to workers on their performance. This is particularly in view of the fact that algorithmic management may be about to do away with, or 'disintermediate', managers (Kellogg et al 2020, Wesche and Sonderegger, 2019[180]), replacing them with consumers and algorithms (Stark and Levy 2018[181]). This section examines the small amount of literature which is directed at managers and supervisors. It finds that:

- Observational (i.e. monitoring-based) and interpersonal management styles should be balanced. Observational management styles should be used when reminding employees of performance objectives but in other settings may lower performance, innovation and trust in leaders.
- Monitoring information may be used in transformational leadership to appeal to a number of desired behaviours alongside required performance, depending on what is culturally acceptable in the organisation.
- Employee performance information renders the individual manager's performance visible to upper management acting like a 'shop window'.

A balanced approach is suggested by Liao and Chun (2016[182]), who compared observational (via monitoring) and interactional (face-to-face) supervisor styles. They found that an observational style was demotivating and resulted in negative attitudes, lower performance and a felt pressure to conform. They also found that an observational style does not build trust in leaders and may result in less innovation. Nonetheless, it was suggested that there would be times when an observational style was appropriate, to remind employees of performance requirements, but it was not to be used exclusively (see also Lee, Yun, Lee and Lee 2018[183] and Son, Cho and Kang 2017[184]). Monitoring information has the potential to assist managers in communicating the required performance standards as well as desired commitment and citizenship behaviours and organisational values. Halo effects and transformational leadership practices around monitoring are documented particularly in outbound call centres and heavily motivational sales cultures (Bhave 2014[185]; Bramming and Johnsen 2011[186])

A new research line addresses what happens above the supervisor in the organisational hierarchy. Found in the management information systems literature, it sheds light upon how employee monitoring information makes supervisors' and managers' own performances visible. daCunha (2013[187]) provides fascinating and detailed insight into the impression management achieved by middle managers in respect of what performance data they enable leaders to see. Data and results may be massaged, stylised and employees co-opted to maintain the positive upward impression for their collective sake. Information systems may be turned into a 'shop window' to show success upward rather than being a transparent window to monitor and expose compliance issues downwards (see also Gerten, Beckmann and Bellmann, 2019[188]).

3.4.4   The social processes surrounding monitoring: Gender

Although the gendered experience of surveillance has been present in the literature from the outset (Ball and Wilson 2000[189]; Ball, Daniel and Stride 2012[190]), it has only recently been the sole topic of analysis. In addition to the work of van Oort (2019[191]), Wasserman and Frenkel (2020[192]) and Godden (2020[193]), covered earlier in

[180] Wesche,JS and Sonderegger A (2019) When Computers Take the Lead: The Automation of Leadership *Computers in Human Behaviour* 101 pp. 197 – 209.

[181] Stark, L and Levy, K (2018) The Surveillant Consumer *Media, Culture and Society* 40 (8) pp. 1202 – 1220.

[182] Liao, EY and Chun, H (2016) Supervisor monitoring and subordinate innovation *Journal of Organizational Behaviour* 37 pp. 168 – 192.

[183] Lee, J, Yun, S, Lee, S and Lee JH (2018) The Curvilinear Relationship between Self-efficacy and Creativity: The Moderating Role of Supervisor Close Monitoring *Journal of Business and Psychology* 34 pp. 377 – 388.

[184] Son, SY, Cho, DH and Kang, SW (2017) The Impact of Close Monitoring on Creativity and Knowledge Sharing: The Mediating Role of Leader-Member Exchange *Creativity and Innovation Management* 26 pp. 256 – 265.

[185] Bhave, DP (2014) The Invisible Eye? Electronic Performance Monitoring and Employee Job Performance *Personnel Psychology* 67 pp. 605 – 635.

[186] Bramming, P and Johnsen, R (2011) Love Will Tear Us Apart: Transformational Leadership and Love in a Call Centre *European Journal of International Management* 5(1) pp. 80 – 95.

[187] daCunha, JV (2013) A Dramaturgical Model of the Production of Performance Data *MIS Quarterly* 33 (3) pp. 723 – 748.

[188] Gerten, E, Beckmann, M and Bellmann, L (2019) Controlling Working Crowds: The Impact of Digitalisation on Worker Autonomy and Monitoring Across Hierarchical Levels *Jahrbucher Fur Nationalokonomie und Statistik* 239 (3) pp. 441 – 481.

[189] Ball, K and Wilson, D (2000) Power, control and computer based performance monitoring: Subjectivity, repertoires and resistance. *Organization Studies* 21 (3) pp. 539 – 565.

[190] Ball, K, Daniel, E and Stride C (2012) Dimensions of Employee Privacy: An Empirical Study *Information, Technology and People* 25 (4) pp. 376 – 394.

[191] Ibid note 20.

[192] Wasserman, V and Frenkel, M (2020) The politics of (in)visibility displays: Ultra-Orthodox women manoeuvring within and between visibility regimes *Human Relations* 73 (12) pp. 1609 – 1631.

[193] Godden, M (2020) Contesting Big Brother: Legal mobilisation against workplace surveillance in the Puretex Knitting Company Strike 1978 – 1979 *Labour/Le Travail* 86 pp. 71 – 98.

this chapter, this section reveals the final three pieces of research which illustrate how fine grained gendered social ordering process intersect with the distributive justice outcomes of monitoring. The first, by Duboc (2013[194]) presents an ethnography of how women shamed their male colleagues into strike action in the face of pervasive worker surveillance in an Egyptian clothing factory. Payne (2018[195]) presents a powerful participant ethnography of her experience working in an American electronics retailer. Sales workers were electronically monitored by the managers, peers and customers, which led to a gamified and competitive social ordering regime on the shop floor. The male co-workers used the results of monitoring to demonstrate their mastery, skills and knowledge with other male co-workers in a solely male status contest. The female co-workers' performances were not acknowledged in the shop floor culture, even though their monitored performance was on a par with their male counterparts, as well as their technical knowledge and sales skills. Patterson (2020[196]) notes that in her study of female, home-based TV distribution technical support workers, the technically inventive and skilled aspects of their roles was under-appreciated when compared to the empathic roles they were required to play when dealing with an irate customer.

3.4.5 Conclusion: The social processes surrounding monitoring

To conclude the discussion at the social level of analysis, the following table summarises our observations. We assess the extent to which these findings both confirm and augment the knowledge base about surveillance/monitoring in the workplace set out in chapter 1. Table *6* summarises the findings.

The vast majority of research reported in this section stemmed from the OS/ER disciplines. Some of the findings at the social process level of analysis are completely novel in relation to the existing body of literature. Two new conceptual observations which highlight a new visibility-based control paradigm and the importance of the public-private boundary are the first contributions to note. These will be further considered in chapters 4 and 5, as a way of drawing together and comparing findings in standard work, remote work and platform work contexts. Empirically speaking, research into new surveillance contexts illustrated the importance of sectoral differences as well as job characteristics in either intensifying or ameliorating monitoring outcomes. Other novel observations included the intersection of electronic surveillance/monitoring with gender; its mobilisation in leadership processes and as a feature of upward influencing in the organisation.

The research reported in this section augments existing research as follows. First, in relation to metacommunication and organisational values, new research has augmented the finding that purpose for which monitoring is deployed can communicate and establish organisational values, particularly in relation to trust and procedural justice. While there are discrete bodies of research which examine trust as an outcome of personality traits, monitoring configuration and the management-worker relationship, the work reported here adds another dimension. It is established that trust, privacy and fairness are closely inter-connected because the range of monitoring targets endanger the public-private boundary and may be perceived as excessive. Research on supervisory style augments existing research which emphasises the importance of supervisory consideration behaviours in shaping monitoring outcomes.

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[194] Duboc, M (2013) Where Are The Men? Here Are The Men And The Women! Surveillance, Gender and Strikes In Egyptian Textile Factories *Journal of Middle East Womens Studies* 9 (3) pp. 28 – 53.

[195] Payne, J (2018) Manufacturing Masculinity: Exploring Gender and Workplace Surveillance *Work and Occupations* 45 (3) pp. 346 - 383

[196] Patterson, E (2020) Maintaining Transmission: DirecTV's Work-at-home Technical Support, Virtual Surveillance, and the Gendered Domestication of Distributive Labor *Television & New Media https://journals.sagepub.com/doi/10.1177/1527476420928552.*

Table 6. Findings, the social process level of analysis

Code	Finding
Negotiated order: New concepts	• Visibility is an organisational control paradigm. • The public-private boundary is contested terrain.
Negotiated order: New contexts	• In municipal government, accountability to public officials and the public itself intensifies employee surveillance. • In the professions, higher autonomy enables employees to mitigate the negative effects of surveillance. • In lower paid retail and service work, employees are subject to very close surveillance and are positioned as potential criminals as well as workers. The high prevalence of marginalised groups in this kind of work raises concerns about surveillance as gendered, raced and classed. • In the global manufacturing supply chain, workers have successfully mobilised collectively to resist surveillance and to that end have utilised technology to their advantage.
Meta communication and organisational values	• Monitoring fairness, privacy and trust are closely inter-related • The configuration of monitoring acts as a proxy for managerial trust in employees • Close monitoring leaves employees feeling that they are not trusted and they are not in control of their work process • Monitoring which crosses the public private boundary will be perceived as excessive and lead workers to trust managers less. • Where employees perceive that the organisation's monitoring processes are fair and do not breach their privacy, organisational trust is improved. • Where employees are worried that monitoring may breach their privacy, a procedurally just policy allays their fears. • Algorithmic decision-making in personnel selection was perceived to violate procedural justice because they do not consider performance holistically.
Managerial support	• Observational (i.e. monitoring-based) and interpersonal management styles should be balanced. Observational management styles should be used when reminding employees of performance objectives but in other settings may lower performance, innovation and trust in leaders. • Monitoring information may be used in transformational leadership to appeal to a number of desired behaviours alongside required performance, depending on what is culturally acceptable in the organisation. • Employee performance information renders the individual manager's performance visible to upper management acting like a 'shop window'.
Gender	• Surveillance practices intersect with gendered social ordering within the workplace to marginalise females and essentialise their work so that the technical aspects of their performance are overlooked. In one example female workers shamed their male counterparts into taking industrial action over surveillance

3.5 Chapter conclusion

The literature in this chapter has been presented using a coding framework developed from combining OP/OB and OS/ER literature on surveillance/monitoring (Ball and Margulis, 2011)[197]. The framework is built on the idea that whilst a monitored employee is necessarily dealing with the task, technological and psychological aspects of being monitored as an individual, they are also embedded within a team, a supervisory relationship and an

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[197] Ball, K and Margulis, T (2011) Monitoring and Surveillance in Call Centres: A Review and Synthesis *New Technology, Work and Employment* 26 (2) 113 – 126.

organisational and employment relations social system, which will also shape their experience (Sewell 1998[198]). The framework argues that this literature has common phenomena and concerns about surveillance/monitoring and its impacts on workers. The literature as reviewed demonstrated that these common concerns are:

- The subjective registers at which individuals encounter surveillance/monitoring: Their personality traits; their a priori attitudes; their emotional reactions and their personal and social identities help to shape their responses

- The extent to which individuals comply with or resist surveillance/monitoring: This can be expressed as a scale which starts with the minutiae of counterproductive behaviours during the task (such as sabotage or workarounds), to the behaviours which illustrate diminished commitment towards colleagues, supervisors and the organisation, through to collective behaviours which challenge or denounce surveillance/monitoring and finally quitting altogether.

- The impact that surveillance/monitoring has on the quality of workplace relationships: Managing and supervising through monitoring is something which needs to be done with judgement, care and skill for three reasons. First, so that not only downward but upward organisational visibility is managed. Second, so that equality of all kinds is respected and finally that jobs are designed to ensure that the degree of surveillance/monitoring is more tolerable.

- Extensions in monitoring practice signal that a wider range of values need to be addressed: including distributive and interactional justice and transparency – beyond the existing concerns of trust, procedural justice and privacy. All agree that the perception of monitoring as excessive is damaging on these fronts. Involvement with monitoring design, the ability to control it and the ascription of wider employee voice in monitoring process and policy are seen as a positive steps across the literature.

- The public – private boundary: Current monitoring practices which focus on the body and behaviours, and those without a clearly defined purpose, are more likely to be considered intrusive and excessive, as are those which extend into an employee's non-work time. There are also unionisation opportunities outside the labour process.

The extent to which these are replicated in remote work and platform work is now discussed in chapters 4 and 5 respectively. Chapter 6 summarises the implications for policy and highlights a future research agenda.

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[198] Sewell, G. (1998). The discipline of teams: The control of team-based industrial work through electronic and peer surveillance. *Administrative Science Quarterly, 43*(2) pp. 397–428. https://doi.org/10.2307/2393857.

4 Surveillance, remote work and the pandemic

4.1 Introduction

This chapter examines the first new workplace surveillance context –remote work since the COVID-19 pandemic. After first defining remote work and setting out its origins, the chapter then outlines how surveillance/monitoring fits in with remote work. Then, it reviews research which has examined surveillance/monitoring and remote work prior to the pandemic before considering the likely current impacts. The chapter argues that psycho-social risk factors associated with remote worker monitoring stem first from its intrusion into the domestic space, as well as to whether it collects information about wider facets of the employee beyond their task performance. Supervisor support and a job design which features autonomy can ameliorate psycho-social risks. If perceived as excessive, monitoring remote workers may exacerbate the existing psycho-social risks associated with working from home: work overload, pressures to be 'always on' and social isolation from one's colleagues and employer. Cognitive aspects such as loss of concentration, exhaustion, problems switching off, lack of progress due to constant interruptions from ICTs are also stress factors. Musculoskeletal and somatic complaints still need to be investigated.

Controversial cases of remote worker surveillance/monitoring have been reported in the media during the pandemic, yet there is little published research on the surveillance/monitoring of remote workers in these times. At the end of this chapter we will use the research reviewed in the first three chapters to evaluate these developments. Existing research hails from both OP/OB and OS/ER disciplines.

4.2 What is remote work?

Prior to 2020, most workers had little remote working experience, nor were they or their organisations prepared for supporting it. Now, millions of people across the world are working remotely as a matter of necessity and it is a key source of resilience for many organisations. Remote work has been defined as "a flexible work arrangement whereby workers work in locations, remote from their central offices or production facilities" where "the worker has no personal contact with co-workers there, but is able to communicate with them using technology" (Di Martino and Wirth, 1990, p. 530[1]). It is very similar to, but not exactly the same as, telework. In remote work, it is assumed that the worker is able to work from anywhere as long as they have a stable internet connection. They may never personally meet their supervisor or visit their employer's offices but may talk to them online. In telework, it is assumed that the worker will spend some time in a company office which is reasonably close to where they are located as well as work from home. Thus, during the pandemic, the situation was one of enforced remote working rather than telework. Until 2020 remote working or teleworking was an employee benefit for the relatively affluent (Desilver, 2020[2]). Over 40% of teleworkers were executives, managers, or professionals (Wang, Liu, Qian and Parker 2020[3]). During the pandemic, however, the EC-Joint Research Council established that between 35 – 41% of EU-27 employees were in occupations that could technically be carried out from home. It also found that many clerical and administrative jobs which had little access to telework before the pandemic could be fully performed remotely[4]. Jobs in larger firms, those typically held by women and most low- and middle-skilled occupations are not teleworkable, making these workers more vulnerable to the current crisis[5]. A teleworkability divide could therefore exacerbate existing labour market inequalities.

