**Data and Democracy at Work:**

**Advanced Information Technologies, Labor Law, and the New Working Class**

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## Introduction and Overview

**COVID and the Technological Class Divide:** COVID-19 upended our economy—but not our class or racial hierarchy. While the virus did not discriminate based on income or race, exposure, complications, and death skewed heavily along those lines. A major factor in individuals' total risk was whether they could work remotely, which revealed a longstanding technological class divide. Under social distancing mandates, professionals retreated to their homes or second homes, using new videoconferencing platforms to keep working—designing products, analyzing data, writing legal briefs, coordinating strategies. This was exceptionally difficult for parents (and especially women) who had to care for children as they did their own jobs. Yet professionals had it relatively easy. Their creature comforts depended on armies of low-wage workers in our vast service economies who had to perform their jobs in person. Those workers had a very different relationship to technology. Rather than using it to create goods and services or to manage enterprises, those workers were often managed *by* technology, receiving orders and even official discipline through apps, tablets, and the like.

Indeed, many canonical images from the pandemic juxtaposed U.S. companies' stunning technological sophistication with their workers' vulnerability. Amazon warehouse staff—who work alongside armies of robots, and whose every task is assigned and monitored by artificially intelligent devices—became infected early on because their company did not maintain physical distancing or provide masks. As online shopping surged, those challenges became more acute with longer shifts and more crowded shop floors. Other workers faced similar risks, including workers at grocery stores and other essential businesses. Meanwhile, the potential scope of the app-based "gig" economy came into greater focus as delivery platforms like Instacart and DoorDash scaled up to meet consumer demand. These platforms use data-gathering devices and machine learning algorithms to match workers with businesses or customers for short-term tasks and to track consumer demand and workers' performance in real time. Workers for such platforms were effectively supervised by apps linked to novel surveillance devices rather than

humans, and sometimes were even demoted or fired by apps. Meanwhile, these workers needed to enter businesses and interface with customers, leaving them at a high risk of infection.

The pandemic therefore highlighted and exacerbated long-simmering grievances in our economy and society. Many workers simply reached their breaking point and began to protest such mistreatment and danger. Early in the pandemic, health care workers who use cutting-edge medical technologies called out their employers' failure to provide them adequate safety equipment. Many other workers followed suit, walking out of warehouses, meatpacking and poultry plants, fast food restaurants, and elsewhere, to the point that some labor experts believe COVID sparked a bona fide strike wave.[1] Then, as pandemic restrictions eased in 2021, many companies struggled to staff back up, especially in hospitality. Some longtime restaurant and hotel workers told reporters they were unwilling to tolerate such risks again. Others were simply exhausted after years of physically grueling service work. COVID was the final straw.[2]

A decade from now, the pandemic may mark the end of an era in the American political economy. That era began in the 1980s and was defined both by astonishing progress in data-driven technologies and by exponential growth in precarious service work. This book argues that those trends—in technological development and in the degradation of work—are inextricably linked.[3] In recent decades, companies have increasingly developed and deployed advanced information technologies to augment their power over workers and limit labor costs. For example, companies have used such technologies in ways that make it harder for workers to organize and take collective action. This book further argues that this process was deeply intertwined with our labor laws—that is, the entire statutory complex constituting and governing work.[4] As those laws evolved over the same period, companies have gained broad entitlements to gather data on workers and their performance, to exclude others from accessing that data, and to use that data to reshape work relations in ways that limit workers' power. Put more formally,

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[1] Clarissa A. Leon and Mike Elk, "The Bureau of Labor Statistics Counted Only Eight Strikes in 2020, Payday Report Counted 1,200," *Institute for New Economic Thinking, Perspectives Blog*, July 13, 2021, accessed October 18, 2021, https://www.ineteconomics.org/perspectives/blog/the-bureau-of-labor-statistics-counted-only-eight-strikes-in-2020-payday-report-counted-1-200.

[2] The Daily, "Stories From the Great American Labor Shortage," *New York Times*, podcast, August 3, 2012, accessed October 18, 2021, https://www.nytimes.com/2021/08/03/podcasts/the-daily/coronavirus-hiring-job-vacancies-hospitality-industry.html.

