# Informal worker organizing with information technology: emerging patterns

Authors: Edward Saperia, Hannah O'Rourke, Hannah Johnston, and M. Six Silberman

Author affiliations:
Saperia: London College of Political Technology (Newspeak House), UK
O'Rourke: Campaign Lab, UK
Johnston: York University, Canada
Silberman: University of Oxford, UK
Email corresponding author: Hannah Johnston, hjohnst@yorku.ca

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**Abstract**
Information technology has facilitated transformations in work—what work is done, who does it, where and how it is done; how it is organized and remunerated; the nature of the workplace; and relationships between workers and managers. These developments are well-documented in various literatures. Less well-documented, however, is how workers use information technology to develop new organizing strategies. Existing literature has studied how unions use information technology; organizing on social media; platform worker organizing; and, recently, the emergence of 'worker data science.' These developments are young and have received less attention than firms' technology-facilitated transformations of work. Specifically, there is little research on how workers use information technology to enact specific strategies to build power; what kinds of power they build; and what outcomes this organizing yields.

This paper helps fill this gap. It draws on qualitative fieldwork investigating 15 cases in the UK and US. This paper describes three in detail: 'Lads and Gangs,' a Facebook group run by UK construction workers; Glassdoor, a for-profit employer review website; and #PublishingPaidMe, a Twitter hashtag and Google spreadsheet used by authors to share information about payments from publishers—and discover patterns of discrimination in those payments.

These cases highlight four facts. First, informal worker organizing using information technology can produce significant outcomes, such as discovering discriminatory payment patterns and setting minimum wages in regional labor markets. Second, worker information technology initiatives can have several functions, including (i) setting and enforcing labor market rules; (ii) producing labor market transparency; (iii) networking workers with no other common 'place'; and (iv) worker inquiry. Third, these initiatives achieve their outcomes mainly through building associational power; however, in some cases, associational power is apparently built even when workers remain anonymous to one another and communicate only indirectly and asynchronously through structured data. Fourth, the design details of specific information technologies influence what communication patterns workers can develop and therefore what power building strategies they can enact.

These developments raise many questions, such as how different organizational types, types of software, and design features (e.g., whether workers are anonymous or identified, whether data is structured or unstructured) influence workers' power building strategies; the relationships of these initiatives to unions; how well existing industrial relations concepts describe them; and how to bring together knowledge from different fields, such as industrial relations and human-computer interaction, to better understand existing initiatives and better inform future ones.

# 1  Introduction

It has become a truism that information technology has facilitated transformations in work—what work is done, who does it, where and how it is done; how it is organized, valued, and remunerated; the nature of the workplace; and relationships among workers and between workers and managers. These developments are well documented in various literatures, for example on global value chains (e.g., Gereffi et al. 2005; Kano et al. 2020; Antràs and Chor 2022); remote work and algorithmic management (e.g., Mateescu and Nguyen 2019; Dzieza 2020; Corbyn 2022; Bernhardt et al. 2023; Adams-Prassl et al. 2023); the 'fissuring' of workplaces (e.g., Weil 2017) and outsourcing of 'non-core' tasks (e.g., Stone 2006); and platform work (e.g., Forde et al. 2017; Berg et al. 2018; Ravenelle 2019; Kilhoffer et al. 2020; ILO 2021).

Less well-documented, however, is how workers use information technology to develop new organizing strategies. Existing literature focuses on four main topics in this area: how unions use information technology; organizing on social media; platform worker organizing; and, recently, the emergence of 'worker data science' (e.g., Gregory 2021). These and other worker organizing applications of information technology have received less media and research attention, investment, and policy support than firms' technology-facilitated reorganizations and transformations of work. Specifically, there is little research on four important questions:

1. How do workers use specific information technologies to enact specific strategies to build power?

2. What kinds of power do workers build through technologically-facilitated organizing initiatives?

3. How does organizing facilitated by information technology lead to outcomes such as improved pay or working conditions?

4. What new challenges and questions does technologically-facilitated organizing raise for workers, worker power, and workers' organizations?

This paper helps fill this gap. It draws on three case studies featuring different uses of information technologies to advance workers' organizing. These cases are a subset of a broader collection of 15 case studies and were selected specifically because they feature different types of technologies, temporalities or time-frames, and power building strategies (see Part 3 for further detail on case selection). This diversity allows us to contribute to theorising the relationship between information technology, on one hand, and worker organising and power building strategies, on the other.

The first case is 'Lads and Gangs,' a Facebook group run by and for UK construction workers. The group has tens of thousands of worker members. These workers are mostly self-employed, typically take on short-term jobs, and are largely non-union. Workers use the group to chat informally and build community, but its main purpose is to serve as a job board. The group's moderators, themselves workers, typically do not allow posts offering below particular rates for particular jobs; as a result, the group has effectively imposed minimum rates for different kinds of work. Workers also warn each other away from employers known to pay late or fail to pay for completed work.

The second case is Glassdoor, a for-profit employer review website. Glassdoor lets workers post public reviews, including salary information, of employers they work (or have worked) for. Glassdoor is large, both in terms of the amount of data users have contributed to it and in terms of the organisation itself: by 2023, Glassdoor's website reported that it had collected 150 million reviews of between 600,000 and 2 million employers; and the technology industry database Crunchbase reported that Glassdoor itself had 'between 501 and 1000' employees. Research in economics, management, human-computer interaction, and media and communication studies has examined the validity and impact of reviews on Glassdoor in particular (e.g., Landers et al. 2019; Swain et al. 2020; Chemmanur et al. 2020; Dube and Zhu 2021; Bergstrom 2022) as well as of reviews on other employer reputation platforms (e.g., Benson et al. 2019). However to our knowledge they have not yet been studied within industrial relations research—and not, in particular, as potential sources of worker power.

The third case is #PublishingPaidMe, a Twitter hashtag and Google spreadsheet used by authors to share information about advance payments for books from publishers. The hashtag was created in June 2020 by US-based author L. L. McKinney, and prompted many authors to share information about the advances they had been paid for their books. Data on payments for over 2000 books were collected in a Google spreadsheet along with demographic information about their authors. The data revealed that US- and UK-based Black authors were often paid significantly less than their non-Black colleagues at similar stages in their careers. The findings were covered by major media sources and led to apologies and reform announcements from major publishing houses.