COVID-19 has thus produced a quasi-experimental setting for companies to test whether more flexible forms of working are viable for as many of their employees as possible. Businesses were already growing more amenable to the idea of remote working: various industry surveys conducted during the pandemic's early stages reported that 40% would use remote working in the future and 37% of companies expected that at least a quarter of their employees will be able to work in a hybrid model. These surveys also reported that nearly half of employees (48%) prefer remote work as compared to 30% before COVID-19. Of those who do work from home, 80% would continue to do so. 41% consider their productivity to have increased while 28% consider their productivity to have been unaffected. During COVID-19 remote working productivity appeared to have

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[1] Di Martino, V. and Wirth, L. (1990) Telework: A new way of working and living. *International Labour Review* 129 (5) pp. 529–554.

[2] Desilver, D. (2020). Working from home was a luxury for the relatively affluent before coronavirus—Not any more. *World Economic Forum*. Retrieved from https://www.wefor um.org/agend a/2020/03/worki ng-from-home-coronavirus-workers-future-of-work/

[3] Wang, B; Liu, YK; Qian, J; Parker, SK (2020) Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective *Applied Psychology-An International Review-Psychologie Appliquee-Revue Internationale* doi: 10.1111/apps.12290.

[4] https://ec.europa.eu/jrc/sites/default/files/policy_brief_-_who_can_telework_today_-_the_teleworkability_of_occupations_in_the_eu_final.pdf

[5] https://www.econstor.eu/handle/10419/231337

increased by up to 20%, absenteeism was reduced to 40%, employee turnover reduced by 10% to 15% (Ancillo, Nunez and Gavrilla 2020[6]).

4.3   Remote working and monitoring pre-pandemic

In pre-pandemic times, the success of remote working and teleworking lay in its ability to create work flexibility, although it was not widely used (Kossek and Lautsch, 2018[7]). In the EU-27 as of 2019, only 5.4% of employees worked remotely (i.e. all the time) – a figure that has been stable for ten years. However, over the same period, the number of people teleworking (i.e. working from home some of the time) increased from 5.2% in 2009 to 9% in 2019[8]. The benefits for employees who choose to work remotely such as increased autonomy and temporal and spatial flexibility were well understood (Bernstein, 2014[9]). Prior to COVID, work-from-anywhere experiments also reported increases in productivity (Choudhury, Foroughi and Larson 2019[10]). Nonetheless the negative aspects and risks were also documented, including work overload (Windeler, Chudoba and Sundup 2017[11], Bathini and Kandathil 2019[12]) and pressures to be 'always on' (Felstead and Henseke 2017[13]), due to the constant presence of technology. Feelings of isolation were also a problem (Scott 2020[14]; Wang, Albert and Sun 2020[15]), as was maintaining a sense of connection and conflict-free relationships with one's colleagues and employer (Fried & Heinemeier Hansson, 2013[16]). Survey work focusing on organisational policies found that over half of the organisations surveyed did not have clear guidance or training in place regarding work-life balance or support for remote workers (McDowall and Kinman 2017[17]).

The type of monitoring applied to remote and teleworkers in pre-pandemic times had a number of distinctive features. The same monitoring techniques and performance measures tended to be used for teleworkers and for workers in the office, but with different emphases. These differences emerged because whilst teleworking was supposed to provide flexibility to employees, organisations needed to maintain overall performance. As such, differences were noted in how monitoring information was used. Teleworkers experienced a greater emphasis on output measures compared to co-present workers in the office. The latter experienced a similar emphasis on output and behavioural measures (Richardson and McKenna 2014[18]). Behavioural measures consist of prescriptions at the task level and frequent monitoring of whether employees follow these prescriptions, whereas output controls measure whether targets are achieved. Output controls also require accurate performance measures, while behaviour controls require an understanding of the desired behaviour and a means to observe it. An example of an output measure for a sales role might be 'answer customer enquiries within four hours', whereas a behavioural measure for the same role might be 'being proactive towards the customer'. Each measure would require a different type of monitoring: counting the time to answer emails for the former; sentiment analysis or call monitoring (depending on how the customer was contacted) for the latter. As such, remote or tele-workers felt a greater pressure to meet performance objectives than co-present workers, and to be seen to be doing so.

The pre-pandemic remote working literature thus acknowledges that monitoring task outputs, rather than the entire work process, is both feasible and advisable, although it carries with it a risk of work intensification

[6] Ancillo, AD, Nunez, MTD and Gavrila, SG (2020) Workplace Change within the COVID-19 Context: A Grounded Theory Approach *Economic Research – Ekonomska Istrazivanja* 10.1080/1331677X.2020.1862689

[7] Kossek, E.E. and Lautsch, B.A. (2018). Work–life flexibility for whom? Occupational status and work–life inequality in upper, middle, and lower level jobs. *Academy of Management Annals* 12(1) pp. 5–36.

[8] https://ec.europa.eu/jrc/sites/default/files/jrc120945_policy_brief_-_covid_and_telework_final.pdf

[9] Bernstein, S. D. (2014). *Why Work Sucks and How to Fix It*. Career Planning and Adult Development Network.

[10] Choudhury, P, Foroughi, C and Larson B (2019) Work-from-anywhere: The Productivity Effects of Geographic Flexibility *Strategic Management Journal* 10.1002/smj.3251

[11] Windeler, JB; Chudoba, KM and Sundrup, RZ (2017) Getting away from them all: Managing exhaustion from social interaction with telework *Journal of Organizational Behavior* 38 (7) pp. 977 - 995

[12] Bathini, DR and Kandathil, GM (2019) An Orchestrated Negotiated Exchange: Trading Home-Based Telework for Intensified Work *Journal of Business Ethics* 154 (2) pp. 411 – 423

[13] Felstead, A and Henseke, G (2017) Assessing the growth of remote working and its consequences for effort, well-being and work-life balance *New Technology Work and Employment* 32 (3) pp. 195 - 212

[14] Scott, ME (2020) Identifying Barriers to Organizational Identification among Low-Status, Remote Healthcare Workers *Communication Studies* 71 (4) pp. 685 - 698

[15] Wang, W; Albert, L and Sun, Q (2020) Employee isolation and telecommuter organizational commitment *Employee Relations* 42 (3) pp. 609 - 625

[16] Fried, J., and Heinemeier Hansson, D. (2013). *Remote: Office Not Required*. Vermilion.

[17] McDowall, A and Kinman, G (2017) The new nowhere land? A research and practice agenda for the always on culture *Journal of Organizational Effectiveness-People and Performance* 4 (3) pp. 256 - 266

[18] Richardson, J., & McKenna, S. (2014). Reordering spatial and social relations: A case study of professional and managerial teleworkers. *British Journal of Management*, 25, 724 - 736.

because of the emphasis on outputs (Groen, Van Triest, Coers and Wtenweerde, 2018[19]; Sewell and Taskin 2015[20]; Felstead, Jewson and Walters, 2003[21]). Output controls are seen as preferable for tele and remote workers by managers because they allow a degree of autonomy in how the remote worker completes the task whilst still allowing for a degree of control. Clear outcome measures can reassure managers who are concerned about remote worker performance (Allen, Golden and Shockley, 2015[22]). Eligibility for teleworking may partly be determined by job characteristics especially whether an employee's output can be measured in a representative way and there is sufficient autonomy in the way that they complete their tasks (Sewell and Taskin, 2015[23]).

Social support has been found to be crucial for remote and tele workers and can ameliorate some of the negative effects of monitoring (Groen, Van Triest, Coers and Wtenweerde, 2018[24]). A study of remote workers in Kenya demonstrated that the emphasis on output controls coupled with qualitative feedback via a phone call positively impacted performance (Jensen, Lyons, Chebelyon, LeBras and Gomes 2020[25]). These remote workers were shepherds recruited into land survey project in rural areas of northern Kenya. Supervisory style is an important component too. Supervisors who are more directive are less likely to be comfortable with the prospect of remote work than those who are happy to allow employees more autonomy and like to establish a strong team identity (Ruiller, Van Der Heijden, Chedotel and Dumas, 2019[26]; Lembrechts, Zanoni and Verbruggen 2018[27]). The latter are more likely to be able to balance and ameliorate some of the more exacting aspects of performance monitoring (Nakrosiene, Buciuniene and Gostautaite 2019[28]). Significant differences were found between those supervisors who teleworked themselves, and so understood the challenges, compared to those who did not (Park and Cho 2020[29] Kaplan, Engelsted, Lei and Lockwood 2018[30]). The obverse situation arises from the workers' point of view: remote workers labour to ensure that their supervisors are aware of their efforts and that they are not overlooked for new opportunities (Sewell and Taskin 2015[31]).

Wider reading in the remote and tele working literature also tells us that alongside performance management, personality traits, working preferences, family situation and concern for career advancement also determine remote working outcomes (Charalampous, Grant, Tramontano and Michailidis, 2019[32]). This body of wider reading has recently concluded that it is much better to separate work from family life, both temporally, physically, psychologically and behaviourally, rather than to attempt to integrate them closely[33]. The impacts are gendered: a strong presence of work within the home creates conflicts between men and their families, where an inability to disengage from work creates conflicts between females and their families (Eddleston, KA; Mulki, J 2017[34], Kazekami, 2020[35]). The presence of children plays a vital role: They not only increase conflict between family and work, they also trigger housework re-division within couples and aggravate gender

[19] Groen, BAC; van Triest, SP; Coers, M; Wtenweerde, N (2018) Managing flexible work arrangements: Teleworking and output controls European Management Journal 36(6) pp. 727-735

[20] Sewell, G and Taskin, L (2015) Out of Sight, Out of Mind in a New World of Work? Autonomy, Control, and Spatiotemporal Scaling in Telework Organization Studies 36 (11) pp. 1507-1529

[21] Felstead, A., Jewson, N., & Walters, S. (2003). Managerial control of employees working at home. British Journal of Industrial Relations, 41, 241e264.

[22] Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. Psychological Science in the Public Interest, 16 pp. 40 - 68

[23] ibid note 20

[24] ibid note 15

[25] Jensen, N; Lyons, E; Chebelyon, E; Le Bras, R and Gomes, C (2020) Conspicuous monitoring and remote work Journal of Economic Behavior & Organization 176 pp. 489- 511 10.1016/j.jebo.2020.05.010

[26] Ruiller, C; Van Der Heijden, B; Chedotel, F and Dumas, M (2019) You have got a friend The value of perceived proximity for teleworking success in dispersed teams Team Performance Management 25 (1-2) pp. 2 - 29

[27] Lembrechts, L; Zanoni, P and Verbruggen, M (2018) The impact of team characteristics on the supervisor's attitude towards telework: a mixed-method study International Journal of Human Resource Management 29 (21) pp. 3118 - 3146

[28] Nakrosiene, A; Buciuniene, I and Gostautaite, B (2019) Working from home: characteristics and outcomes of telework International Journal of Manpower 40 (1) pp. 87 – 101

[29] Park, S and Cho, YJ (2020) Does telework status affect the behavior and perception of supervisors? Examining task behavior and perception in the telework context International Journal of Human Resource Management https://doi.org/10.1080/09585192.2020.1777183

[30] Kaplan, S; Engelsted, L; Lei, X and Lockwood, K (2018) Unpackaging Manager Mistrust in Allowing Telework: Comparing and Integrating Theoretical Perspectives Journal of Business and Psychology 33 (3) pp. 365 - 382

[31] ibid. note 17

[32] Charalampous, M; Grant, CA; Tramontano, C and Michailidis, E (2019) Systematically reviewing remote e-workers' well-being at work: a multidimensional approach European Journal of Work and Organizational Psychology 28 (1) pp. 51- 73

[33] ibid. note 35

[34] Eddleston, KA and Mulki, J (2017) Toward Understanding Remote Workers' Management of Work-Family Boundaries: The Complexity of Workplace Embeddedness Group & Organization Management 42 (3) pp. 346- 387

[35] Kazekami, S (2020) Mechanisms to improve labor productivity by performing telework Telecommunications Policy 44 (2) 10.1016/j.telpol.2019.101868

role differences (Zhang, Moeckel, Moreno, Shuai and Gao, 2020[36]; Adisa, Gbadamosi and Osabutey, 2017[37]). The difficulty in 2020 was that the home became not only a work space, an educational space, a kindergarten, a religious space, a space for sports and recreation and every other kind of space in which we live our lives as the world closed in. Wider reading thus indicates how difficult this will have been for some employees, especially if they had no choice but to work remotely and, importantly, highlights how much more intrusive employee monitoring might have been as home spaces were used for multiple activities. How may these findings be considered in the light of enforced remote working during the pandemic?

4.4 Surveillance, monitoring and remote work in 2020

If these findings were established in relation to a select few professional employees pre-pandemic, the impact of enforced and monitored remote working on the majority of the workforce is yet to play out, but could be considerable. From a managerial point of view, remote work has traditionally raised concerns about the loss of managerial oversight (Sewell and Taskin, 2015[38]), which may lead to potential worker misbehaviour or slacking. In March 2020 managers needed to ensure that service levels and performance were maintained with the majority of their employees working from home. Worker surveillance/monitoring was a cheap and obvious solution[39].

Research on the control of remote or tele-working in pre-pandemic times illustrates why enforced remote work which is surveilled could result in detrimental outcomes for employees. Whether an employee experiences remote work as positive despite surveillance being present depends on a number of factors. Specifically:

- Whether task outputs rather than process are monitored. The former is preferable for remote workers as it provides them with autonomy as to how work is completed and is less likely to be perceived as excessive.
- Whether this is feasible depends on:
  - whether the remote worker's job characteristics feature enough autonomy
  - whether the remote worker's job has measurable outputs
  - whether the supervisor has the knowledge, skills, experience and an appropriate style to select employees for remote work and then support them socially

When remote working is mandatory, the danger is that the existing job characteristics, management structure and style and supervisory skills may not necessarily be appropriate to support it, raising the likelihood of negative consequences. The technologies used also make a difference in terms of the aspects of employee activities that are targeted. In contrast to the type of monitoring used in pre-pandemic teleworking, the transition to remote work during the pandemic has anecdotally increased the use of employee surveillance measures to keep track of workers' behaviour as well as their outputs (Maalsen and Dowling, 2020[40]). Thus, there is the possibility that the monitoring techniques used are now inherently more intrusive, may erode autonomy, and employees may not be sufficiently supported by skilled supervisors and managers in its midst.

