Explainer:

Challenging Worker Datafication

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Overview

The past several years have seen a growing awareness and mobilization against the pervasive harms of worker surveillance and algorithmic management. This includes new frameworks for conceptualizing workers' rights in relation to data, worker privacy legislation and laws addressing the downstream effects of surveillance, worker-driven efforts to leverage data, and the incorporation of data issues as a part of organizing and workplace bargaining. These disparate strategies are responses to different dimensions of data-driven inequity—lack of transparency, loss of control, exploitation and arbitrary, aggressive disciplinary action, and power imbalances that wear down workers' abilities to shape their workplaces. While these developments are complex and changing, this explainer provides an overview of some of the current trends across two broad categories. The first is efforts to push back against worker datafication, including laws, regulations, and organizing efforts that attempt to limit data-driven harms or prevent collection of data in the first place. The second is the production and use of worker data to address existing forms of harm and control in workplaces, such as the production of counter-data. These two approaches highlight a tension in the larger questions about the role of technology for labor: between awareness of data-driven technologies as tools of oppression and the possibilities of data as a tool for gaining knowledge about the workplace and workers' experiences. Better understanding about the different dynamics of these approaches can help workers, policymakers, and others disentangle the many complex challenges that are bundled under the problem of "worker data."

This explainer explores these themes in the following sections:

Introduction

Data collection is a pervasive and mundane part of many workplaces. While far from a new phenomenon, digital technologies have enabled unprecedented expansion in the volume and kinds of data collected about workers. Today, employers amass data from technologies such as wearables, mobile apps, computer software, and other surveillance tools but also through simple, low-tech methods such as self-reporting information on a paper form.[1] The ability to analyze large datasets enables employers to make broad and at times speculative inferences about workers' productivity, their future behavior, their interactions with other people and machines, and more.

Worker data spans many types of information, methods of collection, and institutions. An HR department may collect data about workers' characteristics and employment history (often called people analytics) to make decisions about hiring, promotion, and firing. Employers quantify workers' productivity through tools like motion sensors, facial recognition, GPS-tracking, or keystroke monitoring to enforce efficiency benchmarks and automate aspects of management.[2] Health insurers, financial institutions, data brokers, and other entities collect myriad data about workers, blurring the lines between worker surveillance and more general consumer tracking and data profiling. Government agencies collect and use data to enforce regulations, shape policy, and analyze workforce trends, while unions and worker organizations may survey members or collect data to support and inform advocacy.

Fundamentally, data is a way to gain and organize knowledge about a workplace. But in a context where workplaces are sites of major power imbalances, it is essential to ask, how is that knowledge produced and for what purpose? Who has control over deciding what the data means, where it goes, and how it is used? While proponents of data-hungry workplace technologies promise that data can help accomplish everything from enhancing worker productivity to creating safer, happier workplaces, these tools often further entrench older dynamics of exploitation and control. And they are altering the landscape of many long-standing struggles for worker rights, autonomy, and well-being. The proliferation of algorithmic management tools, for instance, has led to more opaque workplaces, where workers are often left in the dark about how decisions that affect them are made, or even what decisions are being made at all. Workplace surveillance tools are scaling up and accelerating techniques that enable employers to erode hard-won labor rights and drive down workplace standards, such as by pushing workers to exert themselves beyond safe bodily limits to meet data-driven productivity benchmarks.[3] Data profiling allows employers to more easily sort, target, discriminate against, and punish workers. And worker data itself has become a profitable speculative commodity, both in its sale and its use in building AI systems that in turn reshape how we work.

Data-driven technologies are also becoming central to many business models, which can make challenging them seem like a losing battle. There is a pervasive narrative that, all in all, workers are unconcerned about privacy or at least have resigned themselves to inevitable technological change.[4] But this narrative ignores the wide range of emergent worker mobilizations and other efforts that are rightly connecting the dots between data collection, surveillance, and intensified exploitation. In fact, workers' desire for privacy points to a much broader struggle rooted in questions of agency and control over how data shapes the experience of work.

Who has control over deciding what the data means, where it goes, and how it is used?