These cases highlight four facts. First, informal worker organizing using information technology can produce significant outcomes, such as discovering discriminatory payment patterns and setting minimum wages in regional labor markets. Second, worker information technology initiatives can have several functions, including (i) setting and enforcing labor market rules; (ii) producing labor market

transparency; (iii) facilitating networking and community-building among workers with no other common 'place'; and (iv) worker inquiry. Third, these initiatives achieve their outcomes (such as enforcing labour market rules) primarily by building associational power; however, in some cases, associational power is built even when workers remain anonymous to one another and communicate only indirectly and asynchronously through structured data. Fourth, the design details of specific information technologies influence what communication patterns workers can develop and therefore what power building strategies they can enact.

These developments raise many questions, such as how different organizational types (e.g., for-profit vs. non-profit), types of software ('off-the-shelf' or bespoke), and design features (e.g., whether workers are anonymous or identified, whether data is structured or unstructured) influence workers' power building strategies; the relationships of these initiatives to unions; and how well existing industrial relations concepts describe them.

The remainder of the paper proceeds as follows. Part 2 reviews relevant literature. It outlines previous research on information technology and worker organizing, as well as literature on the power resources approach, which informs our analysis of the cases. Part 3 describes our data collection process and data, as well as the reasoning for selecting the cases focused on in this paper. Part 4 describes the cases. Part 5 offers a preliminary discussion. This dicussion sketches answers to the four questions highlighted above as well considerations for industrial relations theory. Part 6 concludes with open questions for empirical research, theory, policy, and design or technical research.

## 2   Literature review

Worker power is in decline. For decades, falling rates of trade union density have provided evidence of this trend. Labour market deregulation (see e.g. Berg and Kucera, eds., 2008; Liotti 2020), legislation undermining workers' collective rights (Dannin 2006), the rise of non-standard forms of employment (ILO 2016; Stone 2006), and the unbundling of the firm (Murray et al. 2020) are commonly cited reasons for this decline (Visser 2012). Considering ongoing technological changes such as continuing developments in automation, algorithmic management and platform work (see Part 1 for references), and sophisticated methods for predicting, monitoring, and suppressing worker organising (e.g., Leon 2020; Palmer 2020; Del Rey 2022), and these trends seem likely to continue.

Yet despite these trends, the reorganization of production has occurred in conjunction with a reconfiguration of worker resistance, expressions of agency, and worker strategy. Historically, co-location and geographical proximity have been seen as advantageous for building solidarity, as they provide workers with opportunities to identify shared interests and develop a sense of mutual obligation (classically, e.g., Marx 1906, pp. 836-37). Though this has been complicated by globalized production networks, worker collectivism persists (e.g., Lehdonvirta 2016). At the same time a renaissance of strike activity—frequently led by young service sector workers with fragmented workplaces and solitary work—appears underway. These strikes have been organized both with, and independently of, trade unions (Tufts 1998; Savage 2006; Jordhus-Lier and Tufts 2014; Aguiar and Ryan 2009). In all of these cases, social media is viewed as an increasingly essential tool that can be harnessed to support workers' goals.

Much of social media's promise is related to its ability to offer individual users a forum to form direct and personalized connections to broader struggles (Bennett 2012; Schradie 2015) and to do so in a way that is spatially expansive. While much scholarship is dedicated to social media's role in political uprisings (e.g., Harlow 2011; Tufekci 2017), it is also increasingly recognized for its transformative potential within the world of work (Geelan 2021). It can accommodate pluralizing class relations and worker movements (Heckscher and McCarthy 2014; Schradie 2015), and greater heterogeneity of workers' identities and orientations (Bennett, Segerberg, and Walker 2014; Schradie 2015). While this renewed focus on individualism can highlight divisions between people (McDowell 2008; Fraser 2013a, 2013b), the connective power of social media can also contribute to bridging activities and lead to the formation of new ties between a greater variety of actors (Heckscher and McCarthy 2014; Morgan and Pulignano 2020). High penetration of social media use and low barriers to entry permit a greater range of actors, including those with limited financial resources, to use these tools (Schradie 2015) and workers tend to be less concerned with employer retaliation in expressing voice online (Wood 2015).

Scholarship on social media use at work has focused on unions, where it has proven helpful for recruiting members and building campaigns in geographically expansive ways. Researchers have even suggested that social media could support labour movement revitalization (Panagiotopoulos 2012; Dahlberg-Grundberg et al. 2016; Carneiro and Costa 2020; Panagiotopoulos 2021). Within this sphere, social media offers opportunities to build symbolic power and influence discourse, and to connect with grassroots social movements and build coalitions (Heckscher and McCarthy 2014; Schradie 2015; Wood and Pasquier 2018; Pasquier et al. 2020; Frangi et al. 2020). Digital communications technologies more broadly can also help unions aggregate member opinions, intensify their communicative abilities, allow them to share information among locals from other regions, and coordinate logistics for actions (Hennebert et al. 2021). Frequently the use of digital communications for these purposes complements, rather than replaces, in-person union activities (Wood and Pasquier 2018; Geelan 2021). However, union use of social media specifically has not been without challenges. The top-down structure of industrial unionism has at times made it difficult for unions to transition to this collaborative, networked form of organization (Walker 2020) and many trade unions use social media in a 'one-directional' manner (Carneiro and Costa 2020). Also, unlike industrial unionism models where actions are centrally curated, online networks and alliances can develop as 'swarms'—brief explosions of vaguely coordinated activity (Heckscher and McCarthy 2014). Some analysts have critiqued this type of 'connectivism' as based on 'weak' ties and loose associations (Bennett 2012; Heckscher and McCarthy 2014) though others have found social media to be an effective tool for 'deep' organizing and transformative change (Wood 2020).

These distinct perspectives on the possibilities afforded by information technologies for workers highlight the ways in which scholars have often conceived of 'organizing' and 'mobilizing' as entwined, yet distinct, activities. Both are collective expressions of voice—activities that seek "to change, rather than escape from, an objectionable state of affairs" (Hirschman 1970), but they differ in their aim and character. As described by Holgate et al. (2018), "the starting point for mobilizing is the utilization of power resources already available, whereas organizing begins by asking where the power is that is needed to effect change and then works backwards to figure out a systematic strategy to develop the resources needed to win." The distinction between these terms separates 'shallow' organizing from 'deep' organizing and 'transactions' from 'transformations' (Holgate et al. 2018, citing Han 2014), and helps to distinguish between issue-based actions and activities that are about building a fabric that will enable a more even distribution of power within the workplace.

