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Response to the White House Office of Science and Technology Policy's Request for Information on Automated Worker Surveillance and Management

Data & Society Research Institute submits this comment in response to the Request for Information (RFI) on Automated Worker Surveillance and Management published by the White House Office of Science and Technology Policy (OSTP) on May 1, 2023. Data & Society is an independent, nonprofit research institute studying the social implications of data-centric technologies, automation, and artificial intelligence. We produce empirical research that challenges the power asymmetries created and amplified by technology in society.

Automated worker surveillance and management systems present grave risks to workers, their families, and their communities. Many employers are using such systems in unlawful ways that undermine workers' health, safety, pay, autonomy, legal rights, and collective power.

Informed by empirical research and worker interviews conducted by Data & Society, this comment describes practices of automated worker surveillance and management, including how they operate and how pervasive they are *(Section I)* and how they are harming workers and their rights *(Section II)*. We then offer policy recommendations for the Biden-Harris Administration to address the harms of these systems under existing federal law *(Section III)*.

As the White House seeks to advance equity and worker voice in federal technology policy — as embodied in its Blueprint for an AI Bill of Rights[1] and Executive Order 14091[2] — executive agencies must act swiftly to redress the harms resulting from automated worker surveillance and management. Data & Society encourages the Office of Science and Technology Policy, Domestic Policy Counsel, and Office of Management and Budget to coordinate a comprehensive approach to protect workers from invasive and unlawful employer practices.

I. Worker surveillance and algorithmic management are independent employer practices that undermine worker power and degrade standards of work.

Although in this comment we generally adopt the RFI's use of the term "automated worker surveillance and management," we offer a clarification at the outset: the practices of worker surveillance and algorithmic management are *discrete employer practices and should be understood as such.* Worker surveillance harms workers even where supervision is performed by human managers, not by automated systems. And algorithmic management harms workers even where workers are remotely managed through external data like traffic and weather patterns or customer demand. Addressing the two practices as a unified system — as one closed circuit of worker data feeding into automated systems that thereafter generate employer decisions — elides other harms resulting from automated worker surveillance and management.

In retail, for instance, employers use automated scheduling technologies that incorporate data on customer shopping patterns (collected from surveillance of customers) and weather conditions to determine staffing and scheduling, which has exacerbated precarity, stress, and economic instability for low-wage workers and their families.[3] Many service jobs also use customer ratings and reviews in management decision-making, including determining workshifts, disciplining employees, and termination.

Addressing technology-mediated harms to workers will require looking beyond direct monitoring of workers to employers' broader deployment of data practices and automation. Restricting or eliminating the collection of workers' personal data will not end the harms of algorithmic management, which can continue based on other sources like customer reviews, weather and traffic data, or seasonal retail patterns.

Although workplace surveillance is not a new practice, it is rapidly expanding to impact new sectors and more workers in more invasive ways.

Worker surveillance has operated in the workplace for centuries. While some trace the first instances of scientific management to Frederick Winslow Taylor's management principles around the early twentieth century, the measurement of human laborers and productivity can be seen in the record keeping of enslaved Africans centuries before the first factories were built in England.[4] The word "surveillance" itself — deriving from older words like "survey" or "supervise" that did not quite capture the new practice of employers gaining informational advantages over workers — emerged around the creation of modern capitalism.[5]

Managers have long collected information on workers to analyze their skills, productivity, and fitness for employment, as well as to make predictions about worker behavior. If there is a difference now, it is that technical advancements have made worker surveillance and data collection nearly constant and extremely detailed. Today's invasive, continuous, and opaque surveillance systems descend from a long history of employer practices to wrest control from workers — from early paper filing systems and statistical analysis to today's automated data collection and decision-making.[6]

As many workplaces no longer are confined to centralized physical locations, bosses are implementing new technologies to monitor dispersed and asynchronous workforces. The app-based, platform, or "gig" economy in particular has introduced a new frontier of worker monitoring. Employers like Uber, DoorDash, and Amazon remotely monitor their "independent contractors" by requiring them to use apps with geolocation, checklisting, and photo functions. This permits app-based employers to oversee a decentralized workforce, directing where workers go, setting pace standards, and even remotely geofencing or restricting areas of work. Some employers also use new domains of surveillance like internet-connected doorbell cameras. For instance, through its popular Ring-branded doorbell cameras, Amazon has created an ecosystem in which customers monitor and instruct delivery workers.[7] Even as "independent contractors," this workforce faces hyper-surveillance on two fronts: through the extensive geolocation and task monitoring on Amazon's app and through the doorbell cameras watching customers' front doorsteps.

