

Decentering Technology in the Datafied Workplace: Data (In)Justice and Workers' Experiences of Algorithmic Management in Call Centers in the United Kingdom and Greece

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This article makes a key contribution to debates on algorithmic management by bringing together insights from labor process analysis and critical data studies to examine how workers experience and understand injustices related to the introduction of data-driven technologies. Based on 34 interviews with telecommunications call center workers in the United Kingdom and Greece, we find that while there are prominent concerns about uses of new technologies, workers tend to “see through” the technology to situate such concerns within wider power dynamics, most notably organizational culture, business models, and relationships with managers. Informed by debates on data justice, we, therefore, make a case for the need to decenter technology in engagements with algorithmic management to better account for workers' experiences in discussions on the future of work.

Keywords: call centers, algorithmic management, data justice, labor process theory (LPT), critical data studies (CDS)

As aspects of algorithmic management have become more widespread within workplaces, concerns have been raised about the consequences this has for working conditions, quality of work, and workers' rights. Indeed, trade unions across Europe are increasingly understanding algorithmic management as a

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potential threat to the interests of workers (AlgorithmWatch, 2023). While this threat takes many forms, concerns are frequently attributed to key features of emerging technologies, such as their reliance on extensive data collection, automated decision making, or predictive analytics, that can lead to issues including increased surveillance of workers, intensification of work, and questions of bias or discrimination in evaluations and disciplining of workers (Moore et al., 2018). Such concerns have also been at the center of a host of policy debates and new legislation within Europe as part of initiatives to address the risks of data-driven technologies, such as AI, within workplaces and beyond (Aloiso & De Stefano, 2022; Niklas & Dencik, 2020). These debates are illustrative of a wider tendency to center the technology itself in discussions about algorithmic management, with an emphasis on the novelty of computational systems at the expense of analyzing social relations and attending to wider historical tendencies (Joyce et al., 2023). In response, there have been concerted efforts to further contextualize technology in analyses of algorithmic management across different fields. Particularly within the tradition of labor process analysis, calls have been made to highlight the importance of institutions and social structures in workplace relations in research on algorithmic management. Research within the field of critical data studies (CDS), meanwhile, and particularly debates around data justice, have advocated for more engagement with the lived experiences of data-driven technology and the way datafication both shifts and extends power dynamics. However, despite both engaging with the datafied workplace and the implications of algorithmic management, labor process analysis and CDS have had limited dialogue.

In this article, we seek to overcome these silos and combine insights from both labor process analysis and CDS to explore workers' experiences of algorithmic management and their implications. Bringing these fields into dialogue allows for a greater appreciation of how technology is situated and contextualized and how experiences of technology tend to extend and amplify particular power dynamics and forms of control. Moreover, we draw inspiration from the nascent debate on data justice to posit that an emphasis on decentering technology in how algorithmic management is understood can bring analytical value to both fields and better account for how workers actually experience and negotiate algorithmic management in practice (Dencik et al., 2022). By way of illustration, we focus on call centers in telecommunications across two national contexts within Europe—the United Kingdom and Greece—that serve as significant low-wage economies and are advancing digital transformations in the workplace, particularly with regard to algorithmic management. Call centers have been the subject of substantial research for their extensive use of technologies and therefore offer an important context for both historical and novel trends in how workers experience the datafied workplace. Based on interviews with 34 call center workers, we explore how transformations in the workplace attributed to new technology are understood and negotiated among workers. We find that rather than understanding transformations in work in technological terms, workers tend to “see through” technology and situate experiences of algorithmic management within existing organizational structures, social dynamics at work, and the wider political economy. We therefore argue that to better contend with the conflicts arising from algorithmic management, we must combine the focus on the nature of control within labor process theory that has often been oriented toward the “what” of algorithmic management and the emphasis on data assemblages within CDS that seek to also engage with the “who” and “how” of algorithmic management, ultimately decentering technology in how such conflicts are understood.

The Datafied Workplace and Algorithmic Management

The growing reliance on data-driven technologies in society, what is often referred to as a trend of datafication, has led to much debate on implications for the nature of work and working life. In particular, much focus has been on the ways in which emerging technologies are creating novel forms of work and new types of economies, such as platform labor and the gig economy (Taylor et al., 2017). These platform-based forms of work showcase the extent to which developments in data-intensive technologies and algorithmic models can create and shift sectors and markets, setting new rules for workplace relations through varying degrees of automation (Wood et al., 2019). Less focus has been on transformations happening within standard employment and existing industries that are also incorporating some of these technologies and practices. This is important as experimentation with technologies such as AI migrate across sectors at rapid speed (Institute for the Future of Work, 2021). Indeed, the ability to generate and collect data from a range of sources has seen the rapid proliferation of new tools used to not just monitor and assess work and workers, but to organize and predict activities and behavior in an increasingly datafied workplace (Sánchez-Monedero & Dencik, 2019).