One of the major challenges, however, lies in the complexity of the problem: Is the right path to fight against all worker datafication? When can data-driven tools benefit workers? What would it take for workers to have meaningful control over their data? And when is a focus on data even the right frame at all? This explainer provides a basic introduction to different recent approaches to worker data, as well as discusses ongoing questions, critiques, and possibilities. **Part One** takes a look at efforts to curb harms by regulating the when, where, and how of data collection. New legislation and other efforts have taken first steps in shaping data rights specifically for workers, as well as limiting the effects of data-driven technologies in eroding established rights and protections. **Part Two** discusses some ways that workers themselves are collecting, leveraging, and gaining control over their data to shape their workplaces. This has included strategies such as new kinds of worker-driven data collection, building tools that serve workers' interests, and asserting control over data and technology implementation through workplace bargaining. While these developments are happening at many different levels — federal and state regulation, labor activism, and technology design, as well as distinctive workplace contexts and industries — several central themes and tensions are highlighted here:

- **Data can be an empowering tool for gaining insight into workplaces, but the contexts and power dynamics under which it is produced matter.** What data employers choose to collect, and how it feeds into decisions and inferences about workers, reflects employers' priorities.
- **Workplace data collection needs to be understood within broader data economies and intersecting harms, particularly toward marginalized workers.** The challenges of worker data extend beyond the physical space of an office or a warehouse. Rather than treating these issues in isolation, confronting them requires cross-cutting mobilizations that address the many areas of workers' lives that are affected.
- **Data is always imperfect and incomplete, and leveraging data often requires considerable labor, time, and resources.** While data can be used to support and empower workers, attributing outsized power to data can merely reproduce techno-solutionist narratives over more complex, structural changes.

Asking what we want from worker data can help us orient ourselves toward what kinds of futures we want. While the scale and complexity of data-driven technologies are unprecedented, many of the challenges they present are not new. Better understanding the different dynamics of these approaches can help workers, policymakers, and others disentangle the many complex challenges that are bundled under the problem of "worker data."

Part One: Regulating the Flows of Worker Data

In the United States, one of the major issues at the heart of workers' relationship to data is the fact that employers have expansive rights to collect worker data. Even more so than consumers, workers are captive populations, for which employment contracts act as de facto consent to data collection.[5] In the past few years, there has been growing policy interest around the impact of digital surveillance, algorithmic management, and expansive data collection. While there is currently no comprehensive federal law governing worker data, various state legislation and actions from regulatory agencies have begun to pay attention. For example, in 2023 the White House Office of Science and Technology Policy announced a formal request for public information seeking input on how AI is used to surveil and manage workers.[6] Similarly, the Federal Trade Commission solicited public comment on the question of regulating commercial surveillance, including the impact on workers.[7]

This section examines four broad themes around efforts to regulate worker data: (1) strengthening workers' data rights, (2) addressing collective harms through stronger worker protections, (3) bans and other limitations on data collection, and (4) looking beyond employment relationships into the broader ecosystem of data capitalism that affects workers' lives and well-being.

Toward worker data rights

Labor advocates and regulators have given shape to conceptions of worker data rights as a response to increasingly invasive, yet opaque methods of surveillance. Typically, this includes rights around informed consent, transparency, and the ability to opt out of certain types of collection and uses of data. Many of these rights revolve around reducing information asymmetries that grant employers outsized power over workers: UNI Global Union, a global trade union, describes some essential data rights as "the right to know what tools are being used, knowledge of what data is being collected and why, and the right to access data collected about them through these tools."[8]

In recent years, regulators both domestically and abroad have had some success in passing legislation designed to establish worker data rights, centering the issue of privacy as a core value. One notable legislation establishing worker data rights has been the California Consumer Privacy Act (CCPA)/California Privacy Rights Act (CPRA), landmark state privacy laws that include

protections for workers employed at large businesses, granting them the ability to access their data, correct or delete it, and to opt out of allowing employers to sell their data to third parties.[9] The law emulates some aspects of the EU's General Data Protection Regulation (GDPR), which protects workers by setting legal requirements for collecting and processing personal data. In Europe, the GDPR has been leveraged by trade unions to challenge both harms against individual workers and overall data collection practices of employers. Since its passing, various resources and toolkits have sought to guide workers in making use of these data rights.[10] In addition to CCPA/CPRA, other legislation has focused on particular kinds of data practices, and workers have had some successes in holding employers accountable to greater standards of transparency. The Illinois Biometric Information Privacy Act, which sets restrictions on biometric data collection, has been the basis for several recent lawsuits that ruled in favor of workers, including against a major logistics company that failed to notify and obtain employees' consent over time clocks that collected employee fingerprints.[11] In 2022, New Jersey similarly passed a law that requires employers to provide written notice about GPS tracking devices inside employee vehicles.[12]

But as these examples show, such regulations have been piecemeal and often do not go beyond basic rights. And while such data rights can grant more avenues for workers to have a say in how data about them is collected, this approach has faced criticism over its limited scope based on individual data rights, which may not meaningfully grant workers power to challenge data-driven decision-making. As an AI Now report points out, "telling workers that their employer has used algorithmic targeting to systematically lower their wages is no substitute for enacting rules to ensure wages are set fairly and at amounts workers can live on in the first place."[13] As a result, an emphasis on notice and consent may also be insufficient to address aggregate harms to workers. Placing responsibility onto individual workers to curate, correct, or opt out of data collection can also leave workers disempowered beyond the ability to make minor adjustments to privacy preferences.[14] This can be particularly ineffective when workers are not granted time, support, or resources to scrutinize employers' data policies. Privacy terms may also be dispersed across numerous contractual documentations, such as terms and conditions, worker contracts, and formal notices that render it challenging for workers to piece together a big picture of how their data is being used.