In this paper, we use the term 'organizing' to refer to all types of workers' collective activities undertaken to improve working terms or conditions. Rather than focusing on the 'depth' and 'duration' of worker engagement, we instead draw on power resources theory to examine how workers cultivate and exert influence to shape their economic realities. Power resource theory (or the power resources 'approach' or 'PRA') has emerged as an analytical tool for understanding the strategic choices of workers as they attempt to collectively defend shared interests amidst new challenges and changing contexts (Schmalz et al. 2018). The development of power resources theory has been fluid and inclusive, making it a useful heuristic approach for the labour movement writ large, and it has proven capable of being expanded to include broader definitions of power and to consider an increasing array of resources and locations where power coalesces. Traditional PRA literature has considered various types of power, including structural power, societal power, institutional power, and associational power. Structural power is derived "from the location of workers within the economic system" (Wright 2000, p. 962) and has implications within the workplace and within the broader labour market (Silver 2003). Societal power is a second type of worker power that arises from coalitional and cooperative relations of workers and unions with other groups and organisations (Schmalz and Dörre 2017), allowing them to influence societal narratives, normative practices, and discourses. Institutional power, a third source of worker power, is frequently referred to as a form of secondary social power in which past struggles crystallize (Brinkmann et al. 2008). Institutional power includes institutional features, such as legal rules, that can create enabling or constraining environments for workers' power, and "can be seen as the residue of past social conflict" (Korpi and Shalev 1980). Finally, and of particular interest to this paper, is associational power, which relates to "the various forms of power that result from the formation of collective organisation of workers" (Wright 2000). We adopt the position of Rhomberg and Lopez (2021), who present associational power as power mobilized or power 'in action' rather than as a distinct resource upon which workers can draw. In this view, associational power is not a stand-alone source of leverage; instead, we are most interested in this concept as having the potential to strengthen workers' exercise or deployment of other power resources.

While previous literature has examined how existing worker organizations use information technologies, a key contribution of this paper is that it focuses on how workers—especially non-unionized workers—use information technologies to build power and achieve organizing goals.

## 3   Methods and case selection

The bulk of the empirical material in this paper was collected through desk research and qualitative interviews conducted in the United Kingdom in 2020-22. The research covered 15 'cases' or initiatives in total. The initiatives were selected for their relevance in illuminating the dynamics of worker organising in the context of digitally facilitated transformations of work, the workplace, and workplace and labour market relationships, especially power relationships. The 15 initiatives included various configurations of information technology, working relationships, and power. For example, they include workers in a wide range of employment relationships, including traditional or standard employment, genuine self employment, and potentially false self employment in the context of some digital labour platforms ('platform work'). The role of algorithmic management varied substantially across the 15 initiatives, as did the role of trade unions. Finally, the role of technology also varied. In some of the initiatives, workers responded to digitally facilitated transformation of work mainly through traditional organising; that is, workers responded to managers' use of technology. In other

cases, workers used technology to organise. That is, in some cases, technology is used to erode decent work and worker power, while in others, workers use technology to build power.

The 15 initiatives were identified by authors O'Rourke and Saperia through their ongoing engagement with a wide range of communities of practice in the UK public sector and civil society, including trade unions, in the context of the London College of Political Technology (Newspeak House), an interdisciplinary and cross-sectoral educational institution and civil society event venue in London. Desk research was conducted by O'Rourke and Saperia. Interview strategies were developed and interviews were arranged by O'Rourke, Saperia, and the journalist Lucy Harley-McKeown, who conducted the interviews. Preliminary empirical material on the 15 initiatives was first documented in the short book *Reorganise: 15 Stories of Workers Fighting Back in a Digital Age* (Harley-McKeown et al. 2022). The book was written for a broad civil society audience. This paper builds on the empirical material collected for the book in four ways.

First, this paper focuses on three initiatives only. These initiatives highlight facts about worker organising using information technology that form part of the paper's contribution to the industrial relations literature (see Section 1 above). The three initiatives were selected according to four criteria: (i) they are not cases of unions using information technology for organising but of other, less well-studied organising dynamics, involving mainly non-unionised workers; (ii) they are not cases of workers organising to improve working conditions under algorithmic management (e.g., organising among platform workers or warehouse workers)—a topic which has received substantial attention in recent research; (iii) the three initiatives are different enough to highlight the diversity of technological strategies for building worker power; and (iv) taken together, the three initiatives offer enough empirical material to contribute to theorising about how the design features of different information technologies facilitate different worker organising and power building strategies.

Second, 'follow-up' desk research into the three initiatives was conducted in Spring 2023. This brief exercise produced findings that help crystallize the more salient—even urgent—practical and theoretical questions around informal worker organizing with information technology.

Third, this paper analyses the initiatives through existing industrial relations concepts and considers what these cases mean for these concepts. The paper focuses especially on the power resources approach and identifies new ways in which workers use information technology to build associational power through sharing information—even when workers interact anonymously and asynchronously. The paper also briefly considers the cases through the lens of the classical concepts of 'exit' and 'voice.'

Fourth, the paper explicitly highlights opportunities for future research—especially at the intersection of industrial relations, human-computer interaction, and policy research—and for policy action.


# 4   Cases[1]

This part of the paper sets out the empirical material relating to the three cases: 'Lads and Gangs,' a Facebook group of UK construction workers; Glassdoor, the for-profit employer review site; and #PublishingPaidMe, the Twitter hashtag used by authors to share advance payment information and uncover publishers' discriminatory pay practices.

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[1] Some of the material in this section is reproduced directly from Harley-McKeown et al. (2022).

The case descriptions each contain three parts. The first part summarizes the empirical material collected in 2020-22. The second part is an 'update' reporting any significant new findings arising from 'follow-up' desk research conducted in 2023. The third part is a brief preliminary interpretative discussion highlighting themes and questions arising from the particular case.