Particularly noteworthy is the growth of so-called algorithmic management which refers to the use of software algorithms in the controlling of an organization and is defined by Lee et al. (2015) as “software algorithms that assume managerial functions and surrounding institutional devices that support algorithms in practice” (p. 1603). According to Lee et al. (2015), this algorithmic management entails human jobs being “assigned, optimized, and evaluated through algorithms” (p. 1603; see also Wood, 2021a). However, as outlined by Holtgrewe (2014), rather than breaking with patterns of technological development, this follows a longer-standing trajectory of convergence between information and communication technologies used in the workplace driven by increased connectivity, cloud computing, and big data. In this sense, we approach algorithmic management not as a marked shift in technology use, but as an intensification of particular features of technology in the workplace, most notably the generation and algorithmic processing of digital data that also underpins the more recent focus on AI.

Two key examples of intensified features are the uses of software algorithms for surveillance and performance assessment, which have been shown to intensify managerial control while reducing human interaction between workers and management. Indeed, worker surveys conducted by the Trades Union Congress in the United Kingdom found that workers line-managed by algorithmic systems “can find the experience dehumanizing [. . .] with many describing a sense of loneliness and constant pressure” (O’Grady, 2021, para. 6). However, in analyzing this kind of control, there has been a tendency to focus on the technology itself. As argued by Wajcman (2006), there is a risk in studies on the relationship between technology and work to provide overly technicist accounts of the impact of technology that miss the significance of social relations. Instead, drawing on science and technology studies, she makes a case for treating the “technical” and the “social” not as separate spheres, but one and the same. According to Joyce et al. (2023), this approach has had significant influence in studies of technology and the labor process that have sought to reject technological determinism. However, importantly, they argue that the more recent focus on data and algorithms risks narrowing in on the technology again at the expense of other features, including in analyses of control (see also Howcroft & Taylor, 2022). In particular, they argue that “the role of social and institutional mediation and agency following the implementation of new

technology is persistently under-researched and undertheorized" (Joyce et al., 2023, p. 152). Similarly, Thompson and Laaser (2021) argue that technological determinism—"assigning of causal powers and effects to technology that belong to or are mediated by institutions and agents"—has "reappeared in labor process analyses debates concerning changes in economy and work and has resurfaced sharply in the discourse around the fourth industrial revolution" (p. 140). The focus on control in labor process theory, for example, has meant that analyses of algorithmic management have tended toward its technical functions and features as a way of illustrating the novelty of control in this form of management, such as arguments about a shift toward "algorithmic despotism" (e.g., Delfanti, 2021; Vallas & Kronberg, 2023) and the influential account of algorithmic control by Kellogg et al. (2020), who argue that this ultimately "serves as a contrast to past forms of technical and bureaucratic control through facilitating more comprehensive, instantaneous, interactive, and opaque forms of control" (p. 395). These have been important contributions for understanding potential shifts in management techniques and practices, but there is a risk that we might not fully appreciate how workers actually experience and make sense of such shifts. As Wood (2024) argues, a

limitation with algorithmic management research has been "this propensity to focus on the technical features and functions of algorithms in the workplace while paying insufficient empirical and theoretical attention to the contexts, contingencies and variations associated with algorithmic management in practice." (p. 5)

Similarly, Krzywdzinski et al. (2024) argue that "the focus to date has mainly been on how new technical infrastructures function, while the role of human management and the process of negotiating algorithmic management has been undertheorized" (p. 60).

Decentering Technology in the Study of Call Centers

One way to address this, we suggest, is to draw on insights from more recent and complementary fields, such as CDS, that have sought to emphasize the politicized and distinctively social nature of data (Iliadis & Russo, 2016; Ruppert et al., 2015). In line with the above critiques, data infrastructures, in this sense, are "socio-technical" systems that emerge and have meaning in the context of existing social practices (Kitchin & Lauriault, 2014). Questions, therefore, must be asked about how they are constructed, how they work, and their performativity (Kitchin, 2014). Importantly, central to CDS are questions of ideology and political economy in the make-up of what Kitchin (2014) refers to as "data assemblages" that seek to account for the relations and processes influencing how a particular data application works. As Kitchin and Lauriault (2014) propose, a data assemblage is always more than the data system/infrastructure itself, consisting of "all of the technological, political, social and economic apparatuses that frames their nature, operation and work" (p. 1). Thus data assemblages are always in a state of becoming since they are constituted by and respond to dynamic factors such as organizational and business model changes, new skill sets, and changes to regulation and law, as well as broader changes in political economy and market shifts. In this respect, a data system or algorithm is one factor in workplace-based data assemblages.