Placing responsibility onto individual workers to curate, correct, or opt out of data collection can also leave workers disempowered.

Worker data rights are important because they can create certain obligations from employers to disclose and, in some cases, justify their data practices. Some emergent questions about worker data rights lie in how these rights can be extended into effecting broader changes: what does transparency accomplish? What can workers do once they access their data? What power can workers have over the circulation, interpretation, and use of data after the point of collection?

Addressing Collective Data Harms

While many of the rights-based regulations of data collection center on individual rights, other regulators and critics have begun working on what they see as the collective harms produced by worker data. These are challenges that require coordinated interventions, rather than granting individuals particular choices to opt in and/or out of a certain system. Surveillance and algorithmic management techniques are being leveraged to automate and scale practices such as wage theft including unpaid working time, imposing unsafe productivity pressures, and discrimination. Legal scholar Brishen Rogers lays out three ways companies use data to discipline workers: "digital Taylorism," the use of surveillance and data aggregation techniques to suppress collective action, and the use of new technologies to alter business practices.[15] None of these methods are new, but the growing ubiquity of data-driven technologies can be used to amplify and conceal the dynamics of work exploitation, often by undermining existing labor protections.

One example addressing the rise of digital Taylorism has been regulation seeking to curb the brutal and unsafe quota systems in Amazon warehouses, where intense pressures on workers to "make rate" has led to injury rates far exceeding the industry average.[16] States like New York and California have set quota limits, as well as placed bans on firing warehouse workers for missing quotas that interfere with bathroom and rest breaks.[17] Such cases demonstrate how data is increasingly used as a "digital whip," creating an illusion of tech-driven productivity gains that are in fact simply ways to squeeze more effort out of workers.[18] Similarly, Fair Workweek laws — which prohibit on-call shifts and require employers to provide advance notice of work schedules — are in large part a response to growing uses of data analytics to help employers cut costs through lean scheduling, which has led to widespread precarity, stress, and economic instability for low-income workers and their families.[19] Other efforts have looked to expand enforcement of already-existing mechanisms for protecting workers, as well as seeking new ways to measure harms. For example, the Center for Democracy & Technology and its partners issued a memo that proposes how government agencies like the Occupational Safety and Health Administration (OSHA) should specifically combat hazards related to workers' physical safety and mental health that are being exacerbated by the rise of data-driven performance tracking and algorithmic management.[20]

Other regulators have rallied around independent audits for algorithmic systems as a means for addressing large-scale harms—creating structures for internal or external experts to assess the possible harms of a system.[21] However, a major concern has been the extent to which overly focusing on procedure and assessment can lead to "ethics-washing" and surface-level involvement of affected groups and communities.[22] One instance of this has been the criticism directed toward New York's Local Law 144, a first-of-its-kind law that requires employers to undergo bias audits for automated tools used in the hiring process, and to inform job-seekers about how such tools are used.[23] The legislation aimed to create a burden of proof that tools used by employers did not perpetuate discrimination common across automated hiring systems.[24] However, the final version of the law has been criticized by civil rights groups for failing to cover all federally protected classes (such as age or disability), contains major loopholes, and despite mandated transparency, provides little meaningful information to job-seekers.[25]

Finally, there is a growing recognition for a need to fight against data profiling and surveillance of labor organizing, which goes beyond questions of data accuracy, fairness, or worker input. As scholars Ifeoma Ajunwa, Kate Crawford, and Jason Schultz have pointed out, the increasingly participatory character of workplace tracking and use of new kinds of data (such as metadata) to make broad inferences about workers has moved away from its earlier authoritarian veneer toward practices more

reminiscent of consumer profiling.[26] Building on these methods, technologies that preemptively flag employees deemed likely to engage in organizing are adding to an already large arsenal of tools used by employers to suppress collective action. Amazon-owned Whole Foods has used a data-driven heat map of its stores deemed "at risk" of unionization, including a "diversity index" that flagged stores with high racial and ethnic diversity as targets for their anti-union campaigns.[27] Leaked documents from IRI Consultants, a "union avoidance" firm hired by Google and several major hospitals, show how such firms collect personal data about employees to sort and profile them into categories such as "money oriented" or "single mother."[28] Addressing the particular harms of such tools may require identifying and designating their use as unfair labor practices. In 2022, the National Labor Relations Board issued a memo expressing concern over the extent to which intrusive surveillance can interfere with workers' ability to organize,[29] and similarly a new Senate Bill, the Stop Bosses Spying Act, proposes to prohibit companies from using surveillance toward monitoring worker organizing.[30]

Bans on Data Collection

While many of the regulations aimed at curbing collective harms put limitations on the applications of data, some data activists and legal scholars have actually called for outright bans on the collection of worker data in certain circumstances. This may include instances where the data fuels fundamentally exploitative relations, where certain data is too sensitive or high-risk, where the underlying premise of data analysis is flawed, or where the act of data collection itself is a source of harm.