Surveillance is most prevalent in low-wage industries where managers can easily measure and quantify workers' tasks.[8] But increasingly, some employers are extending surveillance to jobs where work is not as easily quantifiable. In white-collar jobs, surveillance may look like keystroke and mouse monitoring, productivity scores, and photo requirements.[9] Since the COVID-19 pandemic, as more workers began working from home, employers have been applying such surveillance to workers' home activity. Because these tools do not account for work that cannot be easily quantified, such as ideation or contemplation, workers feel pressure to perform to metrics rather than their job responsibilities.[10]

By automating worker decisions on a massive scale, algorithmic management permits new forms of employer control.

Whereas the surveillance of workers by their bosses dates back at least centuries, automated management systems are a genuinely modern invention. Because the practice is novel — and because its meaning thus may be contested among different parties — we situate the practice as one of control, on a massive scale:

> Algorithmic management is a diverse set of technological tools and techniques that structure the conditions of work and remotely manage workforces. Algorithmic management systems' emergence in the workplace is marked by a departure from earlier management structures that more strongly rely on human supervisors to direct workers. Algorithmic management enables the scaling of operations by, for instance, coordinating the activities of large, disaggregated workforces or using data to optimize for desired outcomes like lower labor costs.[11]

For now, algorithmic management is most visible in app-based or on-demand labor to manage, discipline, and terminate app-based workers who nominally are hired as independent contractors.[12] App-based employers such as Uber, DoorDash, and Instacart use algorithmic management to nudge specific worker behavior; this includes directing workers to locations and incentivizing particular schedules.[13]

Beyond app-based jobs, employers use automated worker management in some fashion in many occupations, especially among low-wage jobs.[14] A recent Coworker.org survey found a major upsurge in "bossware," or tech used to monitor and manage workforces, and a *New York Times* investigation found that eight out of the ten largest American employers use worker productivity tracking tools.[15] Employers use some form of algorithmic management across different industries, from transportation and logistics to retail, service, and domestic work.[16]

II. Automated worker surveillance and management inflict substantial harm on workers, especially low-wage workers whose jobs are susceptible to datafication.

Automated worker surveillance and management are inflicting substantial harms on workers, especially those in low-wage and hourly work, such as hospitality, retail, logistics, warehousing, agriculture, hospitality, domestic work, and healthcare. Because tasks in these industries are easily measurable, they are susceptible to datafication. When tasks are susceptible to datafication, many employers seek to lower labor costs and increase profits by managing workers through automated systems. The workers who labor under this robotic supervision are often immigrants, women, and people of color who have historically faced a more exacting degree of monitoring.[17]

In this section, we will document harms that automated worker surveillance and management systems inflict on workers in four categories:

(1) decline in overall working conditions,
(2) inability to access legal rights,
(3) lack of transparency, and
(4) risks of bias and discrimination.

1. Working conditions plummet, characterized by work intensification, unpredictable pay, and the erosion of worker autonomy. As employers use automated worker surveillance and management systems to watch, atomize, supervise, and discipline workers, workers' satisfaction and job quality plummet.[18] **Pervasive surveillance and automated micromanagement make human beings feel like robots.** Without much-needed policy action — whether sectoral regulation, data minimization, or outright prohibition — these systems trample on the basic dignity in work.