## 4.1   Lads and Gangs

### 4.1.1   Overview

Lads & Gangs is a Facebook group for UK-based construction workers. It was started by the full-time machine operator Kevin Walshe in 2014. It was originally intended as a digital venue for employers and workers in the 'Construction Plant Competence Scheme,' an industry-run skill certification system, to advertise and apply for jobs. Over time, however, the types of work being advertised grew to include gas, water, and electrical system maintenance work, demolition, and other specialisations. Eventually the group opened to all UK construction workers. Many of the workers in the group are self-employed and non-union. The group hosts mainly advertisements for short-term jobs, typically lasting weeks or months. While membership has fluctuated over the years—it has occasionally hosted over 100,000 members—at the time of data collection it had approximately 22,000 members.

While the ostensible primary purpose of the group is to serve as a job board for short-term construction jobs, members also exchange practical tips, such as recommending protective equipment for particular kinds of work, or working methods; sell construction equipment; and report equipment thefts. The group also serves as a place for socializing and constructing a shared group identity. This is done through humourous (but typically construction-themed) posts (see e.g. Figure 1) as well as posts commemorating members of the community who have passed away. One post, for example, commemorated a worker who "helped design and build from scratch some of the first ever epoxy resin lining rigs" and went on to train many others in the industry in their use. Another post eulogised a worker who was a "legend from the cable world."

The group is volunteer-run. Walshe and a group of volunteer moderators enforce the group's official rules. The group plays two notable roles in terms of labour market governance. First, it has effectively set minimum payments for particular types of work. Because it serves as a job board where employers advertise work, but workers—Walshe and the volunteer moderators—have the ability to delete content, they can set and enforce rules that job advertisements must meet certain criteria. If a post advertising work below the pay norm for that type of work 'slips through' the moderation process, members will reply to the post with critical comments. "If you try to underpay, you just get annihilated in the comments," Walshe said in an interview. "You have to delete the post." That is, the group's informal norms act as a 'backup' for the sometimes imperfect 'manual' enforcement of its rules.

**Figure 1.** Screenshot of a humorous (construction-themed) post, taken 29 May 2023.

Second, it creates a venue for workers to hold employers accountable for poor employment practices, such as late payment or non-payment for completed work (see Figure 2). If an employer known for late payment or other poor practices advertises work, members are quick to warn each other away from that employer's ads. Some construction companies are dissolved after a project is completed and do not pay their workers. This may sometimes result simply from poor management, rather than intentional malice, but it is common enough that workers seem to perceive that at least in some cases it is strategic: "It's almost like some companies do it on purpose," Walshe said. The group provides a setting in which workers subject to these poor practices can hold recruiters to account—for example, when they try to recruit workers for new work later.

Notably, job market intermediation in the construction industry is a service often paid for by workers—workers often pay around £20 per month to recruiters to keep them 'on their books.' Unsurprisingly, then, the moderators of Lads and Gangs have been approached by recruiters and marketing companies offering to collaborate or even to buy them out. They have declined, arguing that "It's not what [the group] was for and it won't work." Walshe has considered creating a separate website for construction workers, but believes it would be difficult to build a consensus for what it should look like; as a result, the group has stuck with Facebook.

**Figure 2.** Screenshot of a series of messages about an instance of non-payment, taken 29 Jul 2022. The discussion begins as a simple warning to others ('avoid this company'). However, when others note that they have also not been paid, it quickly turns into a site for shared awareness and collective action.

### 4.1.2   Update, Spring 2023

Searching for 'Lads and Gangs' in Spring 2023 yielded links to a Facebook group called 'Utility & Roadworkers Lads & Gangs Mark 2.' According to Facebook, this group had 23,000 members. However, most of the recent posts were spam. Searching within Facebook surfaced another group called 'Utility Lads & Road Workers,' with around 33,000 members; a related group focused on job advertisements, 'Utility Lads & Road Workers Jobs Group'; and an external forum, utilityroad.com. The Facebook groups appeared active but the external forum appeared relatively inactive.

### 4.1.3   Themes and questions

The existence and practices of the Lads & Gangs group serve as an 'existence proof': self-employed, non-union workers working mainly on short-term contracts can use free, 'off-the-shelf' information

technologies to create digital venues that attract enough workers that employers are motivated to advertise jobs there. Because workers control the space, they can set and enforce labour market rules, such as minimum pay rates, and hold employers to account for poor practices.

Yet the actual power and impact of the group at the level of the overall industry is unclear and would require further data collection. The group also raises long-term questions about design, governance, and sustainability. Regarding design, founder Walshe noted in the 2022 interview that he was interested in the possibility of creating a website outside of Facebook; he also noted, however, that this would open a potentially contentious discussion about what such a site should look like. It is not clear what shortcomings the group's members may perceive with using Facebook groups, or what benefits they might anticipate from using a different platform. It is not clear if utilityroad.com was set up by Walshe or if it is a separate initiative. Regarding governance and sustainability, it is not clear who is currently managing the active Facebook groups or utilityroad.com, or how much work is involved in doing so.

### 4.2    Glassdoor

#### 4.2.1    Overview

Glassdoor is a public website where employees can post reviews of their current and former employers—an 'employer reputation' platform. It was started in 2007 by three American entrepreneurs (Gage 2015). By May 2023, the Glassdoor website claimed to have accumulated over 150 million reviews of between 600,000 and 2 million employers; and the technology industry database Crunchbase reported that Glassdoor itself had 'between 501 and 1000' employees (Crunchbase 2023). Employer reviews on the site include the reviewer's personal experience; salary; whether or not they would recommend the employer to others; their approval—or not—of corporate leadership; their assessment of the company's future; and 'pros and cons' (see Figure 3).
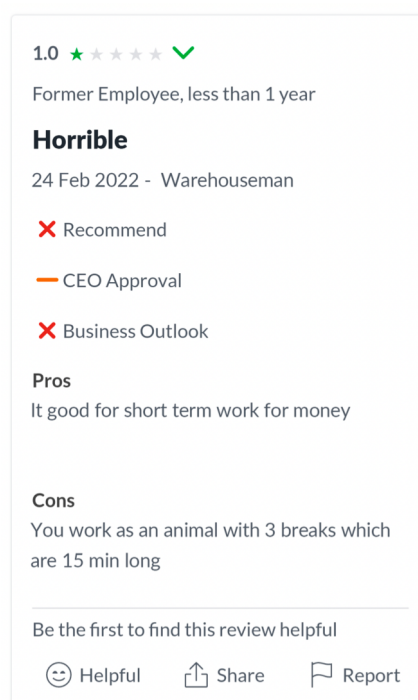