Legal scholar Veena Dubal has spearheaded the concept of data abolition in the context of worker surveillance, pointing to the glaring limits of seeking fairness or accuracy in data. She points to how data harvesting practices are undermining labor rights at a deeper systemic level by upending the economic relationships between workers and employers. This is exemplified by what she terms "algorithmic wage discrimination," a practice used by gig platform employers of mass data harvesting to calculate opaque, personalized payment structures that are detached from historical expectations that reward high performance with better pay and upward mobility.[31] Instead, companies like Uber calculate wage rates in order to incentivize certain behaviors, and to experiment with paying each worker as little as they are found willing to tolerate. Racial inequality and occupational segregation across these industries means that such practices are disenfranchising whole swathes of largely low-income, immigrant, and racially minoritized workers who are subjected to entirely different sets of economic rules. As opposed to approaches that seek data minimization, which discourages collecting or using data beyond what is reasonably necessary for a stated purpose, or efforts to grant workers more control over data, data abolition condemns the logics behind such data collection and advocates for an outright statutory ban.

Moreover, some types of data collection and practices pose clear risks that outweigh benefits of their uses. The AI Now Institute's 2023 annual report has argued that policy should establish clear "no-go zones" around certain kinds of data collection and secondary uses of data, regardless of their utility to employers.[32] The growing use of facial recognition is one widely used example, as it shows how tech actors are pushing "enormous risks for relatively meager gains" implementing the technology in both mundane and high-stakes contexts.[33] Despite these risks, employers are increasingly using facial recognition to do everything from clocking workers' shifts to verifying remote employees' presence at their computers.[34] Efforts to ban facial recognition in workplace contexts can look to long-standing campaigns from civil and privacy rights groups against uses of facial recognition in policing, public housing, events venues, and other contexts.

While facial recognition is still pervasive across the country, several cities across the US have passed legislative bans in response to these mobilizations.[35]

Designers' flawed assumptions can also raise questions about whether fighting for more or better data can resolve deeper issues or fix biases. This question is particularly salient for the growing industry of products that claim to offer data-driven insights into workers' inner psychologies, personality traits, job fitness, or even their future behaviors. A University of California (UC) Berkeley Labor Center report points out that lack of regulation also extends to developers, who can sell products that essentially treat workers like experimental test subjects and may rely on dubious premises.[36] Some hiring software tools, for instance, have been heavily criticized for using junk science, but which provide an objective veneer to decision-making by claiming to generate personality assessments based on face or voice analysis of job candidates' video interviews.[37] A German investigative journalism project tested out one such product and found that a candidate wearing eyeglasses or a headscarf during a video interview completely changed the software's personality assessment.[38] Racist, sexist, and ableist assumptions will underpin any efforts to classify what "normal" facial expressions and body language look like, under claims to universality that perpetuate discriminatory practices.[39] In such cases, efforts to assess or improve the tool's predictive ability through "better" data may potentially only further legitimize unfair practices.

Importantly, many kinds of worker data only have meaning within the extractive and punitive contexts under which they are produced. Communications scholar Lilly Irani has described the role of "algorithms of suspicion," where companies like Amazon's Mechanical Turk use data such as what IP address a worker logs in from in order to root out alleged fraud or misbehavior among its workforce. This is particularly insidious because such methods don't operate by any rules that define what makes a "good" versus a "bad" worker, but merely use pattern-matching to identify and punish outliers.[40] Similar criticisms have pointed to how data has been used in industries such as warehousing to set dynamic targets, which define performance data in relation to shifting and increasingly unattainable benchmarks.[41]

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Finally, it is important to consider how the process of data collection itself can transform workplaces and how workers themselves are valued. Data does not collect itself but requires human labor to produce and render it operational, with the potential to turn employees into data workers whose contributions to valuable datasets may be rendered invisible and uncompensated. While AI systems are being promoted as efficient, labor-saving tools, their success conceals the scores of often underpaid and precarious contract workers behind the scenes who continually process raw information into data and train these systems.[42] Moreover, built environments and work routines often have to be reconfigured in major ways in order to make them more legible to quantification. But making workplaces more amenable to machines can come at the cost of creating environments that are hostile for human beings, that disregard their dignity, or that create more undervalued

work. These more diffuse and gradual effects on work environments may be more challenging to pinpoint, but may be critical to questions of whether data should be collected at all.