[3] This book borrows from and joins a growing body of scholarship elucidating the role of data-driven technologies and associated legal regimes in our contemporary political and social order. See generally Julie E. Cohen, *Between Truth and Power: The Legal Constructions of Informational Capitalism* (Oxford: Oxford University Press, 2019); Amy Kapczynski, "The Law of Informational Capitalism," *Yale Law Journal* 129, no. 5 (2020): 1460-1515; Salomé Viljoen, "Democratic Data: A Relational Theory for Data Governance," *Yale Law Journal* (forthcoming), draft of Nov. 11, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3727562; Yochai Benkler, "Power and Productivity: Institutions, Ideology, and Technology in Political Economy," in *A Political Economy of Justice*, Danielle Allen et al., eds. (Chicago: University of Chicago Press, forthcoming 2022), 27-60.

[4] In the United States, the law of work is divided into three major sub-fields: "labor law," which covers union organizing and collective bargaining; "employment discrimination," which applies civil rights protections to employment, and "employment law," which includes common law and statutory governance of the individual employment relationship. Michael Fischl, "Rethinking the Tripartite Division of American Work Law," *Berkeley Journal of Employment & Labor Law* 28, no. 1 (2007): 163-216.

companies are using their *legal powers* and *technological powers* to suppress workers' *associational power*, driving down wages and eroding working conditions.[5]

This long-running process yielded many of the problems that garnered public attention under COVID. Those include low wages, meager benefits, lean staffing, unpredictable schedules, failure to invest in basic safety protocols, potentially illegal subcontracting and independent contracting arrangements, and—of course—lack of collective bargaining. This book also argues that there is a deeper causal logic at work: these technological and legal changes were driven by investors' demands for high returns in today's services-dominated economy. That economy requires many workers without specialized skills, yet is plagued by slow productivity growth. Recent processes of workplace technological change have therefore *also* been processes of class formation. These trends are global, but this book focuses on the United States, where they are especially pronounced. Finally, this book argues that a more fair and sustainable future of work is possible, but will require ambitious reforms to democratize the governance of workplaces, workplace data, and the economy.

The rest of this introduction outlines the book's narrative in more detail, situates it within the literature, and then summarizes the arguments in subsequent chapters.

**Data-Driven Technology, Inductive Knowledge, and Class Power:** While the book focuses on recent developments, conflicts over workplace technology and information are not new. For well over a century, workers and companies have fought over the generation and control of workplace information, since both parties recognize that access to information shapes the labor process and the parties' correlative powers. For example, to unionize or take collective action, workers typically must be able to meet, to discuss common concerns, and to plan without management's knowledge or involvement. In that sense, to build associational power, workers need some privacy—some control over informational flows.[6] Conversely, companies have long sought to generate, capture, and quantify information about workers and work processes and to use that information to suppress worker mobilization. They can do so directly by retaliating against worker leaders or indirectly by designing production systems and processes in ways that make worker organizing more difficult.[7]

In recent decades, however, companies' ability to use data to reshape production and class relations has been supercharged by developments in law and in data-processing. Regarding the law, companies have pushed on multiple fronts to achieve greater freedom of movement vis-à-

[5] See Erik Olin Wright, "Working-Class Power, Capitalist-Class Interests, and Class Compromise," *American Journal of Sociology* 105, no. 4 (January 2000): 958, 962 (discussing workers' "associational power," contrasting it with "structural power," or the power workers have individually or collectively by virtue of their skills or location in a tight labor market.)

[6] See Neil M. Richards and Jonathan King, "Big Data Ethics," *Wake Forest Law Review* 49, no. 2 (2014): 396 (arguing that today privacy should be understood as "encompassing information rules that manage the appropriate flows of information in ethical ways.") See also Julie E. Cohen, "What Privacy is For," *Harvard Law Review* 126, no. 7 (May 2013): 1906 (arging that "Privacy is shorthand for breathing room to engage in the processes of boundary management that enable and constitute self-development.")

[7] See discussion, Chapter 1.

vis workers and the state. They enjoyed such authority in the era of *Lochner* and *laissez-faire* but lost much of it after the New Deal. As noted above and discussed below, companies pressed hard for such freedoms beginning in the 1970s, responding in part to secular economic shifts away from manufacturing. They were fairly successful.[8] Our labor laws now treat employment as fundamentally contractual, largely disregarding the background inequalities that affect workers' and companies' bargaining power. Those laws also treat the enterprise as the employer's sovereign property, to the point that companies enjoy property-like entitlements in data gleaned from workplace activities and significant rights to surveil workers both on and off the job. With such legal tools in hand, companies can gather, hold, and analyze workplace data with few restrictions, and can use it to reshape labor relations and production systems more-or-less at will. As argued below, this consolidation of legal power reflects broader trends in the evolution of law over the same period—the era of neoliberalism—when vast swaths of our society were re-organized around idealized visions of market ordering.[9] That long-running shift in labor law both facilitated and responded to the maturation of networked information technologies and associated changes in the class structure. Indeed, the various processes complemented and reinforced one another as companies developed and deployed information and communications technologies to surveil and manage huge armies of service workers.