**Figure 3.** Screenshot of an employer review on Glassdoor, taken 29 Jul 2022.
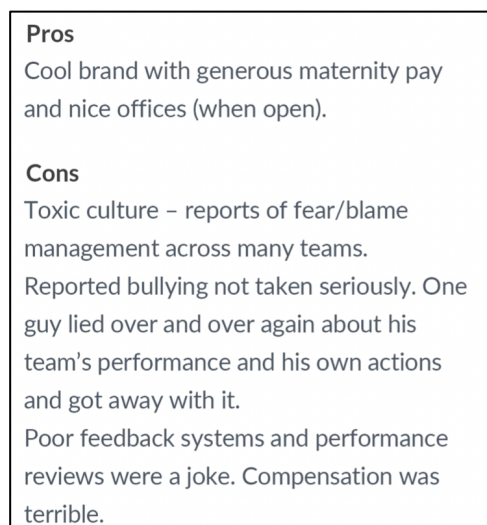
**Pros**
Cool brand with generous maternity pay
and nice offices (when open).

**Cons**
Toxic culture – reports of fear/blame
management across many teams.
Reported bullying not taken seriously. One
guy lied over and over again about his
team's performance and his own actions
and got away with it.
Poor feedback systems and performance
reviews were a joke. Compensation was
terrible.

**Figure 4.** Screenshot from a review of a large technology company on Glassdoor, taken 29 Jul 2022.

**Pros**
Fun (relatively young) colleagues
Plenty of opportunities to diversity skillset
Some in-house training provided

**Cons**
Bad salary
Sales team got most of the benefits
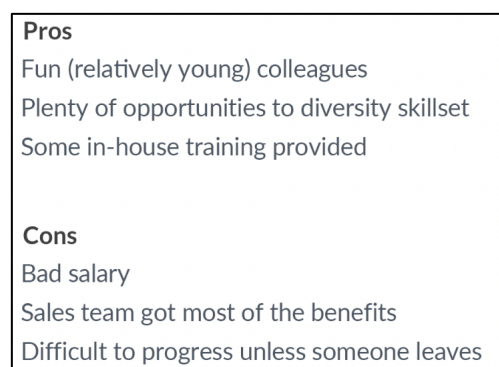Difficult to progress unless someone leaves

**Figure 5.** Screenshot from a review of a media company on Glassdoor, taken 29 Jul 2022.

The company makes money mainly by charging employers to post job ads and maintain dedicated profile pages through which they can communicate with prospective hires.

The popularity of the site and the large volume of employer reviews it has amassed has made it to some extent a 'default' information source for job seekers to do preliminary research on prospective employers, at least in some labour markets. Researchers in fields such as accounting, management, and economics have studied Glassdoor specifically, and have generally found that employers pay attention to Glassdoor reviews and may respond to negative reviews by "improv[ing] their workplace practices" (Dube and Zhu 2021; see Part 1 for additional references). Industry research conducted in 2015 indicated that job-seekers considered Glassdoor reviews generally trustworthy, while being aware of potential problems such as negative bias and lack of reviewer verification (Lakin 2015). Overall, it appears that Glassdoor, as Dube and Zhu (2021) put it, is one venue through which "social media has a disciplinary effect on corporate policies." That is, employees use it to warn job seekers away from bad employers, and thereby indirectly hold employers accountable for bad practices—and incentivise them to change.

### 4.2.2   Update, Spring 2023

In July 2022, Glassdoor was ordered by a California court to provide the identity of a reviewer to an employer. The employer was a New Zealand-based toy company and the reviewer had described the company "as a '[b]urn out factory' with a 'toxic culture,' where an 'incompetent' management team 'consistently talk[s] down' to employees and treats them like 'dirt'" (Tse 2022). The company claimed these comments were false, and wished to sue the reviewer, or reviewers, for defamation under New Zealand law, which provides stronger protections to allegedly defamed plaintiffs than US law. To do so, however, it needed to know who they were—and Glassdoor was refusing to provide that information. Glassdoor noted in a comment to journalists after the ruling that they had prevailed in previous similar cases (McClure 2022).

### 4.2.3   Themes and questions

Three themes and two questions arise from the research on Glassdoor and the 2022 lawsuit. First, Glassdoor reviews do matter to employers, and do motivate them to change their practices. The quantitative evidence from the accounting and economics research describes Glassdoor reviews as 'disciplining' employers. The lawsuit puts the point concisely: the employer successfully argued that they "had to expend money, time, and resources in combatting the negative publicity, negative perception, and harm to [their] reputation that the [r]eviews [had] caused" (McClure 2022). Second, this appears to be largely because job seekers trust Glassdoor reviews enough that they influence their job seeking behaviour. Third, the ability to post *anonymous* reviews to a venue used and trusted by job seekers is powerful.

Some commentators have raised the question of whether the 2022 ruling is an existential threat for Glassdoor (e.g., Cann 2022). This is unlikely given the jurisdictional specificity of the particular ruling, which turned on the details of New Zealand defamation law—and the fact that both employer and reviewer were in New Zealand. However, the case raises two questions for Glassdoor in particular and for employer reputation systems generally. The first question regards reviewer verification. Did Glassdoor ensure that each reviewer had left no more than one review? Did Glassdoor ensure that each reviewer was a real human being? Did Glassdoor ensure that each reviewer had in fact worked at the company they were reviewing? This kind of verification is not at all trivial, but it may become important for a reputation system that achieves widespread popularity, because such popularity can create a variety of incentives for people to post multiple reviews, review employers for whom they have not worked, or post misleading, exaggerated, or false reviews for employers for whom they did work. The second question regards the standard of objectivity in employer reviews. The reviewer in the 2022 lawsuit, for example, described their employer as having a "toxic culture" where employees were "talked down to" and "treated like dirt" (Tse 2022). There is a subjective element to these descriptions. Without detailed recordings and an expert assessment from organizational psychologists, it would be difficult to say decisively whether or not they are true. It may be the case that they are *true representations of the reviewer's opinion*—but that, while important, is a different matter. On one hand, this is a legal question—as some reviews may be litigated as defamation in some jurisdictions. On the other, it is also a practical question for workers and system designers: would a review with 'just the facts' be more useful? If so, should operators of platforms like Glassdoor design their interfaces in a way that encourages workers to be more 'factual' in their reviews?