Fighting Harms Beyond the Workplace

Challenging worker datafication also requires looking beyond the workplace and employer-employee relationships. As sociologist Karen Levy points out in the context of worker surveillance technologies in the trucking industry, worker surveillance tools can represent a mixture of government, commercial, and third-party surveillance rather than a straightforward relationship of workplace management.[43] And as technology allows employers an ever further reach into workers' lives, the concept of the workplace itself as a discrete, easily definable sphere away from private life is breaking down.[44] Worker data issues have resonances across workers' whole lives, and intersect with other oppressive structures. Moreover, technology activists and scholars Yeshimabeit Milner and Amy Traub argue that there is an urgent need to think specifically about worker surveillance in relation to the wider sphere of racial, gender, and economic oppression perpetuated by data-driven systems.[45] Legal scholar Chaz Arnett has also pointed to the need to center "how race works within and through surveillance capitalism" in understandings of how data economies operate.[46]

Workers' status as workers with few rights or protections with regards to data extraction also opens the door to new exploitative relations beyond the workplace.

One way this manifests is through the criminalization of certain worker populations, heightening the stakes of worker data collection. Immigrant workers' data has long been a part of the dragnet of Immigration and Customs Enforcement's (ICE) surveillance through employment records and databases like E-Verify.[47] Today, novel techniques for tracking immigrants are moving beyond institutions like detention facilities into the workplace. In 2019, for the first time, ICE used GPS location data from ankle monitors placed on undocumented immigrants released from detention to track them to their workplaces and conduct worksite raids at food processing plants across Mississippi.[48] Similarly, sex workers have long contended with the mining, sharing, and sale of their data by social media platforms that further expose their online presence to law enforcement, immigration authorities, and online harassers, as well as risking outing their identities by linking their legal names across accounts.[49] Worker collectives like Hacking//Hustling have worked to devise creative ways of building up data security practices, as well as identifying, evading, and taking action against emerging surveillance practices that harm sex workers.[50] And within many low-wage workplaces, the lines between employer and police surveillance are blurred. For example, a study on the militarization of human resources at Amazon warehouses shows how police are frequently called in to get involved in workplace disputes, particularly at sites with majority-Black employees.[51]

Workers' status as workers with few rights or protections with regards to data extraction also opens the door to new exploitative relations beyond the workplace. Biased, exploitative, or stigmatizing data practices in one area can mean getting locked out of other resources, such as health care and housing.[52] Interactions with employers also bring many other actors into the circulation of worker data, including data brokers, financial firms, health insurers, regulatory agencies, and others.[53] For example, many employers now offer employees use of pay-in-advance apps, which sell their data to financial and credit institutions.[54] Data brokers like Argyle are aggregating worker data on things like income, typical hours, and reputation, and selling them to entities such as payday loan providers, a trajectory representative of "the future extreme vetting of workers, especially low-wage, immigrant, and other BIPOC workers."[55] Some companies have even specialized in real-time monitoring of arrest records to instantly notify employers about workers' criminal records.[56] Interactions with workplace benefits and with the social safety net similarly create new points of data collection, such as the use of biometric data verification systems for accessing unemployment insurance benefits.[57] Workplace wellness platforms likewise collect copious health data but do not fall under existing data protections like HIPAA.[58]

As these examples show, the challenges that workers face as data subjects are not merely workplace issues but connect with much broader struggles over technology-driven inequity across domains. But as with other labor issues, intersecting causes bring together new coalitions, forms of expertise, and pathways to mobilize against increasingly exploitative futures.

Part Two: Taking Control of Worker Data

Rather than leaving the governance of data in the hands of employers, workers are also envisioning ways to collect and leverage data themselves. These strategies have ranged from grassroots, piecemeal forms of worker-driven data collection and crowdsourcing to more strategic and institutionalized projects, incorporating data rights into workplace bargaining, and building worker-centric data tools. This may involve new kinds of data collection or obtaining data from employers to build tools that serve workers' interests. At the same time, these strategies can also reveal glaring disparities in what data is not collected about workers and what gets rendered invisible, allowing employers to ignore harms or shift risks onto workers.

When does control over data meaningfully empower workers?

However, such approaches often require significant mobilization, expertise, and capital to aggregate, analyze, and maintain worker data as a functional resource. Producing or gaining access to data is not necessarily useful or actionable in itself, and it is important to consider that data is never a full reflection of workers' realities. As a result, it is also important to ask: what is data useful for? When does control over data meaningfully empower workers? When may worker-driven data projects potentially be co-opted toward harmful ends?