Such technologies differ from past means of worker surveillance in several respects, each reflected in their design as well as in their use.[10] For example, modern surveillance technologies operate over a vast distance, enabling cheaper oversight of massive numbers of workers or huge networks of suppliers from central locations. Those technologies also operate asymmetrically, enabling companies to monitor workers but preventing workers from monitoring management. Most importantly, nascent forms of AI operate very differently from human cognition. They analyze very large data pools to discern patterns and draw statistical inferences in ways humans never could. This leads to a genuinely new way of "seeing" or knowing the world that is *inductive* in character and genuinely different from other forms of productive knowledge. As the sociologist Gary Marx explained in a related context, such techniques enable judgments based not just on the unique individual but that "individual in relation to statistical averages and aggregate categories."[11] But such systems have an Achilles heel: they have no sense of the social and real-world context for their analyses.[12] That context is inescapable in the workplace, which limits companies' ability to automate today's jobs. For the foreseeable future, then, the greater share of workplace AI seems dedicated to extending, deepening, and transforming managerial

[8] While the book focuses on legal changes in the United States, similar but less momentous shifts in workplace governance have occurred in many other nations. See Lucio Baccaro and Chris Howell, *Trajectories of Neoliberal Transformation: European Industrial Relations Since the 1970s* (Cambridge: Cambridge University Press, 2017) (tracing changes in European industrial relations in recent decades, arguing that the general trend, across nations, is toward greater managerial discretion over workers).

[9] See discussion, Chapter 2.

[10] See Gary Marx, *Windows Into the Soul: Surveillance and Society in an Age of High Technology* (Chicago: University of Chicago Press, 2016), 50-51, Table 2.1. (providing schematic overview of the differences between contemporary and historical forms of surveillance).

[11] Marx, *Windows Into the Soul*, 50-51.

[12] See discussion, Chapter 3.

control over workers.

In the United States, the results of these intertwined shifts in law, technology, and workplace power relations are all around us. For example, acting entirely within their rights, companies may closely monitor workers, demand an ever-faster pace of work, and terminate those who complain without giving any reason.[13] They may use AI to reshape scheduling practices, physical spaces, and workflow in ways that prevent workers from even speaking with one another. They may shunt workers outside of their corporate boundaries, denying them basic legal protections and rendering many forms of worker collective action illegal even as they use new surveillance tools and algorithms to supervise workers' performance.[14] What's more, companies can take these steps even as they exploit their control over valuable information to build a dominant position within their sectors, giving them structural power over workers, competitors, and even lawmakers. This individualization and intensification of surveillance and management is not always *intended* to erode workers' associational power—but it often has that effect. Workers are fragmented from one another physically, socially, and legally, even as they are subject to similar forms of centralized control.

Companies can also use new surveillance devices and inductive learning technologies to suppress workers' organizing efforts actively, directly, and aggressively.[15] For example, companies can monitor internal employee message boards using natural language recognition algorithms, spotting keywords that might indicate a unionization drive is afoot before retaliating against ringleaders. Such retaliation is often illegal—and yet companies can launder personnel decisions through new algorithms that obscure their intent from workers and regulators, making enforcement much more difficult.[16] There are many reported examples of such efforts today. For example, Amazon in 2020 posted and then rapidly deleted a job announcement for "intelligence analysts" who would take such efforts to scale, utilizing worksite data analytics and public data sources to detect "labor organizing threats" against the company.[17] Companies may also be able to use new recruiting algorithms to aggregate data on applicants' employment history with data on their social media posts or consumer behavior, then screen out workers who are likely to challenge management's authority.