A significant body of research situated within CDS has therefore sought to elevate workers' lived experiences in studying algorithmic management as a way of foregrounding the situated nature of

technology's implications (e.g., Rosenblat & Stark, 2016; Shapiro, 2016). A particular strand of this is oriented explicitly toward debates on data justice, asking what is at stake with datafication, including for social justice concerns such as equality, fairness, and human flourishing that are also important for workers' rights (Dencik et al., 2022). Data justice here is used to draw attention to the way data-driven technologies are often bound up with struggles for social justice, both entrenching and creating new power dynamics that shape life opportunities (Dencik et al., 2016; Taylor, 2017). For the purposes of studying algorithmic management, this requires an engagement with the way workers themselves understand the introduction of new technologies in relation to wider workplace conflicts and dynamics and how injustices are experienced and negotiated.

Call centers offer an interesting lens through which we can examine such experiences and negotiations. Often seen as emblematic of digital economies, they are heavily datafied and rely on contemporary political economic conditions such as global sourcing, precarity, casualization, and low investment in workers (Roque, 2018). According to Thompson and Laaser (2021), call centers are particularly pertinent for exploring conflicts over algorithmic management, as they rely on a business model of "mass customer service," in which "extended and intensified control and utilization of labor is integral to the call center labor process" (p. 149). There is an emphasis on tight technological, bureaucratic, and normative managerial control practices, low investments in training and development, and repetitive work practices (Thompson & Laaser, 2021, p. 149). As a datafied workplace, they have been exemplary due to the extensive and continuous deployment of new technologies that monitor workers' quantitative and qualitative outputs such as average call handling time, the length of time a worker is unavailable to take a call, and phone manner (Bain & Taylor, 2000; Ball, 2010; Edwards & Ramirez, 2016). Indeed, the call center has long been considered "the prototype of a work environment that makes employees subject to extensive surveillance and digital control" (Christl, 2023, p. 4). As Christl (2023) shows through an extensive review of call center-based software, algorithmic management in this context encompasses "a wide range of mechanisms to structure, direct, monitor and control work" including automated scheduling, automated call and task allocation, performance metrics, and voice/sentiment analysis software (p. 4). Importantly, the design of these also shape how they are used by employers, such as leveraging game functions to enhance performance or the creation of call queues on screens that Christl (2023) likens to a "virtual whip" that pressures workers into being more efficient. In this sense, call center work has been a "core field" (Krzywdzinski et al., 2024) for technically enabled performance management as a key feature of algorithmic management.

In part because of the entrenched reliance on technology in the management of call centers, there has been a danger of overstating the totality of organizational control, particularly as coercion, that risks failing to attend to how workers resist the use of technology or underperform and the inconsistency of managerial control (Bain & Taylor, 2000; Taylor et al., 2002). Instead, studies of call center work draw our attention to the multiple ways in which the role of technology is not unidirectional, but negotiated, contested, and ultimately socially shaped. Much of this research has underscored a control/resistance paradigm, a key aspect of which has been to highlight the embeddedness of workplace control and worker agency. For example, while it is suggested that the call center working environment limits opportunities for workers to reconstitute uses of technology, in turn shaping the ways in which workers might respond to the technology (Edwards & Ramirez, 2016, p. 105), it has also been noted that the agency and

resistance of call center workers tend to intensify rather than weaken with increased surveillance (Ball, 2010, p. 94). The embeddedness of call center workers in social processes, meaning-making systems, and workplace cultures, highlighted by Ball and Margulis (2011), illustrates how institutions still have a role in shaping workers' experiences of emerging technologies. Call centers, therefore, serve as useful contexts for making sense of conflicts pertaining to algorithmic management and how they relate to ongoing struggles for justice, as they encompass historical trends in digitalization and are emblematic of a weakened position of labor and precarious and casualized places of work. As we go on to discuss, while technology has always been central to the operations of call centers, new systems are routinely implemented, and features of algorithmic management are seemingly becoming more central to the management of workers. However, how these are situated within the workplace and, importantly, how they exist within the politics of existing social relations need more scrutiny. To echo Gangadharan and Niklas's (2019) call for a "decentering" of technology in debates on data justice requires a focus away from the "what" of algorithmic management toward the "who" and the "how" to better capture the actual nature of conflicts surrounding algorithmic management.