Worker-centric Data Collection

One of the most basic ways that workers have sought to use data is by creating it themselves. More low-tech methods of data collection, such as surveys, have also long been a general part of worker advocacy and organizing, particularly in generating data about workers' experiences and opinions, as well as revealing industry-wide phenomena. Indeed, the history of American labor unions in the 20th

century includes worker-driven efforts to re-fashion Taylorist measurement techniques for advocacy and to contest management decisions.[59] Today, proposals for a "worker data science" argue for a need to build tools that provide insight and can help identify and combat practices like underpayment and wage theft.[60] Sociologists Katherine Kellogg, Melissa Valentine, and Angèle Christin argue that the rise of "algorithmic brokers" — or individuals who mediate between algorithmic systems and people — may also provide a unique opportunity for worker agency through new forms of expertise.[61]

In this vein, data cooperatives and other efforts to systematically crowdsource and analyze data are becoming one avenue by which workers are leveraging data. Some examples of these include projects such as Driver's Seat, a ride-hail driver-owned cooperative that helps drivers use data to optimize earnings,[62] and Shipt Calculator, a pay transparency tool that was developed after Target-owned gig delivery company Shipt abruptly changed its payment algorithm to a more opaque model. Created in collaboration between MIT researchers Dan Calacci and Alex Pentland, and Coworker.org, the tool gathered screenshots of worker pay stubs to identify how the new payment model worked.[63] While some tools have focused on transparency, others have sought to generate new data by quantifying aspects of work that go uncompensated. WeClock, a self-tracking app developed in collaboration with UNI Global Union, for example, aims to quantify overwork by allowing workers to track skipped breaks and unpaid over-time, where such data is aimed for use in worker-led campaigns. Another tool aims to record the amount of time that Amazon Mechanical Turk crowd workers have dedicated to unpaid, invisible labor while completing thousands of tasks.[64]

However, one of the major challenges of such tools is that data collection is both a labor-intensive and continuous process that may have uncertain benefits, as having data does not necessarily bring the power and leverage necessary to effect change. Companies often have significant power to shut down worker-centric data tools, or dismiss them as unreliable. In 2021, for example, during a rising Doordash delivery workers' strike against low wages and rampant tip theft, the company changed its code to cut off Para, a popular third-party tool that pulled tip information otherwise not visible to workers. This move effectively killed the app and helped undermine workers' efforts toward pay transparency.[65] Worker data tools are also in many ways reliant on the extractive data practices set by platforms themselves. Workers' livelihoods may depend on complying with and strategizing around pervasive datafication, even as those very data tools are used to further inequitable practices. For example, a study examining Black Instagram influencers' efforts to crowdsource data on racial disparities in brand compensation shows how platforms' emphasis on individualized metrics can undermine avenues for collective action against structural factors that shape pay inequality.[66]

Worker-centric data collection can also be a strategy for producing counter-data, particularly when employer narratives fail to tell the full story. In gig platform work, wage data studies that reveal a more complete picture of how much gig platform workers make have been critical to countering company-sponsored research that misrepresents workers' average earnings.[67] Counter-data production can also be a response to being excluded from critical information. During the COVID-19 pandemic, employers produced a wealth of health data through new surveillance technologies. But as a Data & Society report shows, this data was more often used to reinforce individual employees' responsibilities over their health than more holistically making workplaces safer. Workers often had to turn to each other for information-sharing, and unions sought to fill the data gaps by advocating for more transparency.[68] At the same time, the pandemic prompted a variety of DIY datasets built by concerned workers, often with the goal of advocating for more protections like paid sick leave or to highlight disparities in how workers were affected. In 2020, a group of Amazon warehouse workers crowdsourced COVID-19 infection rates across warehouses, and worker advocacy group United for Respect similarly collected worker-submitted data on COVID-19 cases and deaths

among the 1.5 million Walmart employees across the country.[69] The Black Frontline, an oral history project to document Black health care workers' experiences during COVID-19, also demonstrates how storytelling can inform beyond data-driven narratives that can obscure specific experiences of workers of color.[70] However, as these examples demonstrate, such efforts are often strategic, ad hoc, and volunteer-driven responses to larger institutional failures.