All of this culminates in a new labor politics in which knowledge and control are centralized, surveillance is constant, and line-level workers have little autonomy and no voice on the job. Intensive market discipline is the norm as workers must compete with one another for jobs, for shifts, or to stay in their employer's good graces. As a result, service workers are increasingly a class in a structural sense, occupying similar positions in the division of labor and enduring similar inequities even if they do not always understand themselves to be a class. Their lack of

[13] See discussion, Chapter 3.
[14] See discussion, Chapter 5.
[15] See discussion, Chapter 4.
[16] See discussion, Chapter 3 (on inductive learning generally) and Chapter 4 (on use of inductive learning to hide statutory violations).
[17] Lorenzo Franceschi-Bicchierai, "Amazon Is Hiring an Intelligence Analyst to Track 'Labor Organizing Threats,'" *Vice*, September 1, 2020.

collective power drives down wages and working conditions, enabling companies to remain profitable and capture the lion's share of productivity gains. Companies can then extend and deepen their power, fractal-like, from the individual workstation, to the worksite, to the supply and distribution chain, and to the broader political economy. Indeed, the enormous power disparities in today's labor market have arguably even skewed the development of AI itself so that dominant forms of the technology primarily serve major companies' interest in controlling and disciplining workers. In that sense, advanced information technologies and their associated class politics are central to the political economy of contemporary capitalism.[18]

There are silver linings here. The fact that both technological change and class formation were thoroughly facilitated and shaped by law—a human creation ultimately subject to democratic revision—suggests that, by re-configuring workplace and data governance, a more egalitarian future of work is possible. Such an outcome will require political mobilization, but there are promising signs there as well.[19] For one thing, service workers are the paradigmatic "essential workers" of the COVID era—the ones who make sure we are all fed, clothed, housed, transported, and cared for. They have enormous latent power as a result, which they have recently begun to exert, as noted above. Service workers also have a natural community of interest with many consumers and with a younger generation unwilling to tolerate an unfair, unsafe future. Together, those groups could push for a more just, equitable, and sustainable political economy. Below, several chapters that discuss technical developments and their effect on workers also suggest reforms to address discrete harms. The final chapter then proposes a far more ambitious re-allocation of workplace rights and powers. Those reforms draw inspiration from the radical democratic tradition of thought and action, which insists that all major spheres of social action—politics, the economy, and civil society—must be constituted and governed in a democratic fashion.[20] In labor law specifically, workers' associational power could be a legitimate, important modality of governance once again. Law today encourages employer dominance in many ways—but law can also encourage a different political economy and a different class politics with a broader, more robust sphere of human freedom.

**Situating This Book in the Literature:** The book sits at the intersection of three bodies of scholarship that illuminate the role of laws and other institutions in shaping contemporary work relationships as well as longer-term processes of capitalist development.

The first body of literature considers the role of law in the political economy of capitalist democracies. That was a major theme of early Twentieth Century legal realism, which asserted that legal rules and processes established the terrain on which economic and political action occurred.[21] Labor law scholars within various critical traditions have also explored how law

[18] See discussion, Chapter 1.

[19] See Gabriel Winant, *The Next Shift: The Fall of Industry and the Rise of Health Care in Rust Belt America* (Cambridge, Harvard University Press, 2021), 23-24, 262-64 (discussing the latent political and associational power of care workers, a subset of service workers.)

[20] See discussion, Chapter 6.

[21] Examples include R. Cohen, "Property and Sovereignty," *Cornell Law Review* 13, no. 8 (December 1927): 8-

constitutes and shapes class relations. For example, a large body of labor law scholarship traces the rise and decline of the New Deal labor regime, showing how it failed to deliver on the promise of workplace and industrial democracy.[22] Others have sought to understand the myriad ways in which labor laws shape workers' capacities for collective action, and how that collective action can become an autonomous source of legal or quasi-legal authority.[23] Still others have elaborated the relationship among labor law's protections for collective action, class-based mobilization, and other axes of social subordination including race, gender, and citizenship.[24] In nearly all cases, such labor law research works at the intersection of law and social practice—which it must, since both management and workers' collective action are inherently social processes.

A related body of scholarship is now clustered around the "Law and Political Economy" (LPE) project and movement.[25] That literature is diverse, cutting across subject fields and methodologies, but much of it has extended and updated the realist project of understanding the legal constitution of political-economic orders.[26] A number of LPE scholars have focused specifically on the relationship between law and capitalist development outside the labor context, and the book draws extensively from their work.[27] Others working in and around LPE have argued that the data revolution is altering workplace privacy practices and compliance with anti-

30; and Robert L. Hale, "Coercion and Distribution in a Supposedly Non-Coercive State," *Political Science Quarterly* 38, no. 3 (September 1923): 470-494.