It is, however, unclear as to whether there are any common trends in the type of monitoring deployed during the pandemic. Anecdotal evidence referred to in the first chapter of this report observed that global demand for employee monitoring software had increased by 108% in April and 70% in May 2020 compared 2019. Search engine queries for "How to monitor employees working from home" increased by 1,705% in April and 652% in May 2020 compared with searches carried out the preceding year. Employee surveillance software providers also reported huge increases in sales enquiries. Time Doctor, for example, reported increases of 202% in April 2020 compared to the previous year; Teramind had increased by 169%, Desk Time by 333% and KickIdler by 139%[41]. These companies offer monitoring applications which enable employers to broadcast and record employee desktop activity online in real time, take screenshots of employees' desktops remotely, track the time employees spend working, nudging them if they are not, detect whether they are engaging in negligent or illegal activities and generate both individual and departmental performance metrics, and behaviour analytics among other things. Some integrate with payroll, project management and other systems. Whilst it is

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[36] Zhang, SH; Moeckel, R; Moreno, AT; Shuai, B; and Gao, J (2020) A work-life conflict perspective on telework *Transportation Research Part A-Policy and Practice* 141 pp. 51 – 68

[37] Adisa, TA; Gbadamosi, G and Osabutey, ELC (2017) What happened to the border? The role of mobile information technology devices on employees' work-life balance *Personnel Review* 46 (8) pp. 1651 – 1671

[38] ibid note 17

[39] For some examples of solutions see; https://turtler.io/news/16-worst-and-most-extreme-ways-employers-are-spying-on-their-people accessed 18th May 2021

[40] Maalsen S and Dowling R (2020) Covid-19 and the accelerating smart home. *Big Data & Society* 7(2) pp. 1–5.

[41] https://www.zdnet.com/article/employee-surveillance-software-demand-increased-as-workers-transitioned-to-home-working/ (accessed 5th May 2021)

unclear how many companies are using these types of software, based on the preceding analysis, it has the potential to make employees' activities highly visible as they work remotely. It remains a question as to whether workers subject to this monitoring software had experienced similar monitoring in the co-present workplace. Either way, without adequate managerial and social support, the psycho-social risks are likely to intensify.

The one study that has specifically reported on pandemic remote worker monitoring observed that the most frequently used techniques were daily reports on performance, clocking in and out via different applications and being required to have a camera on whilst working (Wang, Liu, Kian and Parker 2020[42]). This study was of Chinese remote workers. In the UK, the Trades Union Congress reported that one in seven remote workers believed there had been an increase in the use of remote monitoring during the pandemic, which used keystrokes and health monitoring technologies (although the latter would vary by sector). The same employee survey reported an across the board increase in the use of AI for people management, but the data did not indicate whether this was a trend which began pre – pandemic or not. By contrast a recent survey conducted by the LSE's Centre for Economic Performance found that more than 60 per cent of firms have adopted new technologies or management practices since the start of the pandemic and more than 90 per cent said they expected to keep the changes in place. Here, however, it was unclear how much of this tech was dedicated to employee monitoring.

The European TUC has also received direct reports from representatives across EU-27 about the increase in employee monitoring since the pandemic[43], as follows:

- In **Belgium,** some companies were reported to use software such as Veeva and Qliksense to measure the time spent at a computer. One of these companies monitored worker's use of their pointing devices. Tests of wearable wristbands to maintain physical distancing have been reported, as have thermal imaging technology and monitoring via webcam.

- In **Germany,** the works council of a logistics employer took legal action against it for failing to consult on the introduction of CCTV to ensure physical distancing was maintained

- In **Italy,** an agreement was signed between the Government and Trade Unions to regulate the installation and use of temperature checking equipment, which constitutes personal data under the GDPR

- In **Spain,** companies in the automotive, chemical and energy sectors attempted to monitor the body temperatures of their employees without reference to existing privacy legislation. Others expected employees to report on where they had travelled to whilst not at work

- In both **Norway** and the **UK** surveys have highlighted growing worker concern with digital surveillance, the boundaries of their private lives and continual breaches of technology use agreements by employers.

Further afield in the USA, Amazon workers partnered with advocacy group 'United for Respect', which released a new app so that workers could keep track of Covid cases in their workplaces, as the employer refused to share this data with workers.

Many of the remote working psycho-social risk factors that we know about already – isolation, lack of support, workload and a pressure to be always on – are also likely to be exacerbated by surveillance if it is imposed on employees without their agreement, and if it is more intrusive than the surveillance they experienced in the co-present workplace (Sewell and Barker 2006[44]; Malti 2020[45], Hafermalz and Reimer 2020[46]). Early in the pandemic it was already documented that workers found the prospect of mandatory remote work stressful

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[42] Wang, B; Liu, YK; Qian, J; Parker, SK (2020) Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective *Applied Psychology-An International Review-Psychologie Appliquee-Revue Internationale* doi: 10.1111/apps.12290

[43] https://www.etuc.org/sites/default/files/publication/file/2020-10/20200930_covid-19%20Briefing%20on%20survelliance%20technologies%20%28002%29.pdf

[44] Sewell, G and Barker J (2006) Coercion versus Care: Using irony to make sense of organizational surveillance *Academy of Management Review* 31 (4) pp. 934-961

[45] Malti, W (2020) The Changing Work Landscape as a Result of the COVID-19 Pandemic: Insights from Remote Workers Life Situations in South Africa *International Journal of Sociology and Social Policy* 40 (9-10) pp. 1237 - 1256

[46] Hafermalz, E and Riemer, K (2020) Productive and Connected while Working from Home: What Client-facing Remote Workers can Learn from Telenurses about 'Belonging Through Technology' *European Journal of Information Systems* DOI: 10.1080/0960085X.2020.1841572

(Gomez, Mendoza, Ramirez and Olivas-Lujan 2020[47]). In the one study of remote work in the pandemic, monitoring was found to be linked to perceptions of work-home interference (Wang at el 2020[48]) and positively associated with work-family conflict. Although recent research has emphasised remote workers' own desire to maintain visibility so they do not feel ignored or left out of their workplaces (Hafermalz, 2020[49]), there are unresolved privacy concerns when workers have to submit to remote digital surveillance. There is thus a danger of undesirable consequences for commitment, counterproductive work behaviours, well-being, privacy, trust and organisational justice if extra surveillance has been imposed on remote workers as a consequence of pandemic-induced remote working.

4.5   Conclusion

To conclude, Table 7 summarises the observations made in this chapter and the extent to which these findings both confirm and augment the knowledge base on surveillance/monitoring is assessed. Relatively little is known about how surveillance/monitoring plays out in the context of remote work and telework. Only one specific study has been published on remote worker monitoring during the pandemic and there is not enough research overall to use the dimensions in chapter 3. Instead findings are compared pre- and post-pandemic.

The research reported above, although relatively sparse, both augments and confirms existing surveillance/monitoring research. Overall it is suggested that the psycho-social risk factors associated with remote worker monitoring stem first from its intrusion into the domestic space, as well as to whether it collects information about wider facets of the employee beyond their task performance. It extends the research base by providing a much finer level of detail on the supervisory support required to manage with monitoring, because it is such an important element of successful remote working. Qualitative feedback, an open supervisory style, appropriate skills and experience in managing remote workers are identified as important. It suggests that significant supervisory effort as well as supporting policy is required at the present time. The research also confirms existing observations that monitoring is less intrusive when targeted at task performance alone, and when it has a limited purpose. It also confirms the importance of autonomy as a job characteristic which lessens the impact of monitoring. Individual differences and situations also determine responses. Conceptually, the importance of remote worker visibility and of the public private boundary as a contested terrain explain why conflicts may occur.

For the future, further application of OP/OB perspectives would gain insight into the extent to which remote workers experience the same monitoring outcomes as standard workers according to their personality traits and attitudinal differences. Personal boundary management and identity work is also of great interest. Research into the values which circulate among remote employees is needed, particularly how the different forms of organisational justice – procedural, distributive, interactional and informational - can be ensured and supported in this setting. A trusting supervisor relationship is certainly a precursor to a more successful deployment of remote workers, but how will this be affected by monitoring practices? There is also very little research which examines forms of resistance in monitored remote work.

A final, very important question, which is not mentioned anywhere in the literature, will be what happens when all return to the co-present workplace. As the author put it last year:

> *Lockdown is a stressful time. Home-working staff are juggling multiple unseen domestic pressures with their employment, so bosses who intensify surveillance are playing a dangerous game. In the short term, they risk damaging employees' psychological and physical well-being, and invading their privacy. But in the long term, they risk losing the cooperation and trust that will hold their workplace together during post-lockdown recovery (European CEO 2020[50]).*

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[47] Gomez, O, Mendoza, S, Ramirez, J and Olivas-Lujan, M (2020). Stress and myths related to the COVID-19 pandemic's effects on remote work *Management Research* 18(4) pp. 401-420

[48] Wang, B; Liu, YK; Qian, J; Parker, SK (2020) Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective *Applied Psychology-An International Review-Psychologie Appliquee-Revue Internationale* doi: 10.1111/apps.12290

[49] Hafermalz, E (2020) Out of the panopticon and into exile: Visibility and control in distributed new culture organizations *Organization Studies* DOI: 10.1177/0170840620909962

[50] https://www.europeanceo.com/home/featured/covid-19-raises-questions-about-employee-surveillance-technology/ accessed 18th May 2021.

Table 7. Findings, surveillance, monitoring and remote work

Code	Finding
Pre-pandemic remote worker monitoring	• Monitoring outputs rather than process is preferable for remote workers as it provides them with autonomy as to how work is completed Whether this is feasible depends on: • Whether the remote worker's job characteristics feature enough autonomy • Whether the remote worker's job has measurable outputs • Whether the supervisor has the knowledge, skills, experience and an appropriate style to select employees for remote work and support them socially • Remote workers may work conspicuously and excessively so they are not forgotten by their supervisors and do not miss out on opportunities. Performance output monitoring is one way in which they may achieve visibility • Individual difference, working preference and family status may also influence how workplace surveillance is perceived in the home • It is better to separate work from family life in the home and maintain a strong public/private boundary which is less likely to be violated by work monitoring.
Pandemic remote worker monitoring	• Monitoring is linked to perceptions of work-home interference and positively related to work family conflict • A variety of surveillance techniques have been used across the UK and Europe to manage remote working. Robust evidence about patterns in use and their effects are not forthcoming so far and so what we currently know is anecdotal.

5 Surveillance, monitoring and platform work

5.1 Introduction

This chapter examines the second new workplace surveillance context – platform work. It is split into four sections. After first describing platform working and the platform economy, it then outlines how surveillance and monitoring are inherent features of platform work. Then, it reviews published research which sets out how individual platform workers experience platform working, including being subject to surveillance, and then how the surveillant elements are negotiated and resisted at the social process level of analysis.

As the majority of platforms work remotely at home or on their own, its psycho-social risk factors will mirror those of remote work, particularly as platform workers are socially isolated and do not have a human supervisor to support them. Due to the pervasive surveillance involved, the psycho-social risks associated with excessive surveillance may also be present, particularly if platform work is a person's only way to earn an income. Reduced feelings of task satisfaction, procedural, distributive, interactional and informational justice, trust, reduced performance, and increased perceptions of monitoring as purposeless, authoritarian and intrusive may occur. Information asymmetries may also raise transparency concerns. Numerous coping mechanisms have been observed. Where platform workers have autonomy over whether they take a job or not, these risks are likely to be less pronounced. Published research concerning platform work has almost entirely emanated from the OS/ER disciplines as well as media studies and sociology. Very few, if any, OP/OB studies of platform workers have been found.

5.2 What is platform work?

Platform work is short term subcontracted work which is engaged, executed and rewarded on a digital labour platform. It is difficult to agree a standard definition, but Eurofound have set out its key characteristics which are that:

- Paid work is organised through an online platform.
- Three parties are involved: the online platform, the client and the worker.
- The aim is to carry out specific tasks or solve specific problems.
- The work is outsourced or contracted out.
- Jobs are broken down into tasks.
- Services are provided on demand.

Its dimensions have been mapped, shown in Figure 2 (Celikel Esser et al 2016[1]). Platform work varies in terms of whether the work is performed online and at a computer in an online labour market – or whether it is performed by an embodied person delivering physical services on location.

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[1] Celikel Esser F; Abadie F; Biagi F; Bock A; Bontoux L; Figueiredo Do Nascimento S; Martens B and Szczepanikova A.(2016) *The European Collaborative Economy: A research agenda for policy support* EUR 28190 EN; 10.2760/755793

Figure 2. Mapping platform work (Celikel Esser et al, 2016)

As such the horizontal axis of Figure 2 splits the top and bottom quadrants into the two types of labour market exploited by platforms: Online and On location (Mobile Labour Markets). The top left and right hand quadrants, describe online labour markets and the bottom left and right hand quadrants describe on location labour markets. Online labour markets also tend to feature peer to business contracting, whereas on location labour markets tend to feature peer to peer contracting. Within these two different labour markets, the vertical axis further segments platform work by skill level. Lower skilled work such as microtasking - routine cognitive work on a computer – and lower skilled manual work is distinguished from higher skilled work such as the delivery of entire technical projects and interactive services such as teaching or coaching. The figure illustrates this difference by referring to some of the better known platforms but it should be noted that there are many more digital labour platforms than noted in the diagram.

Platform work is distinguished from standard employment in that work is engaged on a freelance per-task, job or project basis. Platform workers create an account and profile on the platform and then pitch for work advertised by work requesters – the customer – on the platform. The platform allocates work by aggregating information on how well workers perform their allocated tasks and how highly the customer rates their performance. The platform can also reject work and not pay for it if it is deemed unsatisfactory. The platform algorithms utilise this information to calculate what opportunities to show each worker and they can also manipulate remuneration levels, including between different geographical territories in the Global North and South (Rani and Fuller 2020[2]). Platform workers in developing countries also have to adapt to the temporal distribution of jobs (O'Neill, 2018[3]) and so they are limited in their flexibility.

If a worker has too many rejections and is not awarded many jobs their account can be automatically deactivated. Would-be platform workers also face the challenge of building up a reputation so that they are allocated paid work. There is therefore an opportunity cost of investing time in one platform in order to create that reputation. Many spend the first two or three months of their time on a platform doing unpaid work until that reputation is built up and they look for tasks on a continuous basis (Berg et al., 2018, Hanrahan et al., 2019). Once established, workers then need to keep a close eye on the opportunities available. A survey of 100 Amazon Mechanical Turk workers found that 36% of them did not take breaks because it would decrease their earnings or because they would have problems transitioning between tasks (Lasecki et al. 2015[4]). Platforms actively discourage workers from building up customer relationships outside the platform

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[2] Rani, U and Fuller, M (2020) Digital labour platforms and new forms of flexible work in developing countries: Algorithmic management of work and workers *Competition & Change* 10.1177/1024529420905187

[3] O'Neill J (2018) From crowdwork to Ola auto: Can platform economies improve livelihoods in emerging markets? In: Galperin H and Alarcon A (eds) *The Future of Work in the Global South.* Ottawa: International Development Research Centre, pp.28–31.