Data collection has been particularly important for industries where workers are informal, disaggregated, or fragmented across many employers, and where data from official sources may be scarce or inadequate. For example, a report from The Center for Equity examines how advocates can apply Black Women Best and "data feminism" frameworks to approaching data challenges in the direct care industry. A major issue is the lack of comprehensive workforce data at the national or regional levels about basic information on job quality, pay, work hazards, demographics, or even how many workers there are.[71] The report observes that these data gaps both obscure inequities in a heavily racially- and gender-segregated workforce and skew priorities of care policy at different levels of government. Unions and worker organizations have experimented with tech-driven data collection to fill some gaps, such as the National Domestic Workers Alliance's use of a chatbot that collected data about domestic workers' experiences during the pandemic and their access to resources and relief programs.[72] Other projects have focused on collating multiple, existing datasets and centralizing them into an accessible resource: for example, immigration news nonprofit Documented created a Wage Theft Monitor that highlights the immensity of wage theft in New York State, particularly in the restaurant, retail, and construction industries.[73]

Unions and Workplace Bargaining

In addition to worker-led data collection, workplace bargaining has been another site where workers have sought to define their relationships to data and new technologies. Union contracts increasingly take into consideration the right to bargain over employers' use of data-driven technologies, including how data is collected and used, whether it is monetized or repurposed, how workers benefit, or whether a technology should be implemented at all. UC Berkeley Labor Center researcher Lisa Kresge has written on how there is, in fact, a long precedent of unions negotiating around technological change in the workplace, including the right to information and notification, right to negotiate prior to implementation, and right to participate in decision-making processes regarding new technology.[74] More recently, labor advocates are creating new guides and resources to generate a common language for negotiating data collection and tech implementation. Public Services International, the Europe-based public services union, published a "digital bargaining hub," that shares model bargaining language around topics such as data rights, digital tools and algorithms, as well as union communications.[75]

In the US, several unions have notably incorporated negotiations around data and technologies into bargaining. In their 2023 contract talks, the International Brotherhood of Teamsters' negotiations with UPS have included requirements to provide advance warning of new technological developments, such as the use of driverless vehicles.[76] In previous years, the Teamsters had also established that UPS cannot use data alone to discipline workers, and that workers need to be informed about what data is being collected.[77] Similarly, as technologies like facial recognition, AI chatbots, and wearable trackers have become more common, UNITE HERE, which represents hotel workers and other service industry employees, has sought to shape how these technologies are implemented.[78]

Bargaining over employers' uses of data-driven technologies has been particularly important for addressing industry-specific challenges. For example, the commodification of workers' data as intellectual

property has been at the forefront in creative and entertainment industries, where tools like ChatGPT and AI-generated deepfakes raise questions about ownership of artistic production. One major issue in the 2023 SAG-AFTRA strike was the growing practice of major film studios seeking ownership through work contracts over actors' digital likeness and voices to generate new performances.[79] As a result, safeguarding actors' digital image rights has become a priority in re-envisioning contracts, particularly where existing laws are outdated in addressing novel challenges of generative technologies.[80] How bargaining over actors' data develops can potentially serve as a model for workers in other industries facing similar issues, such as the fashion modeling industry.[81]

However, one outstanding question lies in how much focus should be granted to the problem of data governance. A survey of union members' views on worker data issues across the UK concluded that "the turn to data rights as a lens through which to advance equality and fairness in the workplace is also seen [by union membership] as indicative of a weakening of labor relations in the UK and an increasingly union-hostile political culture."[82] Data Justice Lab co-director Lina Dencik has also warned against the tendency to overly focus on the technology rather than the underlying power dynamics and conditions that produce injustices.[83] Data governance in many cases may only be a small facet of much bigger challenges around worker power and often-weak union presence in many sectors. In other words, a focus on data is still secondary to questions of institutional power.

Weaponizing Privacy and "Data for Good"

While calls for better privacy protections are often a rallying point for worker rights, appeals to privacy and decisions not to collect certain data can also be weaponized to serve employers' own ends. A common example has been employers recasting worker information-sharing over topics like salary transparency or workplace issues as a violation of privacy. In 2019, Google began working with a consulting firm to suppress organizing efforts within the company, and had fired four Google employees for violating their data-security policies, citing that they had "searched for, looked through and distributed information 'outside the scope of their jobs.'" Google employees rallied against the firings, accusing the company of using this alleged rule-breaking to retaliate against them for their organizing.[84] Amazon has also used the language of privacy rights in its anti-union campaign messaging, including placing posters across its warehouses warning that the Amazon Labor Union was collecting workers' personal information, with the tagline, "protect your signature & your privacy," hinting at nefarious data misuse by the union.[85] As a result, worker-led efforts to organize or gain control over data may require working against calls for privacy.

Employers' control over data collection methods can also be used to conceal or misrepresent realities.