[22] Examples include Karl E. Klare, "Labor Law as Ideology: Toward a New Historiography of Collective Bargaining Law," *Industrial Relations Law Journal* 4, no. 3 (1980-1981): 450-482; and Katherine Van Wezel Stone, "The Post-War Paradigm in American Labor Law," *Yale Law Journal* 90, no. 7 (1981): 1509-1580.

[23] Examples include Richard Michael Fischl, "Self, Others, and Section 7: Mutualism and Protected Protest Activities Under the National Labor Relations Act," *Columbia Law Review* 89, no. 4 (1989): 789-865; Mark Barenberg, "Democracy and Domination in the Law of Workplace Cooperation: From Bureaucratic to Flexible Production," *Columbia Law Review* 94, no. 3 (1994): 753-983; and Brishen Rogers, "Passion and Reason in Labor Law," *Harvard Civil Rights-Civil Liberties Law Review* 47, no. 2 (2012): 313-369.

[24] All of these literatures are vast. On the tensions between traditional organizing and collective bargaining strategies and movements for racial and gender justice, see Marion Crain and Ken Matheny, "Labor's Identity Crisis," *California Law Review* 89, no. 6 (December 2001): 1767-1846. On the relationship between union organizing and immigrant rights, see Jennifer Gordon, *Suburban Sweatshops: The Fight for Immigrant Rights* (Cambridge: Harvard University Press, 2007).

[25] Overviews of the emerging literature on law and political economy include Angela Harris and James Varellas, "Law and Political Economy in a Time of Accelerating Crises," *Journal of Law and Political Economy* 1, no. 1 (2020): 1-27; and Jedediah Britton-Purdy et al., "Building a Law-and-Political-Economy Framework: Beyond the Twentieth-Century Synthesis," *Yale Law Journal* 129, no. 6 (2020): 1784-1835.

[26] See Harris and Varellas, "Law and Political Economy": 10 (stating, in introduction to the first issue of the new Jo*urnal of Law and Political Economy*, that LPE holds that "law is central to the creation and maintenance of structural inequalities in the state and the market"); Britton-Purdy et al., "Law-and-Political-Economy Framework," 1792-1793, 1818-1823 (discussing continued relevance of legal realism today).

[27] Examples include Angela Harris, forward, "Racial Capitalism and Law," in *Histories of Racial Capitalism*, Destin Jenkins and Justin Leroy, eds. (New York: Columbia University Press, 2021), vii-xx; David Singh Grewal, "The Legal Constitution of Capitalism," in *After Piketty*: *The Agenda for Economics and Inequality*, Heather Boushey, J. Bradford DeLong, and Marshall Steinbaum, eds. (Cambridge: Harvard University Press, 2017), 471-490; David Singh Grewal, "Book Review: The Laws of Capitalism," *Harvard Law Review* 128, no. 2 (2014): 626-668; Cohen, *Between Truth and Power*; and Benkler, "Power and Productivity."

discrimination mandates.[28] With important exceptions, however, scholars have said less on the role of new information technologies in *class politics* specifically, and their relationship to changes in labor law.[29]

The second literature considers the relationship between technology and institutions, including but not limited to law. This is an immense topic, and the book can't hope to do justice to all the debates among technology scholars, but several are worth noting. For example, one branch of science and technology studies has illuminated how political and social institutions can shape technological development and deployment, and how technologies in turn can shape political and social institutions.[30] Another rich vein of scholarship focuses on how networked information technologies facilitate network-based or platform-based forms of social organization, with distinctive logics and tensions, including network effects and tendencies toward monopoly.[31] Legal scholars, for their part, have long argued that rights to develop or deploy technology are a crucial source of social and economic power, and that the design of technologies themselves can regulate and shape social behavior.[32] As inductive learning technologies have been deployed at scale in the private sector, scholars here have traced how they are legally constituted, how companies are using them to reshape relationships with consumers and others in ways that threaten individual privacy, and how they are altering state and administrative processes.[33] As noted above, the book draws insights from those bodies of work and applies them to the recent evolution of workplace technology and class relations.

