

Optimizing Versus Organizing: How Data and Communication Tools Reconfigure the Workplace and the Union

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In the early 19th century, workers in the English textile industry took to the streets to protest the growing use of automated machinery. These machines, introduced by factory owners in the name of efficiency, threatened to replace skilled laborers and depress wages. In response, groups of workers—organized, strategic, and angry—began destroying said machines in targeted acts of resistance. Unlike how they might be painted, these actions were not mindless destruction; they were targeted interventions accompanied by demands for structural reforms, including early forms of wage protections and the removal of children from the workforce.

Factory owners, unwilling to yield power or profits, responded with violence and opened fire, leading the government to intervene. By 1813, more than 60 men had been charged for their resistance with several being executed. Known as the Luddites, these workers, despite the term's modern usage, were not afraid of technology. They were acutely aware that technological innovation, in the hands of capital, was a tool used to undermine labor: to deskill, displace, and disempower.

Today, "Luddite" is often used as a slur, a term for those seen as backward, anti-progress, or irrationally fearful of innovation. But the historical record tells a different story—one of political consciousness, collective action, and a sober understanding of power. It may come as a surprise, then, that I, a scholar of labor and technology, consider myself a Luddite. A self-fashioned one, at least.

As a researcher, my work centers on organized labor—unions, in particular. Collectives of workers who, much like the Luddites, have come together to demand better conditions, higher wages, and dignity on the job. And despite what your boss may have you believe, labor unions do work, as union workers are paid significantly more than their non-union counterparts.

Yet American labor unions have not fared well in recent decades. According to the Bureau of Labor Statistics, only 11.1 percent of the workforce is covered by a union—a relative low point. Despite this, support for unions is at a 70-year high. Nearly half of American workers say they would vote to unionize their workplace if given the opportunity. Public opinion is similarly strong, with approval of labor unions polling in the high 60s to low 70s. We also know that higher union density has historically coincided with reductions in income inequality, a problem on man's mind. Additionally, political leaders including former President Joe Biden, have repeatedly emphasized the need to rebuild the American labor movement. The desire for organized labor is clear. So why don't we see more of it?

One answer—and the one I want to explore here—is technology. Technology, much like it has for the Luddites, has become a staple of the work we do. From trucking, to software engineers, to working at Starbucks, we are surrounded by technology when we work. Employers are increasingly using technology to “optimize” their workforce, reconfiguring it to help increase company profits. However, in doing so, whether intentionally or not, they have created grounds on which it is almost impossible to organize a labor union.

Today's workers operate in environments saturated with digital surveillance. In many large companies, employees are monitored not only through traditional managerial oversight but through automated systems: sentiment surveys, productivity dashboards, keystroke monitors, and algorithmic risk assessments. These systems generate massive data asymmetries, allowing employers to know more about workers than workers know about each other. They use this information not only to evaluate performance but to predict—and prevent—collective action.

Consider Amazon. Leaked internal documents revealed the company's development of a "heat map" tool to anticipate which Whole Foods locations were most at risk of unionizing. The system analyzed variables like area income, recent raises, and proximity to active unions. These insights allow Amazon to proactively intervene to disrupt organizing efforts. As any experienced organizer will tell you: it's much easier for employers to crush a union drive than for workers to start one. Employers have numerous tools to subvert labor law like subtly reassigning ringleaders, offering last-minute benefits to diffuse momentum, or illegally firing organizers with little consequence.

And they are not alone. As journalist Sarah Kessler has reported, union-busting consultancies are developing similar predictive technologies for corporate clients. Even HR platforms like Perceptyx and WorkTango now advertise the ability to detect early signs of organizing.

Technology also enables a deeper, more ambient form of control: fear. In a recent study I conducted with colleagues, we found that many workers were deeply anxious about employer surveillance, especially in moments where it wasn't clear whether they were being watched. Participants mentioned their co-workers being worried that their employer might hack their personal phone or that their private emails were being monitored. These fears, while not always grounded in reality, reflect a broader condition: under contemporary workplace surveillance regimes, privacy is no longer something workers can take for granted. Instead, workers are espoused to an increasingly obfuscated workplace, preventing them from taking action in the workplace.

Digital communication tools deepen this problem. In many tech workplaces, platforms like Slack have become the primary channel for internal communication. But discussing unionization over Slack—owned and monitored by the employer—is risky. Admins can often view supposedly private conversations, and some companies actively scan for keywords related to organizing. In other cases, companies restrict access to certain communication tools altogether to limit organizing.

Worse still, employers increasingly use these same tools to push anti-union messaging. During the New York Times Tech Workers Guild campaign, workers were bombarded with directives to vote no. At Amazon, the company's internal app, "A to Z," sent anti-union notifications directly to workers' phones, framing the union as a threat rather than a tool for empowerment.

There are also structural challenges around time and space. Unionization is not just about a vote—it's about building relationships, trust, and a shared sense of purpose over time.

Historically, this meant long conversations, house visits, and community meetings. But in workplaces like Amazon, even a break to talk can be monitored. Workers are tracked through surveillance systems that flag “time off task,” making it risky to even pause and connect.

The modern workforce is also far more geographically dispersed than it once was. During the height of the labor movement in the 1930s, organizing efforts often revolved around communities: steel towns, mining villages, industrial corridors. Unions were embedded in the social and civic life of workers. Today, remote work and digital-first employment models fragment those networks. In one of my recent papers, we found that digital organizing—while possible—struggles to replicate the relational density of place-based movements, with the absence of shared space makes solidarity harder to build.

Finally, even when workers succeed in unionizing, these optimized shop floors limit their power to disrupt. The core leverage of a union, its right to strike, is now often undermined by new technologies. In education, learning management systems make it easier to substitute striking teachers with preloaded digital content. In logistics and manufacturing, orders can be rerouted to other warehouses, as Amazon often does, reducing the impact of walkouts. And in creative industries, generative AI is already being deployed to replace writers, editors, and designers—transforming labor disruptions into mere inconveniences for employers.

This paints a pretty damning picture for the union movement, so what do we do? First, we need to recognize the power we already have. We are not just passive recipients of technology—we are its workers, its maintainers, and, in many cases, its designers. If you’re in a workplace without a union, consider what it would take to start one. A stronger labor movement begins with each of us deciding that we deserve more. Of course, be strategic—know your rights, protect your job—but don’t let fear stop you from organizing. The Luddites knew their power; they understood that collective resistance was the only real counter to exploitation. The same is true now. Organize, organize, organize.

Second, we must work toward building technology that supports workers rather than undermines them. This is still an open question—I’m working through it myself—but one potential vision draws inspiration from Jathan Sadowski’s *The Mechanic and the Luddite*. When designing tools, we want to focus on designs that are legible, modifiable and interpretable, allowing workers to take ownership over their work, but not replace them. We also need to reject surveillance by design. Tools that empower users to say no—to opt out. We need platforms that prioritize privacy, resist centralization, and rebalance the asymmetries of data and power that dominate today’s workplaces. “Pro-worker tech” should not just mean user-friendly—it should mean technology that builds worker autonomy and collective strength.

Finally, we must insist on understanding technology as political. Every system we build reshapes how people relate to one another, how power flows, and who gets to decide. It’s not enough to talk about innovation without asking: innovation for whom? Automation for what purpose? Optimization at whose expense? The future of work—of labor, of solidarity—depends on reclaiming the tools of production, not rejecting them. Like the Luddites, we must confront not just the machines, but the forces that wield them.