Method

To explore experiences of algorithmic management, we present findings from interviews with call center workers in the United Kingdom and Greece, both of which host large call centers and rely heavily on low-wage domestic and migrant labor within the economy. In the United Kingdom, over 4% of the working population is employed at a call center (ContactBabel, 2024). During the early 2000s, the UK call center sector underwent significant outsourcing, or offshoring, particularly to India and Southeast Asia, but more recently, this has been replaced by substantial onshoring, in part seen as a reaction to a demand by British customers for native workers (Roque, 2018, p. 90). Consequently, call centers started to move to the cheaper, job-deprived peripheries of the United Kingdom where workforces have been depleted by the loss of coal mining and steel work industries, for example, in Wales and the north of England (Roque, 2018, p. 91). Greece, meanwhile, relies heavily on migrant labor and is significant for the trend of nearshoring, which sees the setting up of large call centers within Europe that addresses "the misuse of offshoring practices and the benefits of the businesses being in closer proximity to their clientele" (Yannoulatou, 2019, para. 6). Greece has become a particularly attractive European country in which to nearshore call centers due to low corporate taxes and low labor costs, with the state actively seeking to entice call center companies to expand their operations in Greece (Capello & Dellisanti, 2024; Lavelle, 2021).

We conducted 34 semistructured interviews in total: 22 call center workers in the United Kingdom (working for BT and Teleperformance) and 12 call center workers in Greece (working for Teleperformance). In the United Kingdom, all those interviewed at both Teleperformance and BT were domestic workers in South Wales, southwest England, and the north of England. A large proportion of the sample had worked at the company for over 15 years, though a significant minority were newer employees who had worked there for less than three years. All were customer service advisers except two BT interviewees who were or had previously been supervisors at the time of research. Both BT and Teleperformance are large employers: Teleperformance has 9,000 UK employees (Teleperformance, 2025) and BT over 80,000 (Sweney, 2023), of whom around 15,000 work for call centers (Roque, 2018, p. 90). The Teleperformance interviewees provided telephone-based customer service for a Teleperformance campaign with a large retail bank, while

the BT interviewees performed various telephone-based customer service roles relating to customer billing, technical faults, customer retention, complaints, and product upgrades. Interview participants were recruited through a combination of personal approaches outside the workplace and via trade union contacts as well as snowball sampling. In part because of this approach to sampling, a large proportion of the interviewees at BT were members of the Communications Workers Union.

Teleperformance employed over 12,000 workers in Greece at the time of research, with over 50% of the workforce being migrant workers (Teleperformance, 2025, para. 4; Yannoulitou, 2019). Those interviewed worked a variety of roles within Teleperformance, including customer service (calls and e-mails), content moderation for social media, data analysts of customer experience, transcription of audio to train automated translation tools on social media, and supervisors. More than one person interviewed in Greece had experience of working in more than one role during their time at Teleperformance, in part due to the short-term nature of contracts (see also Yannoulitou, 2019). Interview participants were found using snowball sampling, drawing on connections made during previous research with migrant communities in Athens to make initial contact with Teleperformance workers. In part because of this approach to sampling, all but one of those interviewed in Greece were migrant workers, but this is also consistent with the nature of the workforce at Teleperformance in Greece, as outlined above.

While these two sites of study provide many contextual contrasts, our aim here is not to treat them as comparative, but rather to highlight similarities in workplace practices and experiences in telecommunications call centers across cultures, particularly within Europe (see also Roque, 2018). The interviews were conducted during 2022 and early 2023, both in person and online, and followed the same interview schema, exploring topics including the introduction of data-driven technologies in the workplace, how they are used and experienced, workers' engagement with new technologies, and forms of organizing around conflicts emerging from uses of such technologies. Using inductive thematic analysis, the interviews were coded according to common themes that emerged across the sample, allowing the data to structure our analysis (Braun & Clarke, 2006). This allowed fieldwork data to highlight shared experiences of injustices pertaining to algorithmic management across the two locations, presented thematically below. All interview participants have been anonymized, and pseudonyms are used for their names.

Experiences of Injustices in Algorithmic Management

To make sense of how algorithmic management is experienced, it is important to initially set out the extent to which workers understand the introduction of technologies in the workplace as transformative. This is necessary because the entrenched nature of technologies in call centers from the outset makes it unclear how the current moment of algorithmic management might be experienced as different. Insights from workers themselves about what they view as transformative point to the particular significance of new technologies, even as they continue or extend technology already in place. In line with previous research, two related areas were highlighted by workers as particularly significant: increased surveillance and the growing turn to data for performance assessment. The organizational culture of call centers was noted by several workers across both countries as emblematic of such transformations and, to an extent, something to be expected. Workers at Teleperformance in Greece spoke of high levels of monitoring and surveillance as "daily, basic stuff" (José) where "they're monitoring everything" (Sophia),

from bathroom breaks and cigarettes to the number and length of calls, customer reviews, accuracy, and tone of voice. This led to a workplace where, as Luca stated, "everything is measured and analyzed. Whatever you do, you leave a trace, so people know what you do." Similarly, in the United Kingdom, BT workers spoke of the constant nature of surveillance practices as well as an increase in the number of monitoring systems used to track and evaluate their behavior and performance, which, for the majority, was seen as intrusive. It was said, for example, that "we are monitored to within an inch of our lives" and that surveillance "has got greater over the years" (Nick, BT, UK). It was recognized that the call center sector is especially prone to such intrusive practices: "Are there really any other jobs you get where you're watched that much?" (Sian, BT, UK).