The third literature focuses on the political economy of work and technology more generally,

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[28] Examples include Ifeoma Ajunwa, "Age Discrimination by Platforms," *Berkeley Journal of Employment and Labor Law* 40, no. 1 (2019): 1-27; Solon Barocas and Andrew D. Selbst, "Big Data's Disparate Impact," *California Law Review* 104, no. 3 (June 2016): 671-732; and Pauline T. Kim, "Data-Driven Discrimination at Work," *William and Mary Law Review* 58, no. 3 (February 2017): 857-936. See also Simone Browne, "Race and Surveillance," in *Routledge Handbook of Surveillance Studies*, eds. Kirstie Ball et al. (London: Routledge, 2012), 72-80 (discussing the relationship between contemporary surveillance practices and social processes of racial differentiation.)

[29] Important exceptions within labor law include Valerio De Stefano, "'Negotiating the Algorithm': Automation, Artificial Intelligence and Labour Protection," *Comparative Labor Law and Policy Journal* 41, no. 1 (2019): 15-46; Jeremias Adams-Prassl, "What if Your Boss Was an Algorithm: Economic Incentives, Legal Challenges, and the Rise of Artificial Intelligence at Work," *Comparative Labor Law and Policy Journal* 41, no.1 (2019): 123-146; and Cynthia Estlund, "What Should We Do After Work? Automation and Employment Law," *Yale Law Journal* 128, no. 2 (2018): 254-326. For an influential treatment of how an earlier generation of information technologies effected work see Katherine Van Wezel Stone, *From Widgets to Digits: Employment Regulation for the Changing Workplace*, (Cambridge: Cambridge University Press, 2004).

[30] Examples include Langdon Winner, "Do Artifacts Have Politics?," *Daedalus* 109, no. 1 (Winter 1980): 121-136, and Sheila Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton: Princeton University Press, 2005).

[31] Cohen, *Between Truth and Power*; Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven: Yale University Press, 2006).

[32] Benkler, "Power and Productivity"; Cohen, *Between Truth and Power*; Lawrence Lessig, *Code: And Other Laws of Cyberspace* (New York: Basic Books, 1999).

[33] Cohen, *Between Truth and Power*; Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge: Harvard University Press, 2016); Danielle Citron and Frank Pasquale, "The Scored Society: Due Process for Automated Predictions," *Washington Law Review* 89, no. 1 (2014): 1-33. See also Daniel Schiller, *Digital Capitalism: Networking the Global Market System* (Cambridge: The MIT Press, 1999) (discussing political economy of information in an earlier period).

but often says less about law and legal processes. This is a theme in various classics of political economy, including work by Adam Smith, Karl Marx, Joseph Schumpeter, and more recently Immanuel Wallerstein.[34] One body of contemporary research—in comparative political economy, economic sociology, and welfare state studies—illuminates the relationship among workers' associational power, other institutions, and patterns of development across capitalist economies.[35] Another line of research focuses more specifically on how workplace technology structures class relations. As that literature is less focused on law, it naturally lives outside the legal academy, especially in the disciplines of heterodox economics, economic sociology, and labor history.[36] A core insight that cuts across much of that scholarship is that companies may choose technologies that are less productive or efficient than reasonable alternatives where doing so helps them contain workers' power and thus capture a higher share of profits.[37] While classic works in this tradition were written prior to the emergence of networked information technologies, sociologists and other social scientists have studied how processes of algorithmic management are proliferating across the economy and exacerbating economic and other inequalities.[38]

While these literatures diverge in many respects, they all focus on the constitutive role of social institutions in capitalism, whether historically, within nations today, and/or in comparative cross-national perspective. Chapter 1 draws from all of these literatures to propose a model of the political economy of work that envisions legal entitlements in the workplace, capacities for collective action, and control over workplace technology as *power resources* that companies and workers deploy to advance their interests against the other's opposition. Chapters 2 through 5

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[34] Adam Smith, *The Wealth of Nations* (London: W. Strahan and T. Cadell, 1776; Chicago: The University of Chicago Press, 1976), Book 1, Chapters I-II (on modern division of labor and technological innovation, first published in 1776); Karl Marx, *Capital, Volume 1: A Critique of Political Economy* (Hamburg: Verlag von Otto Meisner, 1867; New York: Penguin Books, 1990), Chapter 15 (on use of technology to discipline workers); Joseph Schumpeter, *Capitalism, Socialism and Democracy* (New York: Harper & Brothers, 1942), Chapter 7 (discussing "creative destruction"); Immanuel Wallerstein, *World-Systems Analysis: An Introduction* (Durham: Duke University Press, 2004), 24-30 (relationship among technological innovation, monopoly rents, and core/periphery divisions in world capitalism).