The heightened speed and efficiency pressures enabled by automated systems can lead to increasingly unsafe and precarious workplaces, both by exacerbating physical and mental health risks and by undermining labor rights and protections. Research by the University of California-Berkeley Labor Center has documented higher rates of warehouse injury in more automated warehouses.[19] At Amazon warehouses, punishing data-driven quota systems have led to injury rates far exceeding the industry average.[20] Some states, including New York and California, have passed legislation to set quota limits, and have placed bans on firing warehouse workers for missing quotas that interfere with bathroom and rest breaks.[21]

Algorithmic systems also disrupt work quality by undermining wage predictability.[22] Because app-based employers need to scale worker availability to customer demand — while at the same time invisibilizing their own means of control over "independent contractors"— companies like Uber do not directly order workers to go somewhere but instead use wage manipulators to shift worker behavior. Such wage manipulators, which may lead to variable and unpredictable wages among workers, may appear as bonuses available only to workers who meet certain metrics, "surge" pay that later disappears, or incentives to keep workers on the app.[23] Drivers for Uber have reported deep dissatisfaction with their employer's digital trickery.[24] While these systems of algorithmic pay manipulation are most prevalent in the delivery and transportation sectors, they may spread as more industries seek to "gig out" their workforce to lower labor costs.[25]

Case study: Electronic Visit Verification

Pervasive automated surveillance and management can erode the basic human dignity in work. Care workers' experience with Electronic Visit Verification (EVV), a tracking app mandated as part of Medicaid fraud oversight in paid personal care and home health care, offers an instructive example. While EVV systems must be "minimally burdensome," per statutory requirements, our research found that they place significant challenges on both workers and public benefits recipients. Minor missteps in worker compliance often lead to delayed or lost wages, and requirements that workers log their activity in real-time or within geofenced zones (enabled by GPS tracking) make it more difficult for workers to provide care.[26] Workers interviewed by Data & Society reported that the new surveillance practices have a criminalizing effect, making them feel like they are under suspicion of the state, while also making workers comply with onerous productivity metrics. Like other industries characterized by high surveillance and automated decision systems, the homecare industry is a workforce comprised primarily of women — particularly immigrants and women of color — where low wages and difficult-to-enforce labor protections have generated high turnover and labor shortages despite soaring demand. Labor and disability advocates have warned that punitive digital surveillance practices like EVV are having a chilling effect, weakening the US care infrastructure.[27]

2. Algorithmic management allows employers to unlawfully create the illusion of worker independence to dispossess workers of their rights. Like the offshoring strategy employed by big corporations around the mid-twentieth century to access cheap labor abroad, many employers now use technologies like automated worker surveillance and management to "fissure" traditional employment to lower labor costs.[28] Because most state and federal worker protections apply only to workers classified as employees, and not to independent contractors, companies have an incentive to reduce their obligations by insisting that their workers work at their own discretion and not under the supervision of a boss.

By labeling their workers as "independent contractors," many companies deprive workers of core rights and protections such as the right to a minimum wage, overtime pay, collective bargaining, unemployment compensation, and protection in the event of a disability.[29] This illegal practice existed well before modern technologies, but algorithmic management has supercharged it.

By making it much easier to create the illusion that workers control their own working conditions, algorithmic management enables companies to benefit from the artifice of worker flexibility while maintaining control over when, where, and how "independent contractors" do their work. Put another way, employers are using technology to superficially distance themselves from their workers — bolstering the rights-denying claim that their workers are not employees — even as the overall business structure remains one of top-down control.[30]

Beyond app-based transportation and food delivery workers, employers' use of automated management technology has spread in recent years. Retail and e-commerce have rapidly shifted to an independent contractor model, with major retailers like Amazon hiring scores of on-demand delivery workers through Amazon Flex (described in Section I). Other employers, like Target and Walmart, are mimicking this model, expanding the workforce of app-based delivery drivers. Increasingly, grocery stores are laying off full-time delivery employees and replacing them with Instacart workers.[31] The healthcare industry too has seen experiments to classify nurses, dental hygienists, occupational therapists, and other healthcare workers who work through an app as independent contractors.[32]

3. Opaque automated systems make it harder for workers to speak up. Black box algorithms obscure the precise mechanisms of data collection, analysis, and decision-making, exacerbating power imbalances between workers and bosses. This opacity allows employers to leverage even greater control over workers. With little information about how decisions are made, workers have less power to speak up for themselves, challenge decisions, and identify systemic harms in order to take collective action.