These practices of extensive monitoring and surveillance across the workday to inform data-driven performance assessments are predominantly experienced by workers as means to intensify work in ways that feel excessive and unfair. In the United Kingdom, for example, at BT, workers spoke of the intricate time assessments that are part of their performance evaluations and that fractionate workers' time according to measured metrics. These assessments simultaneously and constantly measure "average handling time, which is how long overall it takes you to get ready for your next call" as well as "how long you've spoken to the customer for," "how long you've been in after call work," and "your wrap time, which is the call work, so that is after you've had a customer on the phone, how long you're actually waiting in that count until you press ready for the next call" (Joe, BT, UK). Often, workers saw this emphasis on speed as a way to "make the job harder" because "instead of doing what you need to do for the customer, you're trying to hurry things up because you're conscious the call is taking a long time" (Grace, BT, UK).

Similarly, at Teleperformance in Greece, Paul felt handling times were being reduced to a point that is unworkable, with not enough time and no flexibility, leading to them having to take the next call while still writing up handling notes from the previous one. At BT, one worker pointed to a marked increase in pressure compared with when they started: "You had two paid breaks and an unpaid lunch, and we're now in a situation where advisers don't even get paid breaks anymore" (Shane, BT, UK). As with Teleperformance, for some workers, this renders working conditions intolerable: "It's very much you'll have 10, 11 targets to start with, and then the efficiencies come in, making it 14, 15, 16 in some cases. It's just too much" (Shane, BT, UK).

In some cases, such intensification of work and pressure, and a focus on productivity and profit, has disciplinary consequences, pushing out certain workers who are, according to the stats, slower or not as productive:

I had one adviser—he was an older guy, and he wasn't that quick off the mark. He was an intelligent guy, but [. . .] he tended to listen to the customer and then start doing the work, and that was having an impact on how long he was taking on the cases. He wasn't ticking all the boxes, and he was eventually managed out of the company.
(Grace, BT, UK)

These disciplinary consequences are also more general. Performance assessment entails ongoing evaluation, where both individual and team performance is assessed and fed back to workers each day,

week, and month. As Alessandro, a worker at Teleperformance in Greece, described, "They provide a daily feedback on your performance, in relation to the team performance." Within this, key performance indicators (KPIs) and average handling times, such as customer reviews, number of phone calls dealt with, number of articles moderated, number of e-mails answered, and other quantified elements of workers' roles, alongside supervisor-led monitoring such as listening in to calls and providing feedback, are used to provide an overview of worker activities and fed back to them through automatically generated statistics. As explained by Eva, working at Teleperformance, Greece, "They call you, and they say, OK, you haven't been very empathic, like you have to lower your voice, like try to be more fast with what you're saying." Importantly, these evaluations are directly linked to financial rewards (i.e., bonuses), which take into consideration both the productivity and accuracy of work: "It's a combination of those statistics plus the two evaluations per week, and a combination of all that can give you the benefit of a bonus" (Sophia, Teleperformance, Greece).

Such evaluations reinforce what is seen as an overly strict temporal regime imposed through statistics and targets that are linked to bonuses: "If you don't go at dead on 10 a.m.—if you go at 10:01, 10:02—your adherence gets affected" (Nick, BT, UK). This regime is experienced as unfair by many of the workers interviewed, not just by intensifying workloads, but by disregarding circumstances that may affect performance, as further explained by Nick from BT: "You've got 96%, but you might be stuck on a call, and you can't put the call off. If a call goes over for, say, three, four, five minutes, your adherence gets affected." Even though several workers recognized that the use of technology for surveillance to inform performance assessment is a continuation of long-standing practices in call centers, experiences of injustice were emphasized because of the intensification and extension of such uses to more areas, combined with the advancement of technology. For example, Joanne from BT noted, "KPIs are an old way of monitoring something with systems that are now far more capable of giving more information." Similarly, Paul from BT reflected, "There have always been stats . . . [but] . . . it was a bit of an eye-opener when I went through all those stats. It never used to be like this. It used to be a nice company to work for."