### 4.3   #PublishingPaidMe

*4.3.1   Overview, 2020*

#PublishingPaidMe was a Twitter hashtag and Google spreadsheet used by authors to share information about advance payments for books from publishers. It was created in June 2020 by Black US-based author L. L. McKinney. "Born from the context of events during summer 2020"—especially the death of the American Black man George Floyd at the hands of a white policy officer, and the following protests—it was intended to index the discussion about "the disparity between Black authors and non-Black authors" (McKinney 2021). The spreadsheet, set up by Black young adult fiction author Tochi Onyebuchi, was used to collect information shared by Black and non-Black authors about the advances they had been paid for their books across a range of fiction and nonfiction genres. Data on payments for over 2000 books was collected, along with demographic information about their authors. Included were data from best-selling authors such as Matt Haig, who wrote *Reasons to Stay Alive* and *The Midnight Library*, and Roxane Gay, known for *Bad Feminist: Essays* and *Hunger*. Haig, who is white and British, reported being paid £5,000 as an advance for his first title, and steadily earning more since: his 10th book netted him an advance of £600,000. Black American author Gay said that she received a $12,500 (£9,562) advance for *An Untamed State*, $15,000 (£11,474) for *Bad Feminist*, $100,000 (£76,497) for *Hunger*, $150,000 (£114,742) for *The Year I Learned Everything* and "a significant jump" for her next two non-fiction books (Grady 2020). The pattern of Black authors earning advances a fraction the size of those received by white counterparts at similar stages in their careers was repeated across genres. "We expected there to be disparities," McKinney said. "We did not expect them to be as wide as they were" (ibid.). Notably, some authors publicly signaled their interest in participating but that they had signed nondisclosure agreements that prevented them from doing so, at least for some of their books.

The findings were covered by major media outlets, including the *New York Times* (de León and Harris 2020) and *The Guardian* (Flood 2020) and led to apologies and reform announcements from major publishing houses. At some of the publishers, the reform initiatives included internal audits. Following walkouts in which employees pressured management to address racism within their organisations, Hachette and Penguin Random House committed to publishing their audits. Both audits indicated that around three-fourths of the book contracts the publishers had signed in 2019–2020 were with white authors (Hachette Book Group 2021, 2022; Penguin Random House 2022). The publishers committed to a range of procedural changes to attempt to improve the diversity of its authors and staff as well as pay equity among authors.

*4.3.2   Update, 2023*

A news search conducted in Spring 2023 for '#PublishingPaidMe' produced no results after 2020. In October 2022, PEN America, the United States branch of the international literary and human rights organization PEN International, published a report on racialized inequalities in the US publishing industry (Tager and Shariyf 2022). The report found that while the industry had taken "unprecedented" steps in reponse to pressure arising from authors' collective findings of pay discrimination and lack of diverse representation, significant entrenched institutional and cultural challenges remained and it was unclear whether the changes and gains made in 2020-2021 would last. The title of an October 2022 news story in the UK made the point concisely: "Black authors make progress but change remains slow in the publishing industry" (Freeman-Powell and Swift 2022).

*4.3.3  Themes and questions*

#PublishingPaidMe in particular—the hashtag and the spreadsheet—arose at a particular moment in time. They did not result in the creation of new, institutionally stabilised power relationships between writers and publishers. Some industry observers were optimistic that that moment was an 'inflection point'—but observed two years later that "things can definitely go back to the way they used to be" (quoted in Tager and Shariyf 2022).

On the other hand, some authors have large public followings, especially on social media, and significant cultural capital that other worker groups, such as construction workers, do not have. This puts them in a good position, at least in theory, to resurface future instances of poor industry practice into the public sphere. Further, although the US market for books is highly concentrated, with only five major publishers, this is nonetheless *less concentrated* than some labour markets where similar issues have arisen. For example, research on YouTube creators has indicated that despite their large public presences, they are reluctant to criticise YouTube's algorithmic management practices publicly because the platform can deactivate their accounts unilaterally—closing their main income stream and their primary access to their audience (e.g., Kingsley et al. 2022).

Four preliminary points for worker power can be drawn from this case. First, self-employed workers can use free, off-the-shelf information technologies to collect, aggregate, and analyze data about their working conditions, discover patterns of poor practice in that data, and publicise that data in ways that affect significant change. Second, this can happen even when the powerful counterparties are not employers or even customers but other powerful market 'gatekeepers,' such as, in this case, publishers. Third, the specific details of the labour market in question matter—in this case, the authors' significant public profiles and the concentrated, but not completely monopolistic, structure of the market. Fourth, despite the significant changes, continued attention—and, almost certainly, continued pressure—will be needed to ensure that the gains made are stabilized and built on over the long term rather than lost.

The case raises policy questions relating to collective action and collective data access rights for solo self-employed workers and the possibility of prohibiting non-disclosure agreements. These are articulated more fully in Part 6 of the paper.

# 5   Discussion

This discussion offers answers to the four questions set out in Part 1 of the paper, then discusses considerations for industrial relations theory, especially the power resources approach.

## 5.1   How workers use information technology to build power

*5.1.1     How do workers use specific information technologies to enact specific strategies to build power? What kinds of power do they build?*

These two questions (questions 1 and 2 from Part 1) can be answered together. In our cases, **workers mainly build associational power**. The cases reveal three major ways workers use information technologies generally to build power. These strategies or patterns do not exclude one another; rather, they are mutually reinforcing.

First, **workers use information technologies to share information about their experiences with individual employers**. This information can be used in two main ways. It can be used to directly pressure those specific employers to improve or change their practices. It can also be aggregated to surface patterns across many employers; those patterns can then be publicised or used in litigation to pressure employers to improve their practices.

Second, **workers use information technologies to give advice and share general information** about how to do work.

Third, **workers use information technologies for non-instrumental or 'phatic' communication**. This communication helps build a sense of community; shared identity, interests, and concerns; and trust. This contributes to the trustworthiness of the instrumental information they communicate.

These are general patterns or common strategies. Notably, however, specific types of technologies play different roles. For example, workers tend to use social media such as Facebook groups and Twitter, as well as specialized platforms such as Glassdoor, to share their experiences working for individual employers in a manner intended to hold those specific employers directly to account. This can be especially effective where workers can share information about their experiences working for particular employers directly adjacent to job advertisements from those employers (see 5.1.2 below).