For example, in a 2021 settlement with the Federal Trade Commission, Amazon agreed to pay $61 million back to Flex drivers for automated tip theft between 2016 and 2019.[33] Through interviews with Flex drivers, Data & Society researchers observed that the Flex app helped to obfuscate, and likely prolong, Amazon's tip theft activity. The Flex app did not provide drivers with a breakdown of their pay and offered no pathways for disputing a payment.[34]

Transparency also came to the fore during the COVID-19 pandemic, as employers began to implement or repurpose technology to monitor worker health. As detailed in Data & Society's report, *Essentially Unprotected: Health Data and Surveillance of Essential Workers During the COVID-19 Pandemic*, worker health data collection occurred mostly in a haphazard way and mostly for the benefit of the employer.[35] For example, Amazon used the pandemic as an opportunity to expand its regime of worker monitoring, repurposing technology like cameras and introducing new tools like its "distance assistant."[36] Workers interviewed by Data & Society did not understand how this data was used, if at all, for the improvement of their health and safety. In many cases, employers did not share information on infections in the workplace, which was critical for workers to understand how to protect themselves from COVID. This lack of transparency not only eroded trust between employers and employees, but it resulted in increased infections and anxieties about workplace safety.[37]

4. Automated worker management systems permit employers to avoid their nondiscrimination obligations. Many employers are using algorithmic management systems to outsource worker monitoring and discipline, incorporating customer reviews as data on worker performance. Research indicates, however, that customer reviews can lead to discriminatory outcomes, with women and racialized minorities receiving poorer reviews on average.[38] Workers thus face potentially biased, discriminatory assessments by customers, which can lead to unlawful discipline or firing.

Case study: Discrimination in Delivery Work

Our recent report *At the Digital Doorstep: How Customers Use Doorbell Cameras to Manage Delivery Workers* details how employers like Amazon incorporate customer evaluation into automated delivery worker management.[39] Similar to Uber driver ratings, Amazon Flex workers must maintain an acceptable "standing" that is calculated based on factors such as on-time delivery and customer reviews. Amazon then awards points to workers with high standings, which can unlock "Flex Rewards" such as preferred scheduling priority. Conversely, low standing can place drivers at risk of deactivation. Because customer ratings and reviews make up a substantial portion of a driver's standing, a Flex delivery worker faces discipline and potential termination based on subjective customer opinions.

Our research on delivery work and outsourced customer reviews frequently surfaced workers' concerns about bias and discrimination — and their perception of otherness, generally.[40] Compared to white delivery drivers, drivers of color interviewed by Data & Society spoke more reflectively and at greater length about their experiences of being watched during their work. They were acutely aware of their presence in someone else's neighborhood, often noting that in predominantly white communities they felt they were being monitored by residents.

Modern technologies thus have enabled a new employer-consumer regime of worker surveillance. Amazon misclassifies their Flex workers as contractors because algorithmic management creates an illusion of worker independence. As contractors, Flex delivery workers cannot access federal antidiscrimination protections. At the same time, Amazon has leveraged its consumer technologies, like Ring doorbell cameras, to incentivize customers to monitor, instruct, and critique the workers delivering goods to their home. At the intersection of consumer surveillance and automated worker management, Flex workers face acute risks of bias and discrimination in a work structure where workers have no legal recourse if they are disciplined or fired due to bias or discrimination.

III. Policy recommendations

While existing federal laws may not capture all the harms of automated decision systems, those laws are nevertheless broad and suffice to address many of the harms workers are currently experiencing from such systems. Accordingly, federal agencies should use their existing statutory authority to address the harms of these systems through proactive guidance and targeted enforcement.