[4] Lasecki WS, Rzeszotarski JM, Marcus A, et al. (2015) The effects of sequence and delay on crowd work. In: *Proceedings of the CHI conference,* CHI '15, Seoul, pp.1376–1378.

and monitor communication on their accounts and other fora to that end (Rosenblat 2018[5]; Gray and Suri 2019[6]).

Platform work is sold on being flexible and accessible, enabling workers the autonomy to fit work in around their lives. This is indeed the case for some platform workers. Those who prefer to work part time or as hobbyists report that they enjoy the opportunities provided by platforms. Platform work is also known to suffer from the 'superstar effect' and the fabled 80/20 rule. 80% of the work is allocated to the top 20% of performers leaving a long tail of precarious, stressed and vulnerable individuals who have to rely on platforms for income. The classification of workers by platforms as 'independent contractors' exacerbates this precarity as it absolves the platforms from providing a living wage, employment benefits and meaningful work (Wood, Graham, Lehdonvirta and Hjorth 2019[7]). As these workers have more to lose from the algorithmic surveillance not working in their favour, they are likely to find this stressful.

Platform work has emerged for a number of reasons. Its industrial provenance lies in business process outsourcing which emerged 20 -30 years ago (Rani and Fuller 2020[8]) and is now a feature of surveillance capitalism (Foster and McChesney 2014[9]). The current wave of platforms outsource at a granular level, individuating the labour marketplace with promises of self-determination, flexibility and autonomy for workers and access to a pool of human labour (however defined) for customers. In this way platforms function as 'market makers': places that brings together workers and customers by maintaining control of the labour marketplace and strengthening their position as they can own and exploit the data generated (Jarahi, Sutherland, Nelson and Sawyer 2020[10]). As part of the platform capitalism critique, other explanations argue that platforms are self-referential AI and analytics engines, utilising human labour as the 'last mile' of the artificial intelligence development process. Here, humans are used to train, impersonate or verify AI algorithms and their outputs (Tubaro, Cassili and Coville, 2020[11]). Others draw parallels with early industrial piece working, home work and the early factory dubbing it 'digital Taylorism' (Altenreid 2020[12]; Moorkens 2020[13] Flanagan 2019[14]) or domestic servitude with its problematic gender, race and class intersections (van Doorn 2017[15] Atanasoski and Vora, 2015[16]).

5.3 Surveillance, monitoring and platform work

A large majority of research papers which study platform work in its various forms claim that it is surveillance intensive (for example, Rani and Fuller[17]; Jarrahi et al[18]., Newlands 2020[19]; Bajwa, Gastaldo, Di Ruggiero and

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[5] Rosenblat, A (2018) *Uberland: How algorithms are rewriting the rules of work* Oakland, CA: University of California Press

[6] Gray, ML and Suri, A (2019) *Ghost Work: How to stop silicon valley from building a new global underclass* New york: Houghton Mifflin Harcourt

[7] Wood, AJ; Graham, M; Lehdonvirta, V; Hjorth, I (2019) Networked but Commodified: The (Dis)Embeddedness of Digital Labour in the Gig Economy *Sociology* 53 (5) pp. 931 – 950

[8] ibid note 2

[9] Foster, J and McChesney, R. (2014) "Surveillance Capitalism, Monopoly-Finance Capital, the Military-Industrial Complex, and the Digital Age", *Monthly Review*, 66 (3) Online Version, https://monthlyreview.org/2014/07/01/surveillance-capitalism/.

[10] Jarrahi, MH; Sutherland, W; Nelson, SB and Sawyer, S (2020) Platformic Management, Boundary Resources for Gig Work, and Worker Autonomy *Computer Supported Cooperative Work-The Journal of Collaborative Computing and Work Practices* 29 (1-2) pp153 - 189

[11] Tubaro, P; Casilli, AA and Coville, M (2020) The trainer, the verifier, the imitator: Three ways in which human platform workers support artificial intelligence *Big Data & Society* 7 (1) 10.1177/2053951720919776

[12] Altenreid, M (2020) The platform as factory: Crowdwork and the hidden labour behind artificial intelligence *Capital and Class* https://doi.org/10.1177%2F0309816819899410

[13] Moorkens, J (2020) A Tiny Cog in a Large Machine: Digital Taylorism in the Translation Industry *Translation Spaces* 9 (1) pp. 12 - 34

[14] Flanagan, F (2019) Theorising the gig economy and home-based service *Work Journal of Industrial Relations* 61 (1) pp. 57 - 78

[15] van Doorn, N (2017) Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy *Information Communication & Society* 20 (6) pp. 898-914

[16] Atanasoski, N and Vora, K (2015) *Surrogate Humanity: Race, Robots and the Politics of Technical Futures* Durham, NC: Duke University Press

[17] ibid note 2

[18] Jarrahi, MH; Sutherland, W; Nelson, SB; and Sawyer, S (2020) Platformic Management, Boundary Resources for Gig Work, and Worker Autonomy *Computer Supported Cooperative Work-The Journal of Collaborative Computing and Work Practices* 29 (1-2) pp153 - 189

[19] Newlands, G (2020) Algorithmic Surveillance in the Gig Economy: The Organization of Work through Lefebvrian Conceived Space *Organization Studies* https://doi.org/10.1177%2F0170840620937900

Knorr 2018[20]; Minca and Roelofsen 2019[21], Stark and Levy 2018[22]; van Doorn 2017[23]). The intensive surveillance to which platform workers are subject stems from its use of algorithms to allocate work to and reward workers. This makes platform work de facto surveillant for two reasons. First, because of its electronic tracking of worker performance as well as their reputation, behaviour and location. Second because the platform's algorithmic decision processes socially sort the distribution of work, which control workers' actions on the platform, and differentially determine outcomes in terms of pay and future work opportunities (Rosenblat 2018[24]). This 'end to end' work surveillance is achieved via six different algorithmically-driven processes. First, the platform restricts and circumscribes the behaviours that workers are supposed to display on the platform; it then prompts those specific behaviours. It then records what workers do in response and rates them in real time, replacing those who do not perform in the correct way by not awarding them any more work. Finally, it ties in successful performance through addictive interfaces and gamification (Kellogg, Valentine and Christin, 2020[25]; Galiere 2020[26]). A new term 'refractive surveillance' (Stark and Levy 2018[27]), describes the influence that the customer has over worker performance via the ratings they award on a platform. The surveillant gaze is refracted from the customer through the platform and influences how a worker performs.

This type of monitoring is categorised as 'pervasive' in historical perspective. One of the very earliest models of work monitoring by Grant and Higgins (1989[28]) describes the characteristics of highly pervasive monitoring. Shown in Figure 3, the model distinguishes between surveillance object, the time period of monitoring, the recipient of monitoring information and the breadth of task that is monitored. The green column relates closely to platform work: where the surveillance object is the individual, where immediate feedback is given, where the results of monitoring are broadcast to the public and where tasks are not only tracked but also assigned to the worker. In critical perspective Curchod, Patriotta, Cohen and Neysen (2020[29]) characterise platform workers as 'isolated visibles', exposed and alone in front of an opaque invisible coalition of the platform and the client.

Figure 3. Grant and Higgins' (1989) Pervasiveness model of surveillance

	Least pervasive		Most pervasive
Object	Business unit	Work group	Individual
Period	Regular infrequent	Regular infrequent	Immediate
Recipient	Employee	Supervisor	Public
Tasks	Track results	Track process	Assign and track

5.4 Individual reactions to surveillance/monitoring on platforms

Empirical accounts of platform workers' responses to monitoring are found in OS/ER oriented research and there are few if any contributions from OP/OB. In the former literature, platform workers expressed a positive orientation to task output monitoring. In their view it was seen as a form of protection: it provided evidence that work had taken place and prevented wage theft by the platform (Wood, Graham Lehdonvirta and Hjorth

[20] Bajwa, U; Gastaldo, D; Di Ruggiero, E and Knorr, L (2018) The Health Of Workers In The Global Gig Economy *Globalization and Health* 14 10.1186/S12992-018-0444-8

[21] Minca, C and Roelofsen, M (2019) Becoming Airbnbeings: on datafication and the quantified Self in tourism *Tourism Geographies* https://doi.org/10.1080/14616688.2019.1686767

[22] Stark, L and Levy, K (2018) The Surveillant Consumer *Media Culture & Society* 40 (8) 10.1177/0163443718781985

[23] van Doorn, N (2017) Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy *Information Communication & Society* 20 (6) pp. 898-914

[24] ibid note 5

[25] Kellogg, K, Valentine, M and Christin, A (2020) Algorithms at work: The new contested terrain of control *Academy of Management Annals* 14 (1) pp. 366 – 410

[26] Galiere, S (2020) When food-delivery platform workers consent to algorithmic management: a Foucauldian perspective *New Technology Work and Employment* https://doi.org/10.1111/ntwe.12177

[27] ibid note 22

[28] Grant, R and Higgins, C (1989) Monitoring service workers via computer: The effect on employees, productivity and service. *National Productivity Review* 8 (2) pp. 101 – 112

[29] Curchod, C; Patriotta, G; Cohen, L and Neysen, N (2020) Working for an Algorithm: Power Asymmetries and Agency in Online Work Settings *Administrative Science Quarterly* 65 (3) pp. 644 - 676

2019[30]). This type of monitoring also acts as an extrinsic motivator: once a performance level had been reached so that there was no longer an account deactivation risk, it no longer motivated platform workers (Lin, Au, Leung and Peng[31]). In Wood et al's (2019[32]) study workers also welcomed the opportunity to work autonomously. Their survey reported that 72% of respondents felt able to choose and change the order in which they undertook online tasks, and 74% were able to choose or change their methods of work. These findings echo those reported in chapter 4 relating to remote workers: output monitoring is seen as appropriate because the autonomy it afforded for task execution. Platform workers also reported finding work meaningful (Kost, Fieseler and Wong 2018[33]) and finding flow as they worked (Bucher and Fieseler 2017[34]). Reported downsides also resonated with the remote work literature as many platform workers work from home. They included social isolation, weak work identities[35] (Rochadiat, Tong, Hancock and Stuart-Ulin 2020[36]) and worries about career progression (Wong, Fieseler and Kost 2020[37]).

As platform workers are also remote workers, many of the psycho-social risk factors identified in the context of remote work may well be found in the platform working context too. A key difference, however, is that in remote work, strong interpersonal managerial support has been shown to ameliorate any negative effects of work monitoring. For platform workers, there is no such social support, as management decisions are taken by an algorithm. This algorithmic control meted out by various platforms is potentially far more problematic for worker well-being. Customer ratings and performance scores, as well as the algorithms themselves and the information used are difficult to control but have a huge influence over the work process. This constant pressure results in an 'autonomy paradox'. Whilst promising autonomy, flexibility and a convenient lifestyle, platforms can simultaneously subject workers to meticulous surveillance and tough control mechanisms (Lehdonivirta 2018[38], Jarrahi, Sutherland, Nelson and Sawyer 2020[39]). As the latter authors comment, the information asymmetries which surround the algorithmic control of platform work place workers in the middle of an impersonal and inscrutable system, while they may be isolated and without social support (Choudary, 2018[40]; Rosenblat and Stark, 2016[41]; Hanrahan et al., 2019[42]). Questions have thus been raised about the procedural, distributive, interactive and informational fairness of algorithmic management (Newlands 2020[43]), particularly in the way that the reliance on customer ratings can mobilise biases (for example, racial or gender biases) which may not be easily corrected or challenged (Bajwa et al 2018[44]). Furthermore if platform work is the only way that someone can earn an income, these psycho-social risks and ethical concerns intensify (Nebeker and Tatum 1993[45]).

A common theme in the platform work literature therefore concerns how platform workers negotiate simultaneously opaque and consequential algorithmic surveillance. Monitoring/surveillance will always be micro-resisted and negotiated at individual level, and this is similarly the case in platform work (Sewell and

[30] Wood, AJ; Graham, M; Lehdonvirta, V and Hjorth, I (2019) Good Gig, Bad Gig: Autonomy and Algorithmic Control in the Global Gig Economy *Work Employment and Society* 33 (1) pp. 56 -75

[31] Lin, PMC; Au, WC; Leung, VTY; Peng, KL (2020) Exploring the meaning of work within the sharing economy: A case of food-delivery workers *International Journal of Hospitality Management* 91 10.1016/j.ijhm.2020.102686

[32] ibid note 30

[33] Kost, D; Fieseler, C and Wong, SI (2018) Finding meaning in a hopeless place? The construction of meaningfulness in digital microwork *Computers in Human Behavior* 82 pp. 101 - 110

[34] Bucher, E and Fieseler, C (2017) The flow of digital labor *New Media & Society* 19 (11) pp. 1868 - 1886

[35] Although this is not always the case, see note 25

[36] Rochadiat, AMP, Tong, ST Hancock, JT and Stuart-Ulin, CR (2020) The Outsourcing of Online Dating: Investigating the Lived Experiences of Online Dating Assistants Working in the Contemporary Gig Economy *Social Media + Society* 6 (3) 10.1177/2056305120957290

[37] Wong, SI; Fieseler, C and Kost, D (2020) Digital labourers' proactivity and the venture for meaningful work: Fruitful or fruitless? *Journal of Occupational and Organizational Psychology* 93 (4) pp. 887- 911 10.1111/joop.12317

[38] Lehdonvirta, V (2018) Flexibility in the gig economy: managing time on three online piecework platforms *New Technology, Work and Employment* 33 (1) pp. 13 - 29.

[39] Jarrahi, MH; Sutherland, W; Nelson, SB and Sawyer, S (2020) Platformic Management, Boundary Resources for Gig Work, and Worker Autonomy *Computer Supported Cooperative Work-The Journal of Collaborative Computing and Work Practices* 29 (1-2) pp153 - 189

[40] Choudary SP (2018) *The Architecture of Digital Labour Platforms: Policy Recommendations on Platform Design for Worker Well-Being.* ILO Future of Work Working Paper Series. Geneva: International Labour Office.

[41] Rosenblat A and Stark L (2016) Algorithmic labor and information asymmetries: A case study of Uber's drivers. *International Journal of Communication* 10 pp. 3758–3784.

[42] Hanrahan BV, Martin D, Williamowski J, et al. (2019) Investigating the Amazon Mechanical Turk market through tool design. *Computer Supported Cooperative Work* (CSCW) 28 pp. 795–814.

[43] ibid note 19

[44] ibid note 20

[45] Nebeker, D. M., & Tatum, B. C. (1993). The effects of computer monitoring, standards and rewards on work performance, job satisfaction, and stress. *Journal of Applied Social Psychology* 23 pp. 508–536.