Moreover, companies may deploy "strategic ignorance" by choosing not to collect certain kinds of data or limiting how they collect data in order to abdicate or diffuse responsibility by claiming insufficient knowledge about a problem.[86] Employers' control over data collection methods can also be used to conceal or misrepresent realities, such as the scale of issues affecting working conditions. An investigation by the Strategic Organizing Center, a coalition of labor unions, analyzed data from the OSHA

and found that despite Amazon's claims to have made safety improvements, the company's warehouses continue to be far more dangerous for workers compared to the rest of the industry.[87] At the same time, Amazon significantly underreported workplace injury rates at its warehouses, facilitated by the fact that workers could only go to private, on-site medical clinics where EMTs were often pressured to underreport or misclassify injuries, leading to skewed datasets.[88]

Finally, there is a tension between how data is valued by employers and the role it can meaningfully play in shaping workplace conditions. In contrast to more overtly harmful practices, the rise of data-driven workplace tech has also created a market for data-for-good tools that aim to quantify workers' well-being and safety, such as their job satisfaction or burnout risk, in order to better support workers.[89] Notably, the rise of wearable technologies, such as wristbands that generate data on individual workers' fatigue or heart rate, have been touted as the "future of workplace safety."[90] They have sparked discussion over whether abundant data on workers' physical movements and body functions in industries like warehousing, retail, and construction can help provide insights into preventing workplace injuries. But critics have also expressed concerns that it can deflect employer responsibility in creating unsafe working conditions to begin with.[91] The potential benefits may also be outweighed by how this data could be misused in punitive ways, while metrics of intangible sentiments such as job satisfaction may merely reflect employees' efforts to comply with or game surveillance tools to avoid employer scrutiny.[92] While new technologies have potential to support workers and improve workplace conditions, as data becomes easier to amass and analyze, there is also risk to employers focusing on data collection and metrics as a proxy and cover for maintaining a status quo.

Conclusion

There is no monolithic solution to the challenges posed by worker data precisely because it is not one single problem, but rather one dimension of long-standing labor struggles over workers' voice and power in the workplace. Data is instrumentalized and commodified by employers, data brokers, tech companies, and other entities in order to sort and profile workers, lock them out of the labor process and decision-making, justify inhumane productivity pressures, and further concentrate power and capital in the hands of firms. At the same time, data can often be integral to the labor process and to shaping better, safer workplaces, particularly where workers have both control and avenues for contributing their expertise to shaping workplace technologies. Data collected about workers can also be turned around to scrutinize and challenge employers' practices, as well as the assumptions and priorities that shape the narratives created from data. At the same time, the conditions and power relations behind data production matter, and sometimes cannot be separated from their end results. Considering how workplace data collection fits into wider data economies that further entrench racial, gender, and economic oppressions across different aspects of workers' lives also provides a bigger picture of the stakes beyond worker data as a labor issue. Navigating these contradictions and tensions will be an ongoing challenge as struggles for data governance in the workplace take shape.

As this explainer has shown, workers' relationships to data can be a complex mix of aspirations toward ownership, control, or refusal, and are often shaped by local contexts and occupationally specific dynamics. Asking what data collection does — how the presence of ubiquitous surveillance technologies affects workers on a day-to-day level, what it enables employers to do with algorithmic management systems, and what it reveals or conceals — can help structure strategies around what, exactly, the goals are and what different levels of intervention accomplish. What is clear, however, is that the burden should not be placed on workers alone to grapple with the staggeringly pervasive and unchecked infrastructures of data capitalism.

Below are some further questions:

- Where is worker data collection intrinsically harmful, and where are opportunities to challenge how data is governed and in whose hands? Where are roles for workers' data expertise?
- Where might workers want more data collection, and where can failure to collect certain kinds of data harm workers?

- Are there ways that data practices intended to empower workers can be co-opted to ultimately re-entrench power imbalances in relation to employers and other institutions?
- What kinds of alliances and collaborations that go beyond labor regulation and worker organizing are needed to tackle the complexity of worker data issues?
- How do we think about the different scales of strategies to combat data harms? How does the nature of worker data issues change when we shift our analytic frame from technical or design problems of algorithmic management to structural issues of power relations between stakeholders?

Recommended Readings

This explainer is a starting point for exploring these issues, and builds on ongoing research, conversations, and work being done to interrogate and lay out frameworks for resisting data-driven harms in the workplace. Below are some further readings that delve deeper into these topics:

- Annette Bernhardt, Reem Suleiman, and Lisa Kresge. "Data and Algorithms at Work: The Case for Worker Technology Rights," UC Berkeley Labor Center.
- Wilneida Negrón, Little Tech is Coming for Workers: A Framework for Reclaiming and Rebuilding Worker Power, Coworker.org.
- Amba Kak and Dr. Sarah Myers West, "Algorithmic Management: Restraining Workplace Surveillance," AI Now Institute.
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- The Labor and Political Economy Project, collection of essays on worker surveillance, collective resistance.
- Veena Dubal, On Algorithmic Wage Discrimination.

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