Frustration would also be amplified because the use of new technological systems is also experienced by workers as occasionally counterproductive. For example, Rhys from BT explained that although they knew "nearly all the processes for all the products," they still have to use scripts and follow system procedures because they are mandatory, which makes calls longer when "they want you to be on the phone for as little time as possible." It was felt that digital systems do not "respect the skill of the advisers who may have been there for a long time." Another worker explained that background checks need to be carried out by advisers before calls with some customers to understand their circumstances, yet a new system introduced increased time pressures that enabled managers to say, "Why didn't you call that customer quicker? Why didn't you do this?" (Grace, BT, UK). This was perceived to be counterproductive because it hinders workers' ability to do their job well. As Grace said, "You're just trying to work so fast all the time to hit your targets." Similarly, at Teleperformance in Greece, workers spoke of the way new systems were brought in to aid productivity while disregarding worker voice and expertise: "The increase of performance would . . . come through us, and they wouldn't listen to our concerns . . . Instead they came up with these new rules and new kinds of systems to reduce our handling times" (Paul, Teleperformance, Greece).

As such, workers in Greece spoke of the advancement of algorithmic management as furthering "hostile" and "brutal" working conditions, often articulated as "dehumanizing," as workers are not able to

"escape the clock" and "the machine." Indeed, one worker explained, "You always feel that your actions and what you're doing, your performance, is always observed . . . like your PC controls you. Even when you are not doing anything, completely the machine is controlling you" (Sophia, Teleperformance, Greece). Another worker said, "In some way, you are not meant to help the person calling; you are meant to please the system" (Luca, Teleperformance, Greece). This disregard of worker voice and expertise is amplified in an environment where workers also see algorithmic management as a way to undermine the social dimensions of work. For example, workers' performance data are used by managers to compile league tables so that "you're being put into a constant comparison to the other people" (Sophia, Teleperformance Greece). This same interviewee considered the negative impact of this scoring to be that "it makes you competitive; it . . . doesn't give you the feeling of togetherness, and, like, you're not really a team because everyone performs for themselves." Workers also commented on the fact that their relationship with colleagues was mediated through computer apps such as Teams, which limited their ability to know, trust, and organize together to resist harmful practices and workplace issues. As Hassan from Teleperformance in Greece commented, this meant there was often no relationship with coworkers: "I don't have any relationship with them, like only with the supervisor because I have to have." His colleague Paul summarized the dehumanizing effect of a lack of social interaction combined with advanced automation:

Everything that you do is kind of getting more and more automated . . . your working conditions are extremely quantified, like thinking in terms of time and performance constantly takes away a lot of what makes you human . . . The real human interaction is taken away, stripped away from you . . . it's actually quite a bad thing . . . On the one hand, you can't really organize with others, you don't really know what others dislike about the work . . . you can't really get a feeling of how others feel in the workplace. (Paul, Teleperformance, Greece)

In the United Kingdom, workers similarly noted that the introduction of more systems is having "a massive detrimental effect on mental health." One worker stated, "You've got so many variants [of systems] that it's becoming almost a nightmare. [. . .] It's so complicated now, and you get absolutely stressed now" (Elis, BT, UK). Another also emphasized the "massive detrimental impact" of the introduction of different systems over the years. It was highlighted that, on the one hand, this impact had worsened with increased reliance on data-driven technologies, as "the more technology and the more systems that are brought in to support just adds layers of stress" (Shane, BT, UK), while on the other hand, the social aspects of work that older employers enjoyed have been eroded: "I've been here 42 years, and it was a fantastic place to work because it was a family and come to work and socialize" (Elis, BT, UK). Elis went on to note that management "know it's poor," but try to compensate with fun activities such as three-legged races around the office car park. However, these activities are seen as futile in addressing the issues with working conditions that workers have: "They're thinking engagement counterbalances the poor systems and the poor working conditions, but it doesn't" (Elis, BT, UK).

Experiences of injustices pertaining to algorithmic management are therefore prominent among workers at call centers in the United Kingdom and Greece. Although the introduction of new technological systems is seen to continue many existing practices, the increase in surveillance and the quantification of performance assessment that is advanced with algorithmic management are also regarded as excessively

punitive, inflexible, and dehumanizing, affecting workers' well-being. It is, therefore, important to explore how workers understand and engage with such experiences of injustice.

Negotiating Injustices in Algorithmic Management

Some workers noted that they try to engage in coping mechanisms to navigate increased pressures: "Everyone learns how to play the game and if you've been there a bit longer to not worry too much about it" (Nick, BT, UK). Similarly, another worker said, "I don't take too much notice of [performance management systems]. I try not to get bogged down with it. [. . .] Personally I don't get too wound up about it anymore" (Ffion, BT, UK). A significant component of negotiating experiences of injustices in the workday is therefore to create a distance to the way technology is used or, alternatively, to find ways to circumvent it. As Rhys explains, this may involve minor acts of resistance that limit uses of technologies and "adapt it to be a bit less intrusive" (Rhys, BT, UK), including bypassing extensive monitoring: "We do have cameras on the computers, which I don't agree with [. . .] Most of us tend to turn the cameras away so they can't see us" (Amy, BT, UK). Similarly, Paul from Teleperformance in Greece described how "people were trying to trick the system" by, for instance, "putting heavy stuff on the keyboard or moving the mouse after like 5–6 minutes and then go and do something and then come back and move the mouse again."