[35] Kathleen Thelen, *Varieties of Liberalization and the New Politics of Social Solidarity* (Cambridge: Cambridge University Press, 2014); Peter A. Hall and David Soskice, "An Introduction to Varieties of Capitalism," in *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Peter A. Hall and David Soskice, eds. (Oxford: Oxford University Press, 2001), 1-68; Gøsta Esping-Andersen, *The Three Worlds of Welfare Capitalism* (Princeton, NJ: Princeton University Press, 1990). For a critical account of the "Varieties of Capitalism" literature exemplified by Hall and Soskice, see Lucio Baccaro and Jonas Pontusson, "Rethinking Comparative Political Economy: The Growth Model Perspective," *Politics & Society* 44, no. 2 (2016): 175-207.

[36] Samuel Bowles and Herbert Gintis, "Contested Exchange: New Microfoundations for the Political Economy of Capitalism," *Politics and Society* 18, no. 2 (1990): 165-222 (heterodox economics); Harry Braverman, *Labor and Monopoly Capital* (New York: Monthly Review Press, 1974) (sociology); Katherine Stone, "The Origins of Job Structures in the Steel Industry," *Review of Radical Political Economics* 6, no. 2 (1974): 113-173 (heterodox economics and sociology); David Montgomery, *Workers' Control in America* (New York: Cambridge University Press, 1980) (labor history).

[37] Winner, "Do Artifacts Have Politics?," 124-25. See Chapter 1, Section B.

[38] Examples include Alex Rosenblat, *Uberland: How Algorithms Are Rewriting the Rules of Work* (Berkeley: University of California Press, 2018); Mary L. Gray and Siddharth Suri, *Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass* (New York: Houghton Mifflin, 2019); and Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (New York: St. Martin's Press 2018).

drill down into particular facets of that process in the legal sphere and in the workplace, and Chapter 6 considers what can be done to improve work and reduce inequality.

The overall argument pushes forward two now-classic insights from the literatures above that are in some tension with one another. The first, common to legal realism and its descendants, is that law is a human creation and can be revised to advance the broader social good. While processes of social change cannot be driven entirely by legal change, legal reforms and processes are central to social orders in modern democratic societies. Moreover, unlike social norms and forms of traditional authority, laws can be contested, questioned, and altered pursuant to intentional deliberative and political processes. The second insight, which is central to radical political economy and heterodox economics, is that capitalism as an economic and social order has a deeper logic that is not reducible to the views and aspirations of its denizens and that pervasively shapes the legal order. For example, capitalism encourages intense competition at most levels of the economy, leading to perpetual changes in technology and to new work structures that erode existing social protections. What's more, capital's structural power even in democratic societies may limit the potential scope of democratically-motivated efforts to de-commodify labor and other basic goods.

In other words, the book stands *both* with those who insist that capitalism tends to erode or swamp all opposing normative orders *and* with those who note that, by acting together, non-elites have frequently limited capital's power and democratized social and economic life through legal reforms. As a shorthand, the book refers to this dynamic as the tension between capitalism and democracy, recognizing that both terms are immensely complex and contested. My hope is that embracing this tension will enable a sober, clear analysis of the crises facing us today while also generating space to envision a future of work and workplace technology that is far more egalitarian and sustainable than the present.

**Summary of Chapters:** The book has six chapters, in addition to this introduction. Chapters 1 and 2 are the book's theoretical core, Chapters 3-5 provide empirical detail, and Chapter 6 considers possible policy responses. Chapter 1 outlines the book's theory of the relationship among workplace technology, labor law, and capitalist development. It first summarizes the macro-level shifts in our political economy over the last few decades that have generated new pressures on workers, investors, and welfare states. It then proposes a model of workplace and economic governance in which companies and workers deploy power resources—including legal rights in the workplace, control over workplace data and technology, and capacities for collective action—to advance their interests. Chapter 1 also explains what "class" means in this context, including its benefits and limits as an explanatory concept, and how class conflicts are themselves intertwined with racial and gender differentiation and subordination. Finally, it explains the importance of technology as a means of workplace governance, and argues that new data-driven technologies are altering class conflicts by rendering nearly every facet of production legible to employers, as discussed above.

Chapter 2 discusses the transformation of labor law in the past few decades as employers and investors have pushed for greater legal and operational freedom vis-a-vis workers and the state.