The relatively unstructured, interactive, and time-bound nature of social media information and conversation, however, does not lend itself to easy aggregation and analysis of the experiences workers report there. While some platform-specific features and practices—including notably the popularity and 'findability' of hashtags on Twitter—do allow users to find appropriately 'tagged' contributions to a specific 'conversation,' this in itself does not facilitate aggregate analysis. To aggregate and analyse their collective experiences, workers use tools designed for the collection and analysis of structured data, such as spreadsheets. If this analysis surfaces patterns of poor employer practice, these can be turned into narratives—'matters of [public] concern'—that can be understood by, and distributed in, mainstream media.

### 5.1.2 How can organizing facilitated by information technology lead to outcomes such as improved pay or working conditions?

Here again the cases reveal three main patterns by which these initiatives become 'effective.' First, workers can use information technology to **pressure individual employers** at the 'point of recruitment.' That is, if employers post job advertisements to a platform that workers can also post to—and, in particular, if workers can reply *directly* to job advertisements such that all workers who might consider responding to the job advertisement see other workers' responses to it—this can pressure employers to acknowledge and address past poor practices.

Second, if workers can **create or control an important**, or even 'the main,' **venue for hiring and recruitment** for a particular labour market, they can put themselves in a position to impose labour market rules (such as minimum rates) and hold employers to account for past bad practices (e.g., by prohibiting specific employers from posting new job ads until they acknowledge and address such practices).

Third, workers can **aggregate and analyse data about their individual experiences** to discover previously unknown or unacknowledged patterns of poor practice—and turn them into public 'matters of concern' (#PublishingPaidMe) or evidence in litigation.

*5.1.3　What new challenges and questions do these organizing strategies raise for workers, worker power, and workers' organizations?*

Our cases reveal two challenges for technologically-facilitated organizing initiatives. The first challenge has to do with **trust** in—and trustworthiness of—information shared online. Trust and trustworthiness are related but distinct. Trust in information concerns the answer to the question, '*Do* people trust this information?' Trust*worthiness* concerns the answer to the question, '*Should* people trust this information?' Operators of information systems face two difficult challenges relating to trust and trustworthiness. The first is to encourage users to *trust trustworthy information*. The second is to reduce the extent to which users misguidedly trust untrustworthy information that has been entered into, and displayed by, the system. A wide range of technical and organisational or procedural strategies can be used to attempt to achieve these goals, from prompting users to include certain information in their contributions to verifying users' identities. These strategies vary widely in their complexity, effectiveness, appropriateness in different contexts, and cost. The second challenge concerns the **longevity and sustainability** of worker-oriented information systems, including notably challenges and potential conflicts of interest arising from different possible funding models.

## 5.2　Considerations for industrial relations theory

These cases raise at least two potentially generative implications for industrial relations theory. The first has to do with how we understand how workers build associational power. The second relates to the classical concepts of 'exit' and 'voice,' and how they might apply to the dynamics of power in labour markets where many workers are non-unionized, self-employed, and working on short- or medium-term contracts.

*5.2.1　Considerations for power resources theory: building associational power 'indirectly'?*

The first consideration for theory has to do with our understanding of how workers build associational power within the power resources approach. The traditional conception of associational power is that it is built through face-to-face, or at least direct, communication, and consists at least partly in workers coming to know and trust one other—that is, core to the development of associational power is the development of solidarity. Anthropologists and communications scholars theorise that integral to the construction of solidarity is non-instrumental or 'phatic' communication (see e.g. Laver 2011).

The model of building associational power through direct, and partially non-instrumental, interaction remains sensible and eminently applicable in the traditional world of co-located work and stable long-term employment. However our cases show that associational power can be built even when workers do not interact face-to-face, or even directly or synchronously; do not necessarily know each other; and even when they are self-employed workers in geographically dispersed labour markets. Phatic or non-instrumental communication can occur, for example, through humorous Facebook posts—building trust, a sense of group identity, and an awareness of shared interests that all serve as the basis for the trusted communication of practical information. While this may not be surprising for readers familiar with the literature on unions' and social movements' use of social media (see Part 2 for references), these cases highlight that the mixture of non-instrumental and instrumental communication needed to build associational power can also occur through digital media without a pre-existing institutional context, such as a trade union.

Perhaps more surprisingly still, our cases also show that associational power can be built partly through the anonymous, asynchronous communication of structured data—as happened in the #PublishingPaidMe spreadsheet. Notably, however, even in this case, unstructured, qualitative, and in some cases non-instrumental or phatic communication—on Twitter, indexed by the hashtag— served as the context or background for the structured, anonymous data shared through the spreadsheet. That is, 'the hashtag and the spreadsheet' supported each other: the hashtag made it possible for participants to *find* the conversation in the broader context of Twitter, while the spreadsheet provided the digital infrastructure to collect and analyze the data that participants were motivated to provide in response to that conversation. Taken together, then, our cases suggest that while information technologies do allow for the geographically and temporally flexible development of associational power, non-instrumental communication and the development of trust and a sense of group identity and shared interests nonetheless—perhaps unsurprisingly—remain important. And workers using information technologies to organize must find ways to facilitate both 'parts' of the overall 'conversation.'

*5.2.2  'Choice and voice'? Exit and voice in the 'freelance age' — building worker power by informing workers' choice of employers*

The second consideration for theory has to do with the classical concepts of 'exit' and 'voice' (Hirschman 1970, 1980). Lads and Gangs and #PublishingPaidMe show how self-employed workers on short- and medium-term contracts can exert influence over the behaviour of employers by sharing information relevant to the moment of employer *choice*. Similarly, although Glassdoor aims mainly to serve workers looking for long-term employment, Glassdoor's users are also workers seeking information in a moment of choice. Indeed this may be mechanism by which 'employer reputation' systems generally work: by providing information in the moment of worker choice (see further e.g. Silberman and Irani 2016; Benson et al. 2019; Harley-McKeown et al. 2022, esp. Ch. 1).

Yet whether these systems look 'more like exit' or 'more like voice' depends partly on where one looks from. Considered at the level of individual contracts or working relationships, self-employed workers on short- and medium-term contracts are constantly 'exiting.' However, the construction workers in Lads and Gangs and the authors in #PublishingPaidMe could also be seen as exercising voice *at the level of the entire industry*—which they had no intention to exit.