Such everyday forms of resistance are part of shaping experiences of algorithmic management and are also indicative of an understanding of technology as something that is not fixed and static, but as contingent and negotiated. Indeed, while workers highlighted a general worsening of conditions with the further introduction of data-driven technologies, a prominent theme in our interviews across both countries was the extent to which injustices pertaining to algorithmic management are seen to be bound up with institutional and social contexts, such as organizational culture and business models. That is, although workers highlight the prominence of particular practices with the advent of new technologies, such as increased surveillance and performance assessment, the way conflicts over such practices manifest in the workplace is not an issue of the technology, but wider processes that shape how technologies are both used and experienced. We see this, in the first instance, in the widespread acceptance and even legitimation of the advent of algorithmic management linked to a perception of call centers as primary examples of particular organizational cultures and reliant on business models that perpetuate the use of technologies as a means of increasing profits and productivity. We saw this expressed among workers in both sites of study; for example, Johnny (BT, UK) said, "It's always been like that. Since I started working there, it was always the case because there's that much information, it has to be on a system to be tracked. There's no other way of doing it." Similarly, Paul at Greece Teleperformance said:

It's such a ubiquitous system, and it works so hand in glove somehow that no one even dares questioning abolishing it. No one even imagines that it would be possible without being constantly measured because you kind of accept that your performance needs to be measured because that's a requirement by the company.

At the same time, feelings of legitimation are frequently contingent on social relations in the workplace and the nature of management. In both Greece and the United Kingdom, workers highlighted the significance and variability of relationships with supervisors and managers in how algorithmic management

is experienced. As Eleni from Teleperformance in Greece stated, "It's the supervisor . . . it's not from a computer." As such, despite feeling that technology can extend top-down control, it does not displace the role of the supervisor in terms of negotiating power within the workplace: "It depends on the supervisor and on the manager because [. . .] some of them were friendly; some of them were misusing their powers" (Amir, Teleperformance, Greece).

Speaking to this, BT interviewees in the United Kingdom also emphasized that the actions of managers rather than the technology are often what shape their workplaces and lead to transformations. For example, Rhys noted that supervisor managers "would chop and change whether you would get monitored on certain things" and that "if a manager gets bored one day and decides they want to monitor a certain stat, that's what they do." As such, it is not necessarily the automated and accurate timing of workers' breaks that creates the problem, but whether or not the supervisor insists they were followed closely that impacts worker experience. Many interviewees suggested that "it really comes down to management styles" (Ffion, BT, UK) and described leniency and micromanagement as two opposing styles that had different implications for worker experiences of technology. Micromanagement worsens the experience of stats-based performance management, and several workers commented on how managers appropriate technology as a tool for control, reinforcing the power asymmetry between manager and worker. As Sian from BT explained, the issue is the way micromanagers use technology "to your detriment and their advantage." The consequence of this is that workers choose to leave or are managed out through managerial appropriation of technology. For instance, Ffion at UK BT said, "I've seen people [workers] go due to management styles, the tools that they've got to attack you with." This was reiterated by Sian, who commented, "I know somebody who's quite high up in HR, and they're quite honest and say that they know when they've got it in for somebody because they'll find some way on the system to work you out" (BT, UK).

Moreover, it was highlighted by one interviewee who had a role as supervisor within BT that decisions made by senior management ultimately determine the stress experienced in call centers since "the general managers [. . .] sometimes just change what they're getting fed back by directors" (Joe, BT, UK). For example, "if the directors are saying this has really been a problem for a while, [the supervisors] then just shove everything on that." They further described how this not only leads to chaotic, stressful working conditions but also reinforces inequality: "It changes every month, but there's always something new that is stressing us out. There's always something new going wrong, and then all the pressure gets piled, and we've got to try and sort it out" (Joe, BT, UK).

Experiences of injustices pertaining to algorithmic management are therefore continuously negotiated by workers who legitimize or illegitimize uses of technology in relation to institutional contexts, including organizational culture and business models, as well as the role and nature of managers within and across call centers. Rather than foregrounding the technology itself, workers therefore understand algorithmic management as contingent on these wider social relations.