Barker, 2006[46]). Workers develop practical and tacit knowledge about how tasks are allocated to them and how they are rated/rewarded in an anxiety infused 'algorithmic imaginary' (Chan and Humphreys 2018[47]). Using their imaginaries, workers try to second-guess how to behave, gathering evidence to support their decisions in order to maintain their reputations[48] (Bucher, Schou and Waldkirch, 2020[49]). These second guesses resulted in workers creating and sharing knowledge about how to get the most out of their work on the platform and how to avoid account deactivation. Behavioural norms such as not being too entrepreneurial while on the platform, not complaining too publicly about the platform or complaining to the helpdesk contributed to a careful awareness of the reasons why an account may get de-activated. Bucher et al's research focused on Upwork. Similar phenomena were observed in Curchod et al's (2020[50]) study of top performing eBay vendors, Air BnB hosts (Cheng and Foley 2019[51]; Minca and Roelofsen 2019[52]) food delivery riders (Veen, Barrett and Goods 2020[53]; Galiere 2020[54]) and ride-hail drivers (Mosseri, 2020[55]). Significant, unseen, uncompensated and invisible labour takes place as platform workers work control how they are seen by stakeholders in a phenomenon Graham Sewell (2021) has called 'scopic labour'[56]. Efforts to be seen by the platform as human beings have also been observed. MTurk workers, for example, conducted a letter-writing campaign to Jeff Bezos to draw his attention to their efforts and their working conditions (Panteli, Rapti and Scholarios 2020[57]).

5.5 The social systems surrounding platform work: Negotiated order

The last section outlined how platform workers take individual and small group action to control, limit and resist platform surveillance while maintaining a level of compliance with what is required. This section considers whether these practices ever form the basis of wider collective action. Collective resistance to platform surveillance may be characterised by understanding platform workers' shared interests and their intersection with monitoring/surveillance. Shapiro (2018: 2968[58]) argues:

…control ultimately hinges on workers' willingness to conform to the calculative rationalities that companies project onto them. Workers reflect on the conditions of their work. They develop a sense of company strategies and tolerate them to the extent that they align with their own interests

There are indeed many reasons why platform workers would want to push back against algorithmic surveillance (Kellogg et al 2020[59]). Using Kellogg et al's (2020) framework, algorithmic behavioural restriction and recommendation can result in:

- frustration, when work requests are not intelligible;
- a perception of bias, when customer reviews reproduce inequalities;
- reduced well-being, when stress arises as a result of behavioural nudging;
- reduced voice, arising from the social isolation of platform work and unresponsiveness of the platforms in the event of a problem
- precarity if work is not readily available and if accounts are under threat of deactivation.

[46] Sewell, G and Barker J (2006) Coercion versus Care: Using Irony to Make Sense of Organizational Surveillance *Academy of Management Review* 31 (4) pp. 934 - 961

[47] Chan, NK and Humphreys, L (2018) Mediatization of social space and the case of uber drivers *Media and Communication* 6 (2) pp. 29 - 38

[48] A similar phenomenon has been found in relation to covert non algorithmic surveillance: Di Domenico, ML and Ball, K (2011) A Hotel Inspector Calls: Exploring Surveillance at the Home-Work Interface Organization 18(5), pp. 615–636

[49] Bucher, EL (2020) Pacifying the algorithm – Anticipatory compliance in the face of algorithmic management in the gig economy. *Organization* DOI: 10.1177/1350508420961531

[50] ibid note 29

[51] Cheng, M and Foley, C (2019) Algorithmic Management: The case of Air bnb *Int, J Hospitality Management* 83 pp. 33 – 36

[52] Minca, C and Roelofsen, M (2019) Becoming Airbnbeings: on datafication and the quantified Self in Tourism *Tourism Geographies* https://doi.org/10.1080/14616688.2019.1686767

[53] Veen, A, Barratt, T and Goods, C (2020) Platform Capital's 'App-etite' for Control: A Labour Process Analysis of Food-Delivery Work in Australia *Work, Employment and Society* 34 (3) pp. 388 - 406

[54] ibid note 26

[55] Mosseri, S (2020) Being watched and being seen: Negotiating visibility in the NYC ride-hail circuit *New Media and Society* 21(11–12) pp. 2589–2606

[56] Sewell, G (2021) Surveillance: A key concept for business and society London: Routledge

[57] Panteli, N; Rapti, A and Scholarios, D (2020) 'If He Just Knew Who We Were': Microworkers' Emerging Bonds of Attachment in a Fragmented Employment Relationship *Work Employment and Society* 34 (3) pp. 476 -494

[58] Shapiro, A (2018) Between autonomy and control: Strategies of arbitrage in the "on-demand" economy *New Media and Society* 20(8) pp. 2954 - 2971

[59] ibid. note 25

The algorithmic recording and rating of performance in real time can result in:

- loss of privacy
- problems with data accuracy due to the reductive nature of algorithms
- discrimination, especially as there are fewer mechanisms for challenging biased algorithms and biased customer ratings.

The likelihood of being replaced by an algorithm, as it allocates work to another worker, and the uncertainty of any reward results in precarity, frustration and stress. How one can improve one's income and achieve career and personal development is not always obvious when working on a platform. Resistance or 'Algo activism' as Kellogg et al (2020[60]) call it, exploits these blind spots beyond the public – private boundaries which surround working on platforms. The platform work ethnographies suggest that platform workers always seem to find each other, establish shared interests and help each other out, either through WhatsApp groups, physical networking or fora attached to the platforms (Wood, Lehdonbirta and Graham 2018[61]; Rosenblat 2018[62]; Gray and Suri 2019[63] Cant 2020[64]). Strategies include:

5.5.1 Practical action and platform action

Practical action involves non-cooperation, leveraging algorithms, and instigating personal negotiation with clients beyond the purview of the platform (Anwar and Graham 2020[65]). In delivery riding, for example, workers often share their insights and 'hacks' through communities, such as WhatsApp groups or Slack channels (Chan, 2019[66]). Platform action goes one step further and involves utilising online fora to share knowledge, build community and solidarity. Workers have used platforms to engage in "reverse surveillance" or "sousveillance," in which employees recorded and uploaded everything that happened in their workplaces. One such example is The Turkopticon, the product of a tactical media art intervention. Turkopticon is a worker forum for Amazon Mechanical Turk (Irani and Silberman 2013[67]) and a place for 'Turkers' to share information about work being offered, requester reputations and support in the event of any disputes.

Platform action in the mobile labour market is well-researched. Delivery riders, for example, have refused to deliver orders and then gone on leisurely bike rides together in delivery zones when logged in so that the rider tracking and allocation system is disrupted (Briziarelli and Armano 2020[68]). In another protest in 2016 they logged in, then logged out and appeared on the system outside the company's offices (Waters and Woodcock, 2017[69]). Uber drivers also resist by setting limits on the riders they are willing to accept, controlling how long they are willing to work for, then registering on different ride-hailing platforms and gaming them against each other (Reid-Musson et al, 2020[70]). Some argue that collective action and organised resistance is difficult to achieve as platform workers are atomised as individuals and less likely to organise collectively, particularly when the platform work is their only source of income (Anwar and Graham, 2020[71]). Other accounts show how solidarity and industrial action emerges. Unions such as the Independent Workers of Great Britain and Independent Workers of the World assisted in the Deliveroo strikes in 2016 as what Cant (2020[72]) has tellingly labelled 'Invisible organisations' (see also Tassinari and Macarronne, 2020[73]).

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[60] ibid note 25

[61] Wood, AJ; Lehdonvirta, V; Graham, M (2018) Workers of the Internet unite? Online freelancer organisation among remote gig economy workers in six Asian and African countries *New Technology Work and Employment* 33 (2) pp. 95 - 112

[62] ibid note 5

[63] ibid note 6

[64] Cant, C (2020) *Riding for Deliveroo* Cambridge: Polity

[65] Anwar, MA; Graham, M (2020) Hidden transcripts of the gig economy: labour agency and the new art of resistance among African gig workers *Environment and Planning A-Economy and Space* 52(7) pp. 1269–1291

[66] Chan, NK (2018) The rating game: The discipline of Uber's user-generated ratings *Surveillance and Society* 17 (1-2) pp. 183 - 190

[67] Irani, L and Silberman, M (2013) Turkopticon: interrupting worker invisibility in amazon mechanical turk. *Paper presented at the Proceedings of the SIGCHI Conference on Human Factors in Computing Systems,* Paris, France

[68] Briziarelli, M; Armano, E (2020) The social production of radical space: Machinic labor struggles against digital spatial abstractions *Capital and Class* 44(2) pp. 173– 189

[69] Waters, F., & Woodcock, J. (2017, Sep. 20). Far from seamless: A workers' inquiry at Deliveroo. *Viewpoint Magazine*. Available at https://www.viewpointmag.com/2017/09/20/far-seamless-workers-inquirydeliveroo/

[70] Reid-Musson, E; MacEachen, E; Bartel, E (2020) 'Don't take a poo!': Worker misbehaviour in on-demand ride-hail carpooling *New Technology And Employment* 35 (2) 145 - 161

[71] Anwar, M and Graham, M (2020) Hidden transcripts of the gig economy: Labour agency and the new art of resistance among African gig workers *EPA: Economy and Space* 52 (7) pp. 1269 - 1291

[72] ibid note 54

[73] Tassinari, A; Maccarrone, V (2020) Riders on the Storm: Workplace Solidarity among Gig Economy Couriers in Italy and the UK *Work Employment and Society* 34 (1) pp. 35 - 54

5.5.2   Discursive framing and legal mobilisation

Discursive framing about algorithmic fairness, accountability and transparency involves engaging in public critique of algorithmic systems and establishing professional codes of ethics for those who design algorithms[74]. Legal mobilisation has been another strategy used to challenge managerial surveillance so that political opportunities are created which address employee privacy, managerial surveillance, discrimination, and data ownership in state arenas rather than in the private workplace (Van Gramberg, Teicher and O'Rourke, 2014[75]). One clear example is the recent court ruling over the employment status of Uber drivers although that is out of scope of the current review.

5.6   New concepts: Visibility and the Public-Private Boundary

The two new concepts identified in chapter 3 help to explain the complexities of resistance to algorithmic platform surveillance. The first of these new concepts outlines a new organisational control paradigm based on behavioural visibility in data. To recap the outlines in chapter 3 here, it was observed that:

'Behavioural visibility' is argued to be the latest organisational control paradigm...and something which is done as part of contemporary organising...Visibility is pursued by organisations in respect of their employees, primarily through surveillant means. Employees need to display the appropriate performance and behaviours which are captured in data, not only to be evaluated, but also to be acknowledged and recognised for their efforts. Within such control structures, compliance stems from a fear of not being seen and resistance from the need to limit one's exposure ... Employees engage in multiple visibility practices: making themselves seen in order to be ontologically recognised...as well as to expose their performance and limit the aspects of their person which are brought into the gaze. Resistant practices then take place in settings invisible to the organisation

Platforms maintain a political economy of invisibility to achieve their aims (Irani 15a[76]): The information asymmetries of algorithmic platform surveillance result in the surveillance parameters being invisible to platform workers while workers make themselves visible to the platform in the appropriate way (Curchod et al, 2020[77]). There are also, however, significant blind spots which have enabled workers to find each other and organise collectively. Platforms are organisations that do not want to see the people who contract their labour to them and do not want to be seen as employers in relation to these workers (van Doorn 2017[78]). Not only do they not want to be seen as such by workers, but also by competitors, regulators and trade unions.

The second of these new concepts, the public private boundary as contested terrain, is also relevant (Thompson, McDonald and O'Connor, 2020[79]). The public-private boundary is contested terrain not only because some employers wish to monitor many different aspects of the employee's person, but also because the site of that resistance is often away from the physical workplace. Again, to recap what was set out in chapter 3, on pages 41-42, it was observed that:

Three primary practices produce this conflict. The first is profiling, where employers use information from social media which is not traditionally available in recruitment processes. Information is used to facilitate employee recruitment and make judgements about how they are likely to perform once in post. From the employees' point of view, this threatens their private identity that they claim should remain beyond employer scrutiny. The second, posting denunciatory accounts online...is thought of by employees as a form of voice and as a means of expressing dissatisfaction external to the labour process. The competing employer interest is that of reputation, which may be damaged by public criticism. Finally the private use of social media during work time challenges the employer's control over working time, but also raises the question of whether that control is total. The employee counterclaim is that they may have autonomy during the working day to speak to those outside the workplace should they need to, while employers have an interest in the regulation of employee time, which they may monitor via surveillance strategies and enforce via disciplinary means. It is argued that each of these contestations reshape the traditional boundaries between the public and private spheres. Crucially whether and how those boundaries are shaped form the points at which employer and employee

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[74] For example: https://www.acm.org/binaries/content/assets/about/acm-code-of-ethics-booklet.pdf accessed 7 May 2021

[75] Van Gramberg, B, Teicher, J and O'Rourke, A (2014) Managing electronic communications: A new challenge for human resource managers *The International Journal of Human Resource Management* 25 (16) pp. 2234 - 2252

[76] Irani, L. (2015a). The cultural work of microwork. *New Media & Society* 17 (5) pp. 720–739.

[77] Ibid note 29

[78] van Doorn, N (2017) Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy *Information Communication & Society* 20 (6) pp. 898-914,

[79] Thompson, P; McDonald, P; O'Connor, P (2020) Employee dissent on social media and organizational discipline *Human Relations* 73(5) pp. 631– 652

interests conflict with each other and are thus flashpoints for conflict. The case of platform work shows that this contested boundary also exists in the online workplace, with online and physical spaces invisible to the platform used to mobilise resistance, out algorithmic surveillance and establish social support (Newlands, 2020[80]).

5.7 Conclusions

To conclude the discussion, Table 8 summarises our observations and we assess the extent to which these findings both confirm and augment the knowledge base about surveillance/monitoring in the workplace set out in chapter 1.

Table 8. Findings, surveillance and platform work

Code	Finding
Surveillance practice	• Platform work is de facto surveillant because of data capture and analysis on performance, behaviours and location (if relevant), and because of socially sorted work allocation. • It is more likely to be perceived as intrusive because of the breadth of targets and purposes.
Individual level of analysis	• Output monitoring of tasks is acceptable to platform workers as it acts as a form of protection, as an extrinsic motivator in the short term, and allows for autonomy in how the task is completed. • An autonomy paradox arises because platform workers have no control over the onset or process of surveillance/monitoring. • Critical perspectives have highlighted how workers are completely exposed to an opaque platform, producing information asymmetries. • Workers adapt by imagining what the algorithms value and labour emotionally to manage how they are seen by the platform. • As platform workers are remote by definition, many of the psycho-social risks of remote work will apply.
Social process level of analysis	• Lack of managerial support in the face of pervasive monitoring is stressful. • The negative outcomes of algorithmic platform surveillance include frustration, reduced fairness perceptions, reduced well-being, reduced voice and increased employment precarity, loss of privacy, problems with data accuracy, discrimination. • Unique resistant strategies include practical action, platform action, discursive framing and legal mobilisation alongside traditional industrial action such as striking.

Table 8 illustrates not only the findings relating to platform work, but also the research gaps. There is hardly any OP/OB research addressing the experience of surveilled/monitored platform workers. Chapters 1 – 3 discussed how this body of research has revealed how the organisational context, monitoring configurations (purpose, synchronicity, transparency, intrusiveness), personality traits and attitudes and occupational type shaped the outcomes of monitoring. Some of these outcomes are reflected in the findings of platform work but the OP/OB explanation is not present. Furthermore there is very little research which covers managerial support – as management processes are taken over by algorithms - meta-communication and values, and gender.