That chapter also identifies a legal theory of workplace governance that emerged from those battles, which it terms "workplace neoliberalism." Workplace neoliberalism involved two major changes from postwar labor law and displaced that era's theory of workplace governance, known today as "industrial pluralism." First, courts and legislatures re-conceptualized employment as based on individual consent and contract despite the clear power differences between companies and workers. This contrasts with industrial pluralism, which understood employment as jointly governed by workers and management. Second, courts and lawmakers strengthened and deepened companies' property rights in their enterprises, including their rights with regard to data and technology. As a result, employers now enjoy near-plenary powers to monitor and surveil workers in the worksite and often during non-work hours, as well as various property-like entitlements in workers' persons. Again, this contrasts with industrial pluralism, where workers often had some collective voice over workplace technology. This legal reconstitution of employment paralleled changes in intellectual property, trade secrets, and other doctrines that similarly granted companies vast legal, operational powers over technology.

The next three chapters discuss how companies are using their legal powers over data and technology to reshape work. Each focuses on a distinct aspect or site of class relations.

Chapter 3 focuses on how companies are using novel information technologies to alter the mixture of tasks performed by workers and managers at the "point of production." To illustrate, it first outlines three forms of knowledge that are essential for production: formal knowledge, tacit knowledge, and the emerging form of inductive knowledge noted above. Chapter 3 then shows how novel information technologies generate both new forms of formal knowledge and substantial inductive knowledge, which companies are using to automate some tasks and to manage workers more intensively. For both technical and economic reasons, Chapter 3 argues that automation is unlikely to displace world-historic numbers of low-wage workers in the years ahead. Automation today is best understood as part of a wider trend toward "digital Taylorism,"[39] which also includes algorithmic management. Digital Taylorism tends to erode workers' associational power by reducing the skill levels required for particular jobs and by making it much more difficult for workers to deliberate and make common cause with one another.

Chapter 4 discusses the changing terrain of employee privacy as it relates to workers' organizational efforts. That chapter first discusses how companies can use new data-aggregation techniques to render various aspects of workers' off-duty conduct and personhood legible. That issue has been explored by anti-discrimination scholars, and the chapter draws on their efforts. It then extends their analysis to illuminate how companies can use similar techniques to avoid unionization or even the threat of unionization. For example, companies can use data-aggregation and analysis in their hiring to screen out workers who are likely to challenge managerial authority. Employers can also use new surveillance capacities and inductive learning techniques to determine whether workers are seeking to unionize and, if so, to suppress those

[39] The term has been used by others in the past, including *The Economist*. *Schumpeter* (blog), "Digital Taylorism," *The Economist* (September 10, 2015).

efforts. That is often illegal under existing law, but difficult to detect. The net effect of such efforts is to ensure unilateral employer control.

Chapter 5 discusses how companies are using such technologies to alter their industrial organization. That involves two facially contradictory developments. First, in recent years, firms have "fissured" away all tasks that are not profit centers and disclaimed any duties toward those workers even as they continue to supervise them closely. Second, companies in many low-wage sectors have grown explosively or merged with rivals, leading to substantial market concentration. These changes in industrial organization have led to a characteristic form of organization in low-wage labor markets—including retail, fast food, hospitality, logistics, some care sectors, and the gig economy—where decisions are made centrally at corporate headquarters but legal responsibility for working conditions is diffuse. Companies' core operations are then insulated from competition—in part due to their aggressive enforcement of intellectual property rights—while workers are forced into intense competition.

The final chapter, Chapter 6, discusses how policymakers could respond to these transformations of work. It argues that reforms should encourage "economic democracy," extending democratic norms and practices deep into the spheres of production and distribution, and sketches two far-reaching sets of reforms that would advance that goal. The first set would guarantee workers the right to participate in workplace and economic governance through new forms of collective bargaining. The second set would reshape the governance of workplace data—banning various forms of workplace surveillance, giving workers a voice in the deployment of other data-driven technologies, and turning still other novel technologies into public goods. The overarching goal here is not to protect workers against employer abuses, but to give them more power to protect themselves, including by using new technologies to organize, develop collective norms, and take collective action. Together with new investments in care, social reproduction, and a green transition, these policies should also encourage employers to pivot toward productivity-enhancing uses of technology. As a result, such reforms could not just improve the quality of work, but also build a much more sustainable economy.