Restoring employee rights

It is not just that employers are using automated surveillance and management technologies in ways that violate workers' rights. It is that many employers are using such technologies to conceal their control over workers and *to deny that workers have employment and labor rights in the first place.*[41]

To begin to restore workers' access to statutory rights, there must be clearly defined employment relationships that set out workers' broad access to rights, *especially in the face of automated surveillance and management tools*. The Department of Labor's (DOL) proposed rule on independent contractor classification under the Fair Labor Standards Act is a good start to ensuring that workers who are building the business of another can access minimum wage and overtime protections.[42] Notably, in clarifying the Department's return to the six-factor economic realities test, the rule proposes to assess an employer's control by, among other things, expressly considering their use of electronic management technology.[43] The DOL should retain that guidance in its final published rule.

In a similar fashion, the National Labor Relations Board's (NLRB) rulemaking to restore "joint employer" accountability under the National Labor Relations Act (NLRA) should address the role of technology in preventing or chilling worker organizing. Unlike the DOL's independent contractor rule, the NLRB's joint employer rulemaking does not explicitly address an employer's use of surveillance. The NLRB should strengthen its proposed rule by clarifying in the final rule that employers' use of automated surveillance and management technology is presumptive indicia of an employer's "authority to control" or their direct or indirect "power to control" under the NLRA.[44]

Wage and hour protections

Even if properly classified as statutory employees, workers face the punishing demands and degraded working conditions of automed worker surveillance and management. These modern technologies present certain challenges to existing worker protection statutes — beyond the threshold problem of classification — that agencies should resolve through guidance. Key among those challenges is the issue of compensable time under automated management systems.

After publishing its final independent contractor rule, the Department of Labor should prioritize the issue of compensable time for workers laboring under algorithmic management systems. Many such systems, particularly those that make up the app-based business model for companies like Uber and DoorDash, start from the premise that *workers are not paid for all the time they are on the app.* (Hence: app-based companies' behavior incentives that lead to individualized and unpredictable pay rates, as described in Section II). Further, because algorithmic systems often do not show how take-home pay is calculated, many workers do not know that a significant amount of their work is unpaid. Clarifying the legal boundaries of compensable time is a necessary step to protecting app-based workers' financial security.

Generally, there are three categories of time spent working for app-based companies: "P1" time, when workers have the app open and are waiting for a job; "P2" time, when workers have accepted a job and are en route to pickup; and "P3" time, when workers are performing the job itself, e.g. transporting customers inside the vehicle. App-based employers do not pay for workers' P1 time (or associated expenses).

Even if classified as employees with statutory protections, app-based workers' pay may not reflect fair compensation for their labor if companies continue to reject paying workers for P1 time. Companies may continue to commit wage theft by calculating only workers' P2 and P3 time.

To redress the harms that these systems are creating, the DOL's Wage and Hour Division should put forward guidance on how it assesses compensable time for workers whose pay is set, and whose work opportunities are structured, by automated management systems. Specifically, it should address whether app-based workers' time waiting for a job on the app (P1 time) constitutes time that workers are "engaged to wait."[45]

Health and safety

Due to the extensive evidence of bodily injuries and musculoskeletal disorders resulting from automated surveillance and management systems, as well as the mental health risks and stresses, the Occupational Safety and Health Administration (OSHA) should incorporate these employer practices into its sector-by-sector guidance on workplace injury prevention and through new guidance to identify workplace injury risks and solutions in warehousing.[46] Further, the National Institute for Occupational Safety and Health should fund new research into the effects of automated surveillance and management systems on workers' physical and mental health.[47] Finally, OSHA needs much more funding to investigate employers' infractions of health and safety regulations. It should also consider alternative mechanisms of monitoring and enforcement. Co-enforcement models at the local level, where worker-led councils conduct peer-to-peer education to identify health violations, have shown promise in making worksites safer. In Los Angeles County, for example, public health councils have centered the health needs of workers to more effectively monitor workplace safety.[48]

We also encourage the Biden-Harris Administration to place health and safety issues within the broader practice of biometric data collection. Employers are increasingly collecting workers' biometric data, such as fingerprints, iris recognition, retina scan, heart rate, and step counts, for the ostensible purpose of monitoring workplace safety.[49] But as we document in *Essentially Unprotected*, described in Section II, it is unclear — especially to the workers being surveilled — whether the collected data is in fact being used for the purposes of workplace health and safety. Some employers may be invoking "health and safety" to ramp up invasive, near-constant worker surveillance that they may use for other purposes later, such as to feed into automated management practices. Regulators and policymakers should pay attention to biometrics as a new realm of workplace surveillance and management.