Nonetheless there are some telling resonances with previously published work on the psycho-social risk factors which surveillance/monitoring outcomes. The primary resonance is that of transparency. The information asymmetries inherent in platform work and the way that workers respond to them immediately indicate that platform monitoring is not transparent to workers. According to previously published research this will result in reduced feelings of task satisfaction, procedural and informational justice, trust, reduced performance, and increased perceptions of monitoring as purposeless and authoritarian. A lack of transparency thus gives strong insight into the values represented in the design of algorithmic platform surveillance. These values concern the distributive justice of work allocation and remuneration outcomes, which raise discrimination and equality

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[80] ibid note 19

concerns; the procedural justice in the face of algorithmically controlled monitoring, where workers struggle to have their voice heard; the interactive justice of algorithmic management, where communication is standardised and impersonal, and informational justice in performance evaluations, where the algorithms and decision criteria are opaque. Allied to this is the job characteristic of autonomy. In standard workplaces, accounts from different professions emphasise how autonomy and professional expertise help workers to control the onset of surveillance. In platform work, although workers can control when they work, once working they cannot escape the exacting and opaque algorithmic surveillance, although they do attempt to control how they are seen by the platform. The unique brands of platform resistance augment existing understandings of resistance to surveillance and show how resistance beyond the boundary of work and the ability to manage one's visibility are important worker resources. The influence of the customer is exacerbated in platform work and could become a new psycho-social risk. Whether it is or not is under explored. Customer ratings influence the worker's profile on the platform in a phenomenon called 'refractive surveillance'. In the standard work monitoring literature, the introduction of pervasive monitoring has been shown to result in a higher commitment to the customer in care settings, despite the monitoring. In platform work, workers are actively discouraged from contacting customers outside the platform, to stop separate customer relationships forming. When platform workers have been found taking this action, their accounts have been terminated, but many still persist in this practice because of the job security it presents. A final resonance is with the two new concepts identified in chapter 3, – visibility and the public private boundary – which can take account of some of the patterns that have been observed.

6 Policy Recommendations and Conclusions

6.1 Introduction

This chapter draws together the findings of previous chapters and offers some conclusions and policy recommendations. It begins by constructing a comprehensive inventory of the psycho-social risk factors which surround employers monitoring their employees, in both co-present, remote and platform working arrangements. It then presents policy recommendations for employers and for policy makers based on the amelioration of these risk factors and on the ethical principles of privacy, data justice and organisational justice.

6.2 The psycho-social risks which surround employee monitoring

The preceding chapters have set out the current set of empirical findings in relation to electronic monitoring and surveillance in the workplace. They suggest that there are two current trends in the way that workers are surveilled and monitored. The first is that, because of datafication, workers and what they do are now more visible to their managers and organisations in data. The second is that the public-private boundaries around work are continually being challenged and contested because of workers' datafied visibility across time and space.

Since research on electronic monitoring began in the 1980s, the shared goal of OP/OB and OS/ER monitoring research has been to explore the factors which make monitoring more or less acceptable to employees. The incidence of psycho-social risks such as decreased job satisfaction, decreased organisational commitment, increased counterproductive work behaviours/resistance, increased stress and increased turnover propensity have been some of the shared concerns between these two strands of strands of literature, while acknowledging that they have language, epistemological and political differences. Should these adverse consequences occur, as well as detrimental impacts on the individual, they will also impact the organisation in terms of labour costs, performance, values and culture.

The following sections set out which features of the design and use of monitoring, as well as with the managerial processes and policies which surround it increase the likelihood of these psycho-social risks arising. Throughout the report these features have been referred to as 'psycho-social risk factors.'

6.2.1 Function creep in the purpose for which monitoring is used; unclear or absent purpose

This psycho-social risk factor first appeared in Stanton's (2000[1]) contextual variables and was a major component of Ravid et al's (2020[2]) analysis. This report confirms that the purpose for which surveillance/monitoring is used – for safety, performance or training purposes –impacts the way in which employees react to it. Safety monitoring and monitoring for training purposes are more acceptable providing the purpose for which the information is used does not change over time without employees' knowledge. Surveillance which has no perceived purpose will seem excessive to employees. If surveillance is perceived as excessive it will reduce fairness, justice and satisfaction perceptions, trust in management, commitment to the organisation, creativity, autonomy and rule compliance. Monitoring which crosses established public/private boundaries between work and private life will also be perceived as excessive. This is particularly the case with remote working both before and during the pandemic, where monitoring is associated with work-family conflict. In platform working excessiveness is associated with location tracking in particular, but is a concern with the 'end to end' monitoring seen there. The purposes for which monitoring is used communicate organisational values. Resistance may then take place outside the organisation which has the potential for reputational damage.

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[1] Stanton, J (2000) reactions to Employee Performance Monitoring: Framework, Review and Research Directions *Human Performance* 13 (1) pp. 85 - 113

[2] Ravid, D, Tomczak, D, White, J and Behrend, T (2020) EPM 20/20: A review, framework and research agenda for electronic performance monitoring *Journal of Management* 46 (1) pp. 100 - 126

6.2.2 Personality traits which determine reactions to monitoring

This review confirms that there are psycho-social risk factors associated with individual differences, including personality traits and attitudes towards monitoring. Individual differences were referred to by both Stanton (2000[3]) and Ravid et al (2020[4]). Psychological traits, such as trait reactance and ethical orientation produce instinctive reactions to more intrusive monitoring and influence the management worker relationship, fairness and trust perceptions. Monitoring may thus breach the psychological contract if it differs from what workers expect and contradicts what they personally value in the work environment. For remote work, individual difference potentially extends to gender, family and marital status although this has not been fully investigated.

6.2.3 Invasive monitoring configurations

Invasiveness, referring to the breadth of information collected and employees' control over the monitoring process, was set out as a psycho-social risk factor by Ravid et al (2020). It has four components:

Scope: Whether monitoring targets the individual, group or organisation. The review did not find any further specific research about monitoring scope.

Target: The review confirmed that the current targets of workplace monitoring are thoughts feelings and physiology; location and movement and task. It added 'profile and reputation' as a further target although the latter is under-researched. Establishing whether there is a legal basis for employers to process employees' biometric data is a priority. The literature reported strongly resistant and emotional reactions to biometric monitoring, including thoughts feelings and physiology, as well as to surveillance which is hardwired into location and movement tracking technologies. Task focussed monitoring was more acceptable in standard, remote and platform work. In remote work, jobs need to have measurable outputs in order to be managed. In platform work, task monitoring seen as a form of protection because it provides evidence of the work undertaken. Nonetheless, the totality of the algorithmic surveillance in platform work targets not only task performance, but location, behaviours and reputation and is thus much more invasive.

Constraints: The literature reported employee concerns over the way in which the can constrain how data are used and who can access it extend over time. Platform workers have similar concerns about how platforms monitor their communications and other activities on the platform, and how that feeds into algorithmic decisions over work allocation and account termination.

Target control: Originally featuring in Stanton's (2000[5]) organisational context variable, the review confirmed that control over the onset of task monitoring and one's autonomy to respond to monitoring is still important today (see section 6.2.6).

6.2.4 Trust-damaging monitoring configurations

Trust has been a ubiquitous phenomenon surrounding work monitoring in that it is both an antecedent and an outcome of the monitoring process (Stanton 2000[6]). This review confirms that the configuration of monitoring is a proxy for organisational trust, in other words, excessive monitoring will leave employees feeling that they are not trusted. As low trust relationships also impact justice, fairness and privacy perceptions, a negative cycle may result which will be difficult to break, with punitive surveillance becoming a self-fulfilling prophecy. This is also the case in remote work.

6.2.5 Monitoring processes which are not transparent or open

Low transparency in monitoring processes was identified as a psycho-social risk factor by Ravid et al (2020[7]). This review confirms its importance in relation to the full breadth of monitoring targets. Transparency was a particular problem in the context of platform work which features information asymmetry. According to previously published research this will result in reduced feelings of task satisfaction, procedural and informational justice, trust, reduced performance and increased perceptions of monitoring as purposeless and authoritarian.

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[3] ibid note 1
[4] ibid note 2
[5] ibid note 1
[6] ibid note 1
[7] ibid note 2

6.2.6 Low autonomy job designs and sectoral differences

Whether job design allows for autonomy in response to monitoring is an important factor. In low paid, intensive service work with low autonomy there are poorer outcomes. Remote workers also need autonomy to complete tasks because of competing demands in the home environment. Platform workers experience an autonomy paradox. Although workers can control when they work, once working they have little control over algorithmic surveillance. As a response they attempt to control how they are seen by the platform. Ravid et al (2020[8]) note that there are contextual differences in how monitoring is applied which may give rise to contextual differences in psycho-social risk factors. This report extends this observation by revealing that monitoring in the public sector differs from that of the private sector because of public scrutiny and accountability. Studies of monitoring in low paid, intensive service work argue that it reproduces gender, race, class and immigration status inequalities in that these groups are more likely to be present in those roles and thus disproportionately subject to more intensive surveillance. Further research is needed on this question.

6.2.7 Low managerial support on monitored tasks

This report extends the idea that the type of managerial support offered to those in monitored roles is a psycho-social risk factor. Although this risk has featured in monitoring studies from the outset, it is under-researched. The report found evidence that co-present supervisory and worker review of digital camera footage improves fairness perceptions. Research on remote working confirmed that the consideration behaviour, style, skill and expertise of supervisors is required and relevant. Punitive supervisory behaviours destroy trust and damage workplace relationships. The lack of any human supervisory support in the algorithmically surveilled world of platform work prompts workers to seek support from their peers in online fora. The ethical question of interactional justice underpins this psycho-social risk: How may workers be sensitively and with dignity, and be fully informed about the surveillance to which they are subject?

6.2.8 Hard wired surveillance technology design

Although technology design has always been mooted as a psycho-social risk factor, past studies have focused on employee participation in the design of the monitoring process rather than the technology itself. This report suggests that technology design does make a difference. Some technology may have unintended surveillance effects. For example, a digital webcam which periodically samples photographs of a workers' face to show they are present at their desk may reveal more about them than intended, such as their outwardly expressed emotions. There are fewer potential psycho-social risks if that technology can be adapted so that those effects are avoided. If those effects are hard wired into technology, there is a greater potential for psycho-social risk associated with using that technology and managerial support becomes much more important.

6.2.9 Discriminatory outcomes and poor distributive justice in monitoring processes

Indicated as a research priority by Ravid et al (2020[9]) distributive justice in the workplace surveillance context concerns the extent to which it is disproportionately targeted at particular groups over others, and the extent to which it discriminates between these groups in terms of reward and opportunity. Current distributive justice concerns in respect of standard work surveillance relate to algorithmic biases in, for example, facial recognition, fingerprint scanning and other biometric technologies, and algorithmic personnel selection processes. In respect of platform work there are concerns about differential wages, work allocations and precarity between geographic territories, groups and individuals.

6.2.10 Procedural unfairness in monitoring processes

Although the procedural justice aspects of monitoring have been on the research agenda for a long time, they have not been investigated in relation to any recent technological developments. When AI or algorithmic surveillance is being utilised, the opportunity to review, have a voice in, and question the results of surveillance has been shown to be beneficial due to the reductionism inherent in algorithmic decision-making. Platform working also raises procedural justice concerns due to workers' inability to challenge customer ratings they perceive to be discriminatory or unfair.

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[8] ibid note 2
[9] ibid note 2

6.2.11 Emotional labour and identity work

The amount of emotional labour undertaken by individuals as they come to terms with surveillance may increase the likelihood of psycho-social risks arising if surveillance crosses established public-private boundaries. Surveillance provokes a raft of emotions in which individuals labour to manage their visibility and control their exposure to surveillance. Such phenomena are documented in a wide range of standard work contexts, remote work and platform work.

Policy recommendations will be made in respect of these risk factors according to a set of principles. First, current legal advice on organisational monitoring policy derived from the GDPR is considered. A need to augment monitoring policy recommendations by incorporating provisions to mitigate known psycho-social risk factors is established. The OECD privacy principles, data justice[10] and organisational justice[11] are introduced to underpin some of these concerns and build a set of recommendations which address the psycho-social risk factors associated with monitoring.

6.3 Policy recommendations: The underpinning principles

The policy recommendations which may ameliorate the psycho-social risks of electronic monitoring /surveillance at work are based on a combination of three sets of principles: OECD privacy principles, data justice and organisational justice. These principles may be considered by national or supra-national policymakers as they construct codes of practice for employers who process an increasingly wide range of data about employees. They may also be translated into policy at organisational level so they may be applied in a variety of employment contexts. Each set of principles will now be discussed in turn. They have internal strengths and complementarities which will be explored.

Current legal advice to organisational using electronic monitoring is that they must do so with reference to an organisational privacy policy that is well understood by employees and refreshed annually. The suggested components of such policies by legal practitioners create baseline standards for management to follow. They do not force diligent managerial consideration of a monitoring programme's impact on staff. Legal advice suggests that a monitoring policy should include at least:

- whether and when employee monitoring is applied;
- the purposes of data processing;
- the means used for data processing;
- an overview of the data that is kept with the corresponding retention period;
- who has access to what data, in what circumstances;
- how data is protected;
- the rights of the employee in relation to that processing.

According to the General Data Protection Regulation[12], processing personal data during a person's employment may take place if it is both necessary and proportionate. Consent is not used as a legal ground for data processing in the workplace. Because the employer has authority over the employee and the employee is financially dependent on the employer, permission from an employee to an employer to process their personal data is not considered to be freely given.

To be considered necessary and proportionate, monitoring an employee must be compatible with an employer's business interests while minimally impinging on the employee's privacy rights. A legitimate business interest includes the detection and prevention of loss of personal data (e.g. customer data), the detection and prevention of loss or theft of intellectual or physical business property and the improvement of employee productivity and performance. Monitoring is currently considered disproportionate if it is applied in sensitive areas, such as lavatories or changing rooms, if it feeds in to automated decision-making about an employee's performance without any human intervention, if it places an employee under continuous covert surveillance without reasonable suspicion of wrongdoing, or if secret recordings take place. Less invasive methods are preferred. Furthermore, according to the law, minimal data should be collected about employees, the method of data processing should be transparent to employees and employees should be given the opportunity to exercise

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[10] Taylor, L (2017) What is data justice? The case for connecting digital rights and freedoms globally *Big Data and Society* July – December pp. 1 – 14 DOI: 10.1177/2053951717736335

[11] Colquitt, J A (2001) On the Dimensionality of Organizational Justice: A Construct Validation of a Measure *Journal of Applied Psychology* 86 (3) pp. 386 - 400

[12] Todolí-Signes, A (2019) Algorithms, artificial intelligence and automated decisions concerning workers and the risks of discrimination: The necessary collective governance of data protection *Transfer* 25 (4) pp. 456 - 481

their rights of data inspection, correction, erasure and restriction of processing. Data must be stored securely for the shortest amount of time necessary. Employers also need to make sure that monitoring information is only used in way which is compatible with its original purpose.