Beyond Technology-Centered Conflicts in Algorithmic Management

In line with previous call center research, our findings highlight the entrenchment of algorithmic management within workplaces and the way this is predominantly manifested as increased surveillance and extensive evaluations of work and workers. Importantly, our interviews point to an understanding of these practices as not only relating to technological features and functions, but are rather seen as an extension of existing processes and power relations at work. Workers are acutely aware of the contingency of outcomes relating to the introduction of data-driven technologies into the wider data assemblage within which such technology is situated, including ideologies linked to business models, power dynamics emerging from particular organizational cultures, and functions of capitalism. Call centers offer particularly pertinent insights in this regard as technology-intensive organizations that hold significant legitimacy among workers in their use of algorithmic management techniques. Call centers are seen by workers to be natural settings for experimentation with algorithmic management in a way that continues longer-term trends of digitalization, but also point to the intensification of certain features that elevate experiences of injustice. While transformations in experiences of work are identified with the introduction of new systems, our findings also underscore the continuation of prominent themes in how conflicts manifest in relation to algorithmic management, most notably in terms of enhanced managerial control, further work intensification, increased isolation, and restrictions on collective organizing around workplace issues. These speak to historical struggles for greater autonomy, worker power, and the ability to organize as central features of the datafied workplace, made more pressing in a context of institutionalized precarity and casualization. By engaging with workers' experiences and negotiation of technology in this way, we can advance our understanding of the conflicts surrounding algorithmic management beyond a focus on control based on technological functions and features.

Instead, our findings showcase a need to emphasize the embedded nature of technology in which the enactment of control and the balance between coercion and legitimation that underpins it are bound up with what Wood (2021b) sees as embedded political struggles, including the nature of markets, managerial relations, societal institutions, and norms that all shape technology, how it is used, and its ability to constrain and enable agency of different actors within a workplace. For Thompson and Laaser (2021), it is the underlying political and economic pressure points and sources of contestation that shape the strategic choices surrounding the design and utilization of technology at work. For them, the materiality of technology, referring to the interests of actors such as managers seeking control over the labor process, becomes decisive when it is embedded in specific business models and their distinctive logics of value creation and extraction. In this sense, they point out, "technology is not the totality of the model, as it has to be integrated with employment, spatial and other institutional relations which all offer spaces for negotiations over the technical and social organization of work" (p. 147).

To further build on these insights, we suggest that bringing research on labor processes into closer dialogue with CDS can serve to further illuminate the nature of conflicts relating to algorithmic management. In particular, foregrounding workers' experiences of injustices pertaining to algorithmic management moves attention away from the particular features of the technology itself toward an engagement with the conditions in which workers are situated in their negotiation of such technology. In this sense, there is a need to decenter technology in how we come to understand contemporary struggles over datafication,

including algorithmic management. In understanding the various systems that interviewees alluded to as one aspect of a broader data assemblage, in line with Kitchin (2014), we can begin to make room for understanding the who and the how of algorithmic management. The negative externalities that workers spoke of, such as unpaid breaks, emotional and psychological toll, institutionalized precarity, social isolation, and so on, are not neatly attributable to the use of this or that system in the call centers in our study. Rather, we see these experiences as deeply embedded and contingent. This speaks closely to prominent debates on data justice that have sought to highlight how data-driven technologies are both bound up with and extend central power dynamics that have significance for social justice concerns. As Gangadharan and Niklas (2019) argue, “seeing through” technology to connect injustices experienced in relation to datafication to longer histories and institutional and social structures as a way to make sense of such injustices is an important part of advancing data justice.

Indeed, our findings show that while the introduction of new technologies associated with algorithmic management is seen as detrimental to working conditions by workers, workers tend to “see through” technology in how they understand the nature of such challenges and where struggles are located. That is, they experience injustices pertaining to algorithmic management not as rooted in the technology per se, but rather the situated nature of its use—or data assemblage—most notably with regard to business models, organizational culture, and relationships with managers. Bringing together analyses of control in labor process theory with approaches in CDS that seek to engage with technology as constituted by and within particular power relations can allow us to conceptualize the impact of algorithmic management more appropriately. This is significant not only for advancing our understanding of struggles over the future of work, but in highlighting similarities across different national contexts, it can also serve to challenge the continuous emphasis on the “what” of algorithmic management within both scholarly debate and policy frameworks, often at the expense of the how and the who. Within the European Union, for example, frameworks such as those in the General Data Protection Regulation and the more recent EU Platform Work Directive, which is intended to engage with questions of algorithmic management and (workers’) rights, have had an overwhelming focus on the distinctive features of emerging technologies in terms of data collection or model design, often without much engagement with structural conditions and social relations (Adams-Prassl et al., 2023; Balayn & Gürses, 2021; Dencik et al., 2024). This, our findings suggest, does not adequately correspond to how workers themselves experience and negotiate algorithmic management within the workplace and therefore how the injustices that emerge may be addressed.

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