Employment discrimination

Given the potential for bias in hiring, promoting, and firing, we were pleased to see the Equal Employment Opportunity Commission's (EEOC) recent Title VII guidance focusing on algorithmic practices in selection procedures.[50] This is a positive step for the Commission to educate employers and software vendors about how their use of automated technologies can violate civil rights laws and offer advice about the steps necessary to come into compliance.

We note that the EEOC's guidance includes as examples "automatic resume-screening software, hiring software, chatbot software for hiring and workflow, video interviewing software, analytics software, employee monitoring software, and worker management software." We encourage the EEOC, as well as the Administration more broadly, to additionally consider the employer practice of offloading worker assessments to customers. By transferring worker evaluations to customers, many companies are placing their workers at risk of discriminatory and biased assessments, which could lead to their discipline and termination. Similar to the Commission's recent guidance that employers are still responsible for algorithmic tools designed or administered by a third-party software vendor, employers should not be able to escape their nondiscrimination obligations by outsourcing worker assessments to customers.

Worker organizing

Modern surveillance practices are so thorough, minute, and near-constant that they are chilling workers' protected right to collective activity.[51] For that reason, we were encouraged to see NLRB General Counsel Abruzzo's October 2022 memorandum on worker surveillance, in which she proposed a framework for "the Board to find that an employer has presumptively violated Section 8(a)(1) where the employer's surveillance and management practices, viewed as a whole, would tend to interfere with or prevent a reasonable employee from engaging in activity protected by the [NLRA]."[52]

The NLRB should act swiftly to adopt the general counsel's proposed framework to address the chilling effect that modern surveillance and management practices are having on workers' protected right to organize.

Public sector adoption of automated worker technologies

Public institutions, starting with the US government, have the power to entrench or reject the technocratic ideologies that underpin automated worker management and surveillance systems. Even now, the federal government deploys these technologies in federally-funded programs. But it has the opportunity to course-correct and set norms of decent work quality that limit or prohibit anti-worker automated systems.

The government's adoption of EVV in Medicaid, for example, accepts the premise that fears of criminality and fraud in services for poor people warrant demeaning surveillance. It moreover accepts the premise that technology can solve social problems like a crumbling care infrastructure. But the evidence shows that EVV's invasive surveillance practices are hurting the delivery of federally-funded care services.[53] Workers are leaving the industry due to EVV's onerous burdens, despite the Administration's stated commitment to increasing access to care and supporting caregivers.[54]

EVV is only one example. We urge the Administration to consider not only whether and how the government procures and deploys automated worker technologies, but how it may, as the foremost public institution of the United States, disrupt the technocratic logic driving new domains of worker exploitation.

Conclusion

Data & Society encourages OSTP and the Biden-Harris Administration broadly to coordinate efforts across the federal government to protect workers from invasive, degrading, and unlawful automated worker surveillance and management technologies.

Respectfully submitted,

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[39] Nguyen and Zelickson, *supra* note 7.

[40] *Id*. at 20 – 21.

[41] *See, e.g.*, Weil, *supra* note 28; Nguyen, supra note 4; Callaci, *supra* note 30 (detailing the use of electronic monitoring in franchising as employers seek to avoid employment and labor law compliance).

[42] *Employee or Independent Contractor Classification Under the Fair Labor Standards Act*, US Department of Labor, Wage and Hour Division, 87 FR 62218 (Oct. 13, 2022).

[43] *Id*. at 62250 ("Control may be exercised through nontraditional means such as automated systems that monitor performance, but it can be found to be control nonetheless.").

[44] Fed. Reg. No. 2022-19181 (to be codified at 29 C.F.R. pt. 103) (proposed Sept. 6, 2022).

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