6.3.1 OECD Privacy Principles

The rules set out in the GDPR reflect the eight privacy principles on which data protection legislation all over the world is built. These principles are set out by the OECD in box 1:[13]

Box 1: OECD Privacy Principles

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1. Collection Limitation Principle

There should be limits to the collection of personal data and any such data should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.

2. Data Quality Principle

Personal data should be relevant to the purposes for which they are to be used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date.

3. Purpose Specification Principle

The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose.

4. Use Limitation Principle

Personal data should not be disclosed, made available or otherwise used for purposes other than those specified except: a) with the consent of the data subject; or b) by the authority of law.

5. Security Safeguards Principle

Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorised access, destruction, use, modification or disclosure of data.

6. Openness Principle

There should be a general policy of openness about developments, practices and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller.

7. Individual Participation Principle

An individual should have the right:

a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to him/her/them;

b) to have communicated to him/her/them, data relating to him/her/them

    i) within a reasonable time; ii) at a charge, if any, that is not excessive; iii) in a reasonable manner; and iv) in a form that is readily intelligible to him/her/them;

c) to be given reasons if a request made under subparagraphs (a) and (b) is denied, and to be able to challenge such denial; and

d) to challenge data relating to him/her/them and, if the challenge is successful to have the data erased, rectified, completed or amended.

8. Accountability Principle

A data controller should be accountable for complying with measures which give effect to the principles stated above.

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[13] http://oecdprivacy.org/ accessed 2nd July 2021

While these principles appear to be clear, technology is developing faster than regulation. Many of the studies which are covered by this report feature outrage, feelings of privacy invasion and excessive or purposeless surveillance in relation to monitoring methods which would not be permissible under the GDPR. Monitoring techniques such as automatic facial recognition, communications scanning and analysis, location tracking, and the recording of remote workers' keystrokes, through webcams, screen activity or voice recording are currently considered excessive,[14] but still take place elsewhere in the world.

Employees are becoming increasingly visible in data and work monitoring is crossing public-private boundaries.[15] There is an increase in the amount of information available about employees, an increase in the capacity to process that information and in the capacity for automated decision-making. Discrimination according to personal characteristics such as religion, gender or sexual orientation is possible through network analysis. The discovery of a link to efficiency using people analytics may be interpreted as necessary and proportionate by a business organisation, without updating employees. Training data may be biased and minorities may be under-represented as fewer data are generated about those groups. The decreasing cost of monitoring technology and new methods may thus 'give rise to unjustified or abusive interference in workers' fundamental rights and freedoms' (Todolí-Signes, 2019: 469[16]).

It is acknowledged that the EU is already considering how to reform labour law in the face of algorithmic management[17], and it seems that it is currently not permissible to make automated decisions about employment – such as promotion, reward or termination – without human intervention. Further, convincing arguments about the deployment of a 'Right to Explanation' under the GDPR Articles 22 (3), 13(2)(f) and 14(2)(g) of algorithmically-driven decisions in relation to employment have been made[18]. Furthermore, the EU Parliament voted in favour of a 'right to disconnect' – an employee's right to disengage from work communication outside of working hours – in early 2021[19]. The next section considers some wider ethical principles which may enable more responsible monitoring policy.

6.3.2   Data justice

Data justice enables fairness principles to be developed to address the way that workers are made visible, represented and treated as a result of the generation and use of data about them and what they do in the workplace. This framework is targeted at analytics - heavy data processing, as found in platform work, people analytics and behavioural/locational/reputational forms of monitoring. Taylor (2017) sets out three pillars of Data Justice which this report will use to construct policy recommendations which address the psycho-social risk factors associated with electronic monitoring. This framework has been chosen because it extends beyond privacy principles and moves towards broader articulations of data ethics, such as that found in the UK Government Digital Services' Data Ethics framework[20]. They are:

- Visibility: This principle is split into two components. The first, "access to representation", sets out the risks associated with not being adequately represented in data, as is the case for some marginalised populations. The second, "information privacy", refers to the privacy principles and their ability to limit on data use. Information privacy's shortcomings in relation to group privacy, privacy as a social value and as a public good are included under this heading.

- Engagement with technology: Again, this pillar is split into two components. The first, "sharing in data's benefits", focuses on the potential benefits to employees of collecting and analysing data independently of their employers, and on how data's returns can be captured and processed at the local level e.g. in conjunction with trade unions or other collective bodies. The second relates to "autonomy" in one's response to technology, and addresses the extent to which one may opt in to or out of data processing and manage one's own visibility.

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[14] https://legalict.com/factsheets/privacy-monitoring-work-gdpr/ accessed 25th May 2021

[15] Studies of Australian case law have documented the difficulties in devising enforceable policy about these boundaries see, for example, Thornthwaite, L (2016) Chilling times: Social media policies, labour law and employment relations *Asia Pacific Journal of Human Resources* 54 pp. 332 - 351

[16] ibid note 12

[17] See, for example WorkOD; iLABOUR; SOJUFOW; iManage; CODE and PLUS

[18] ibid note 12

[19] https://www.europarl.europa.eu/news/en/press-room/20210114IPR95618/right-to-disconnect-should-be-an-eu-wide-fundamental-right-meps-say accessed 7th July 2021

[20] https://www.gov.uk/government/publications/data-ethics-framework/data-ethics-framework-2020 accessed 2nd July 2021

- Non-discrimination: The two components of this pillar refer to the "ability to challenge bias" in data use and the "right not to be discriminated against" because of algorithmic data processing. The first becomes more difficult where AI and machine learning technologies are used, especially where there are claims that algorithms are 'unbiased', as HR practitioners have been reported to say. The second demands algorithmic governance mechanisms in order to determine whether a biased outcome has occurred and decide on the penalties that apply.

6.3.3 Organisational justice

The organisational justice principles were established by Colquitt (2000[21]) long before employee monitoring/surveillance became more data intensive and wide reaching. They do, however, establish fairness principles in the treatment of employees and will be applied to monitoring practices. The data justice pillars of "engagement with technology" and "non-discrimination" resonate with the elements of procedural, distributive and informational justice.

The pillars are as follows:

- Procedural justice: This principle refers to the extent to which employees have a voice during all manner of organisational procedures, such as monitoring or surveillance. A procedure is just if employees have been able to express their views and influence the outcome, if the procedure is consistently applied to all, if it is free of bias, based on accurate information, if that outcome can be appealed, and if moral and ethical standards are upheld.
- Distributive justice: This principle refers to the extent to which outcomes are fair, reflecting underlying concerns with discrimination and equality. Outcomes are distributively just if they reflect an individual's effort, contribution and performance and if the outcome is appropriate for the work completed.
- Interpersonal justice: This principle refers to the fairness with which a manager, supervisor or other authority figure has treated an employee politely, with dignity and respect, and without making any improper remarks.
- Informational justice: This principle refers to the fairness with which a manager, supervisor or other authority figure has treated an employee as an information recipient. This includes having monitoring procedures and outcomes thoroughly explained with reasonable, timely and clear explanations tailored to the individual.

Policy recommendations are now presented. They have been generated from the psycho-social risk factors set out above and explored throughout this report. They are intended to stimulate discussion and conversation about how both management practice and higher level policy about employee monitoring may be tackled from a principled as well as a risk-focused perspective. They are not intended to be prescriptive, but a template to draw upon for the future.

6.4 Policy recommendations

Table 9 and Table 10 set out the policy recommendations arising from the research presented in this report, which highlighted a range of psycho-social monitoring risk factors. Each risk factor appears in the left hand column. They are grouped according to whether they primarily focus on the monitoring process itself (Table 9) or the managerial processes which surround it (Table 10). There is a degree of overlap in that managers tend to drive the design and configuration of monitoring processes, their legal compliance and they have the responsibility for promoting transparency and organisational justice within those processes.

Using a broader set of ethical principles than those found in legal formulations has resulted in a set of recommendations which not only focus on familiar ways in which data and its use are regulated, but also consider human dignity and justice. We submit that these principles should underpin any policy innovations that arise as a result of this report as they help to tackle the psycho-social risks associated with monitoring.

We also note that the recommendations in both of the tables apply to surveillance/monitoring which takes place in standard workplaces as well as in remote and platform working. In remote working, the configuration of monitoring is crucial not only in terms of its lawfulness but in terms of the way it may exacerbate the social isolation and workload difficulties of remote working (Table 9). Because of these difficulties, the managerial processes which support remote workers become crucial (Table 10).

Furthermore, we argue that managerial influence over monitoring processes should be considered in the context of platform work too. Whilst from the worker point of view management in platform work is largely algorithmic, these systems are still designed at organisational level. We make this point to highlight that,

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[21] Colquitt, JA (2001) On the dimensionality of organizational justice: A construct validation of a measure Journal of Applied Psychology 86 (3) pp. 386-400

through a surveillance lens, the paucity of managerial and social support for platform workers in the face of such exacting surveillance is ethically unacceptable and an affront to human dignity. Furthermore the configuration and purpose of monitoring on platforms would be considered unnecessary and disproportionate in the standard workplace.

Table 9 and Table 10 are shown overleaf.

Table 9. Monitoring process recommendations

Psycho-social Risk Factor	Policy Recommendations: Monitoring processes For consideration in relation to platform surveillance and remote work as well as standard work	Ethical principles
Purpose of monitoring is exceeded	• Devise accessible explanations of all monitoring processes used and their purposes. • Train employees in monitoring policy and empower them to exercise their rights under it at induction and in annual refresher training. • Consult with employees should monitoring purpose change. • Review whether there has been function creep from original and current espoused purpose of monitoring. • Consider employee voluntary reporting as another monitoring mechanism.	Privacy principles: Open-ness, Purpose specification and individual participation, Accountability Data justice: Information privacy Org justice: Informational justice
Surveillance perceived as excessive, authoritarian and purposeless	• Limit the routine use of surveillance for purposes which extend beyond task performance, i.e. for criminal investigation or for the protection of commercial interests. This includes the surveillance of reputations and profiles, location and movement, and thoughts, feelings and physiology. • Allow employees to turn off more invasive forms of surveillance if they occur routinely.	Privacy principles: Collection limitation and purpose specification Data justice: Information privacy Org justice: Interpersonal justice
Invasiveness: Too focused on the individual	• Consider whether it is ever necessary and proportionate to target individuals in people analytics applications as compared to group or departmental-based targeting. • Anonymise employee data in analytics applications.	Privacy principles: Collection and use limitation principle Data justice: Information privacy
Invasiveness: Target too broad	• Limit target of monitoring to task performance. • Establish the legality of any behavioural, body, emotion, location, movement, reputation and profile as monitoring targets.	Privacy principles: Purpose specification, data quality Data justice: Information privacy Org justice: Interpersonal justice
Invasiveness: Employee cannot constrain exposure to monitoring	• Consider opt-in monitoring policy. • Consider whether employees may control where monitored data are shared. • Inform employees what happens to monitoring data so they can make an informed choice in this respect. • Consider necessity and proportionality of monitoring which crosses into time, space or territory which is outside working hours, online environments or organisational premises. This is likely to be less acceptable to employees.	Privacy principles: Use limitation; accountability; openness Data justice: Information privacy Org justice: Procedural justice Org justice: Informational justice
Invasiveness: Lack of autonomy in response	• Consider employee opt-in policy. • Consider employee control over data sharing. • Consider training employees in own use of monitored data. • Reconsider job designs and characteristics of monitored staff to increase autonomy component.	Privacy principles: Use limitation Data justice: Autonomy Data justice: Sharing in data's benefits

Psycho-social Risk Factor	Policy Recommendations: Monitoring processes **For consideration in relation to platform surveillance and remote work as well as standard work**	Ethical principles
	• Develop organisational culture which does not shame opting out of data collection.	
Lack of Transparency	• Devise understandable and communicable explanation of all monitoring processes used. • Ensure all are aware who has access to technology and data, who can control data collection, how data are secured and who can then use the data. • Use a representative sample of employees to assess the necessity and proportionality of the monitoring, as well as the logic and accessibility of the relevant policy (in some countries, prior consent of a Worker's Council is required). • Consider a multi-stakeholder joint data protection committee which continually reviews monitoring practice.	Privacy Principle: Openness, Individual Participation, Accountability Data justice: Sharing in data's benefits Org justice: Informational justice Org justice: Procedural justice
Low distributive justice: discriminatory outcomes	• Ensure that surveillance does not target and thus only collect data about certain groups or individuals. • Ensure equality in the manner of data processing for all groups. • Ensure that one group is not subject to more intensive or punitive surveillance. • Ensure equality of outcome for different groups subject to the same surveillance. • Ensure that the outcome is appropriate for the efforts undertaken.	Privacy Principle: Individual Participation; Accountability; Data Quality Data justice: Right not to be discriminated against Data justice: Sharing in data's benefits Org justice: Distributive justice
Low procedural justice: Lack of employee voice in monitoring process	• Ensure biases – human and algorithmic - are not introduced into the interpretation of monitored data. • Ensure that there is an organisational mechanism in which employee concerns about monitoring are expressed and heard. • Ensure monitoring data accurately reflects a person's effort, contribution and performance. • Ensure that employee requests about monitored data are responded to promptly and respectfully by managers. • Ensure rules about how monitoring data are interpreted are applied consistently. • Ensure that employees have a mechanism to challenge and/or appeal a decision which uses monitored data.	Privacy Principle: Individual Participation; Accountability; Data Quality Data justice: Ability to challenge bias Org justice: Procedural justice; Interactional Justice; Informational justice
Technology design has no room for workarounds or adaptation	• Introduce employee opt-in policy. • Introduce employee control over data sharing. • Consult with a multi-stakeholder joint data protection committee, or representative group of employees, to review monitoring practice. • Consider co-design of monitoring processes.	Privacy Principle: Use Limitation, Individual Participation Data justice: Autonomy

Table 10. Policy recommendations, management

Psycho-social risk factor	Policy recommendations: Management **Compulsory for consideration in relation to remote work, platform work and standard work**	Principle
Individual differences causing negative instinctive responses Emotional labour anxiety and vulnerability	• Prioritise right to explanation and devise understandable and communicable explanation of all monitoring processes used. • Treat employees with dignity and respect in HR processes involving monitored data. • Create a supportive working environment where employees can discuss their worries about monitoring. Normalise employees' ability to ask questions about monitoring uses. • Involve employees in decisions about how monitoring is configured. • Consider opt-out and opt-in policies.	Privacy principles: Accountability; Openness Data justice: sharing in data's benefits Org justice: Procedural justice Org justice: Interpersonal justice
Damage to psychological contract	• Prioritise right to explanation and devise understandable and communicable explanation of all monitoring processes used. • Set and enact expectations about monitoring purposes and how monitoring data are used in feedback and performance evaluation. • Emphasise open employee participation in monitoring processes.	Privacy principles: Accountability; Openness Org justice: Procedural justice Org justice: Interpersonal justice
Monitoring produces low trust work environment	• Ensure monitoring is configured in such a way that it does not unreasonably question an employee's competence, commitment to shared goals or moral values such as honesty. • Ensure that monitoring is configured so that it reflects wider organisational performance management and value frameworks. • Ensure that employees understand where monitoring data fits in terms of how they are evaluated as employees. • Ensure monitoring feedback is delivered in such a way that it does not unreasonably question an employee's competence, commitment to shared goals or moral values. • Consider whether monitoring is appropriate for the aspects of employees observed or if more interpersonal methods are appropriate.	Privacy principles: Openness; Data quality; Use limitation; Individual Participation; Accountability; Security Safeguards Org justice: Interpersonal justice Org justice: Informational justice
Low managerial support of monitored employees	• Train, develop and coach those who manage with employee monitoring data in when to use an interpersonally supportive approach, both downwards and upwards. • Expose supervisors and managers to the same monitoring as their employees. • Devise competencies against which to evaluate supervisors' and managers' use of monitoring data.	Org justice: Interpersonal justice

6.5 Conclusion

This report has re-evaluated the existing research literature about surveillance/monitoring in the light of the new platform organisational form, emergency responses to the pandemic which feature remote work and in the standard workplace. It reviewed research which began in the 1980s and continued through to the present day.

It draws a number of conclusions. First, worker surveillance practices have extended to cover many different features of the employee as they work. Surveillance in the workplace targets thoughts, feelings and physiology, location and movement, task performance and professional profile and reputation. People analytics is a newly identified area and has the potential to combine a raft of employee surveillance measures as well as raise a variety of ethical issues. Second, as well as the well-established range of OP/OB generated insights, work from OS/ER fields highlighted the employees subject experience of surveillance, new forms of resistance as well as a visibility-based control paradigm. Third, a number of common concerns about monitoring between these disciplines were established.

- Individuals encounter surveillance/monitoring at different subjective registers: Their personality traits; their a priori attitudes; their emotional reactions and their personal and social identities help to shape their responses. Responses may be ambiguous depending on how monitoring serves the interests of management, workers and collective bodies over time.

- Individuals comply with or resist surveillance/monitoring in a number of ways: Resistance starts with the minutiae of counterproductive behaviours during the task (such as sabotage or workarounds), to the behaviours which illustrate diminished commitment towards colleagues, supervisors and the organisation, through to collective behaviours which challenge or denounce surveillance/monitoring and finally quitting altogether.

- Surveillance/monitoring impacts the quality of workplace relationships: Managing and supervising through monitoring is something which needs to be done with judgement, care and skill for three reasons. First, so that not only downward but upward organisational visibility is managed. Second, so that equality of all kinds is respected and finally that jobs are designed to ensure that the degree of surveillance/monitoring is more tolerable.

- Extensions in monitoring practice signal that a wider range of values need to be addressed: including distributive and interactional justice and transparency – beyond the existing concerns of trust, procedural justice and privacy. All agree that the perception of monitoring as excessive is damaging on these fronts. Involvement with monitoring design, the ability to control it and the ascription of wider employee voice in monitoring process and policy are seen as a positive steps across the literature.

- The public – private boundary is increasingly important: Current monitoring practices which focus on the body and behaviours, and those without a clearly defined purpose, are more likely to be considered intrusive and excessive, as are those which extend into an employee's non-work time. There are also unionisation opportunities outside the labour process.

Fourth published research on monitoring and remote work established that task monitoring is preferable for remote workers, and then only when they have sufficient autonomy to be able to control their response. Supervisory support is crucial. In the current climate where millions are forced to work remotely, the introduction of more intrusive monitoring beyond outputs is likely to be disproportionate and experienced as invasive and stress inducing by employees. Finally, platform work is facilitated by end to end, opaque algorithmic surveillance, no managerial support and patchy colleague support in a hyper-competitive and gamified freelance labour market. For those who have to rely on this kind of work for an income the psycho-social risks are huge.

In addition to the policy recommendations set out above, future research may focus on:

- the replication and extension of OP/OB research in remote and platform work surveillance contexts
- the use of data and organisational justice perspectives in the formulation and enactment of monitoring practices.
- the development of high trust employee monitoring practices
- technical and practical ways in which employees can gain autonomy over data collection and sharing and the impact on performance and efficiency
- the potential for non-surveillant alternatives and employee self-reporting of information

- exploration of the boundary work undertaken by surveilled workers in all settings, and the articulation/contestation of the work/private life boundary.
- legal and regulatory research which considers the ways in which employment law may be updated and extended to protect workers from the abuse of their personal data in the workplace. How may workers make the most of their full range of GDPR rights?
- the use of co-design processes to create ethical monitoring solutions
- the use of collective representation to challenge and negotiate workplace surveillance
- effective resistant strategies, wider media campaigns and legal restriction of workplace surveillance

Whilst a huge range of literature sources have produced this report, its limitations relate to the human labour involved in such a huge review. Furthermore, this research was conducted in 2020 – 2021. With face-to-face collaboration impossible, there are no first hand empirical accounts involved.

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Appendix I: Methodology

This literature review was constructed using a systematic review methodology derived from Xiao and Watson (2017[1]). The diagram depicts the 5 phases of the systematic review process, the first three of which will be documented in this section. The results of the literature synthesis are described in detail in this report

In **Phase 1**, The **literature search** utilised the JISC Web of Science database. The literature search began by combining references from the existing meta-analyses by Ravid et al (2020), Stanton (2000), Ball and Margulis (2011) and Sewell and Barker (2006). Searches for new literature were limited to the last ten years, due to the publication dates of these recent meta analyses. Whilst Ravid et al's meta-analysis was published in 2020, the vast majority of the research which featured in the analysis was published in the Organisational and Occupational Psychology field. This is also true of Stanton's (2000) meta-analysis. With work from the field of organisation studies, management studies, labour process theory and employment relations, featuring in Ball and Margulis' (2011) piece, the aim was to uncover any work outside Organisational and Occupational Psychology that had been published since 2010.

In **phase 2**, **inclusion screening** a number of master lists were created to combine results from the earlier meta-analyses into one list called 'Surveillance AND Monitoring Masterlist'. Duplicates were found and deleted, creating an initial masterlist of 229 articles. Then, several searches were undertaken relating to the last ten years' worth of publications. The terms 'surveillance' and 'monitoring' were separately combined with 'Worker', 'workplace' and 'employee' to generate the results. When combined into a master list and merged with the references already discussed in existing meta-analyses, the total number of references uncovered since the 1980s is 398.

Of the 167 articles identified as new literature, 91 related to the search terms 'Employee Surveillance', 'Workplace surveillance' or 'Worker surveillance', and 76 to the terms 'Employee monitoring' 'Workplace monitoring' or 'Worker monitoring'. Duplications and overlaps between the lists were eliminated as the Master List was drawn up.

- 1. Literature Search
- 2. Inclusion screening
- 3. Quality assessment
- 4. Data Extraction
- 5. Synthesis

The terms 'surveillance' and 'monitoring' were then separately combined with the terms 'sharing economy', 'collaborative economy', 'gig economy', 'digital labour', 'digital labour platforms', 'digital labour markets', 'on-demand labour', 'platforms', 'digital platforms', 'online platforms', 'labour platforms', 'remote work', 'click work', 'microwork', 'telework' and 'home-based work'. In cases of neologisms, such as 'microwork', the forms 'microwork', 'micro-work' and 'micro work' were searched for. A time limit of 5 years was placed on this search because very few publications addressed these phenomena prior to 2015.

The results of these searches were combined into a 'Surveillance, Monitoring AND' Master-list. References were selected for inclusion which specifically analysed surveillance or monitoring within the context of the second search terms listed above A total of114 new pieces of literature were identified, 75 of which focused on surveillance and 39 of which focused on monitoring. Both master lists were then cross referenced, which revealed an overlap of 11 items relating to the 'surveillance' search term and 3 items relating to the 'monitoring' search term.

Finally, a series of single-item searches were deployed following advice from COLLEEM team members. These terms were: 'Algorithmic Management' (29 results), 'Microwork' (11 results), 'Remote work' (39 results) and 'Telework' (31 results) and a composite category called 'Work, Employment and AI'. The latter was an amalgam of single item searches for literature on either Work or Employment AND 'Artificial Intelligence' (53 results), 'Algocracy' (0 results), 'People Analytics' (31 results) and 'Wearables' (5 results). A total of 199 results were

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[1] Xiao, T and Watson, M (2017) Guidance on Conducting a Systematic Literature Review *Journal of planning Education and Research* 39 (1) pp. 93 - 112

generated by these searches. In all, these literature searches have revealed a total of 366 new pieces of literature hitherto unaccounted for in existing meta-analyses of surveillance and monitoring in the workplace. These results are expressed in figure 1 below:
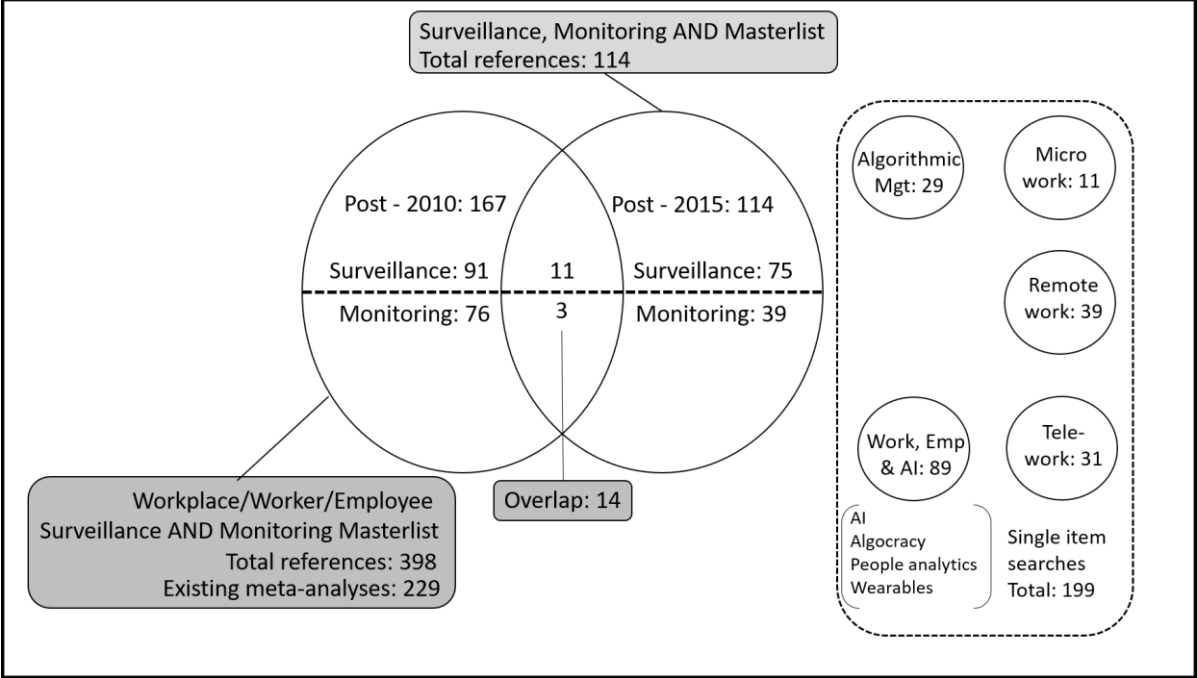
Figure I.1: Map of literature search results

Phase 3 of the analysis **assessed the quality and relevance** of the new items. This phase was accomplished in two separate stages. First, the master lists were uploaded into NVivo 12 and coded according to an *a priori* codebook generated from the existing meta-analyses by Ravid et al (2020) and Ball and Margulis (2011). Ball and Margulis' (2011) framework was used to combine work from diverse disciplinary fields under common themes, as it was originally designed to do. Ravid et al's (2020) analysis of the workplace monitoring future research agenda was used to capture the extent to which the literature review results were meeting this agenda. Some of the research priorities identified by Ravid et al (2020) coincided with Ball and Margulis' (2011) categories, so those codes were merged. Codes pertaining to Managerial Support and Effect on Supervisors and Managers were also merged. The Ravid et al (2020) codes that remain separate represent those which were not incorporated into Ball and Margulis' (2011) framework. Two emergent codes relating to gender and meaningful work were added during the course of the analysis to represent new research at this level of analysis. The *a-priori* codebook and its *a-posteriori* elaborations are shown in table I.1. The number of items categorised at each code are shown in parentheses after the name of each code

Table I.1 *A priori codebook with a posteriori elaborations*

Future research priorities (Ravid (2020))	*a priori*	Detail added *a posteriori*
	Cross cultural impacts (2)	Ethics code elaboration:
	Ethics (37)	Accountability (1), domination (1), fairness and justice (8), happiness(1), marginalisation (1), participation (1), privacy (10), virtue (1)
	Org level outcomes (3)	
	Social trust (9)	
Individual level of analysis **Ball and Margulis (2011)**		
	The individual boundary(34)	
	Compliance and resistance (27)	
	Controlling or limiting the effects of monitoring(9)	
Work culture, context, processes and meaning systems **Ball and Margulis (2011)**		
Headline code: Work culture, context, processes and meaning systems (48)	Negotiated order (44)	Gender (7)
	Managerial support + effects on supervisors and managers (16)	Meaningful work (16)
	Meta communication (2)	

A set of emergent codes beyond the *a-priori* codebook was developed to categorise the remaining literature as follows:

- **New monitoring practices** captured research which explored new objects of monitoring and/or surveillance in the workplace.
- **Regulation** captured research which focused on the legal aspects of employee monitoring and/or surveillance
- **Theory pieces** captured research with a heavy theoretical element and which did not feature empirical research

Surveillance present but not part of the main argument captured research which acknowledged the surveillant and monitoring intensive nature of work in the platform economy but which did not feature it as an object of analysis. These new codes, and their sub-codes are shown in the table 2. Again, the numbers of articles categorised at each code are shown in parentheses.

Table I.2: Emergent codes

Code	Subcode
New monitoring practices (55)	Behaviour monitoring (8)
	Biometrics (5)
	Emotion monitoring (5)
	Gig work (6)
	Mobile workers (1)
	Performance monitoring (14)
	Recruitment (8)
	Securitising work (2)
	Self-tracking (14)
	Social networks (5)
	Strategic HR analytics (4)
	Employee turnover (2)
Regulation (14)	N/A
Theory (7)	N/A
Surveillance present but not part of the main argument (8)	AI and management (10)
	Algorithmic management (10)
	Crowdwork (11)
	Gamification (1)
	Home-based work (11)
	Microwork (8)
	Remote work (14)
	Reputation (1)
	Telework (17)
	Theorising gig economy (28)
	Urban and regional development (8)

After the titles and abstracts of the results were coded, the second stage of work involved gathering full pdfs of the articles and eBooks that featured in the search results. The literature results were then systematically read, synthesised and evaluated, before being crafted into the report presented in the preceding pages.

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