**5.3  Human-computer interaction and industrial relations**

Finally, the cases foreground how the different features of specific information technology services and products make a difference to how workers can build power. Glassdoor, for example, is a complex and bespoke platform, while Lads and Gangs and #PublishingPaidMe use different combinations of free consumer information technology. These different technological configurations bring with them different organising possibilities and medium- and long-term organisational considerations. To begin with the simplest examples, Lads and Gangs, a Facebook group, is constrained by the design choices made by Facebook in their Groups service. Similarly, #PublishingPaidMe relied primarily on Twitter for discussion and Google Spreadsheets for data collection and analysis. Glassdoor, on the other hand, employs full-time software engineers and are therefore in a position to evolve their system over time. Yet the two former initiatives are nonetheless in some ways more 'in the control' of the workers who started them, and they can—so long as they have the time to do so—exercise direct control over who participates, what data are included, and how data are analysed. Glassdoor, while nominally in the

business of providing a platform for workers' accounts of their experiences with particular employers, may find that their legal and business accountabilities occasionally put them at odds with what would best support longer-term development of worker power.

Despite the linkages between the technical capabilities of information technologies, the organisational supports that those capabilities do or do not entail, and the kinds of worker power building strategies to which those technologies can be put—or, alternatively, perhaps because of the complexity of those linkages—the relationship of technology to worker power is relatively underexamined in industrial relations research. On one hand, this is understandable: interface or interaction design, much less technology business models, are not traditional concerns of industrial relations, except in the context of *workplace* technology design; rather, interface and interaction design are concerns of human-computer interaction ('HCI') and, in the workplace specifically, the related field of 'computer supported cooperative work' ('CSCW'). The relationship between technology design and worker power, however, may call for an integration of concepts and perspectives from industrial relations and these computing fields. Despite a growing interest in the last 5-10 years among human-computer interaction researchers in workers' experiences with technology, worker rights, and, more recently, algorithmic management and organized labour (e.g., Lee et al. 2015; Alkhatib et al. 2017; Fox et al. 2020; Khovanskaya et al. 2019, 2020; Spektor et al. 2023), the field does not have a tradition analogous to industrial relations' sophisticated theoretical apparatus for understanding the dynamics of power in workplaces and labour markets. Our cases therefore suggest the possibility of fruitful collaborations between HCI and industrial relations research.

## 6   Conclusion and questions for future research

This paper has examined three cases of workers using information technology to build power and achieve significant organizing outcomes—setting and enforcing labour market rules; publicising and punishing bad employers; and discovering and changing discriminatory payment practices. The cases are perhaps particularly notable because they involve largely non-unionized and self-employed workers. Yet despite these significant outcomes, they raise a wide range of questions—practical questions for the workers themselves; policy questions; and empirical, design, and theoretical questions for research in industrial relations and human-computer interaction.

To highlight just a few practical questions: Will the creator of the Lads and Gangs group 'have to' moderate the group indefinitely, without pay? Or will he eventually get fed up with these responsibilities and pass this task on to others, who may or may not share his values and enjoy his political legitimacy within the group? To continue to sustain their labour market outcomes, such as enforcing labour market rules, over the long term, do initiatives like this need some degree of institutionalization? If so, what are sustainable and appropriate organizational and funding models, and appropriate relationships to other relevant actors—such as trade unions, employers, and for-profit recruiting agencies? Similarly, will the publishing houses who issued public apologies and intentions to change as a result of the media coverage of #PublishingPaidMe change their payment practices *permanently*—or will it take one or more further cycles of data collection, analysis, social media outrage, media coverage, and public recrimination to achieve lasting change?

We can also expect that these initiatives will interact with existing law and with the policy process, as they raise some issues relevant to policies currently under development. The proposed EU Platform

Work Directive, for example, provides in Art. 15 that digital labour platforms must 'create the possibility for persons performing platform work to contact and communicate with each other, and to be contacted by [worker] representatives […], through the digital labour platforms' digital infrastructure or similarly effective means.' It also mandates that platforms 'refrain from accessing or monitoring those contacts and communications.' On one hand, informal worker-led information technology initiatives may to some extent meet these requirements. On the other, journalists have documented that some of the more sophisticated and union-averse employers apparently 'infiltrate' and monitor closed worker social media groups (e.g., Gurley and Cox 2020). Most informal worker organizing initiatives rely on 'off-the-shelf' information technology with limited abilities to verify users' identities, or to verify the data that users—who may or may not be who they claim to be—contribute. This raises the question of how long workers will in fact trust each other in these effectively anonymous digital spaces (but see Harley-McKeown et al. 2022, Ch. 9, documenting 'Organise,' a social enterprise which aims to verify—but not display—workers' identities, allowing them to communicate anonymously or pseudonymously). Information security and compliance with data protection regulation may also pose challenges: these are typically seen as 'enterprise IT' issues beyond the capabilities of informal, volunteer-run initiatives using off-the-shelf software. Indeed they can pose challenges even for large and relatively well-resourced worker organisations: in the EU and UK contexts, for example, GDPR compliance with regard to *internal* data processing activities can pose practical challenges for trade unions (see e.g. UCU n.d.).

Open questions for research in this area include: Can empirical and design research identify best practices and tradeoffs for digital 'communication channels' for workers? In the context of the Platform Work Directive specifically, how can the prohibition on platform monitoring of worker communication be enforced? Beyond platform work, how can workers use digital communication channels to take collective action while ensuring that employer representatives are not monitoring those channels—without creating prohibitve technical complexity or administrative burden? (Notably, such questions typically fall within the purview of the technical research field called 'usable privacy and security.')

The cases also raise research questions that span several academic disciplines, especially but not only industrial relations and human-computer interaction. For example, to what extent does a group like Lads and Gangs replicate some of the features of union hiring halls? In what other sectors and regions do similar groups play important roles, and what are their effects on workers, employers, customers, and labour market dynamics? What difference does it make if such groups or platforms are run directly by workers or by a third party, such as a 'digital job board'? How do the business models of these entities affect their capabilities and organizational sustainability? For example, within the relatively niche area of 'worker tech' (see e.g. Selinger 2021) there appears to be an emerging subfield of 'job board' startups. In the UK alone, we have come into contact with early-stage social enterprise startups aiming to improve working conditions in healthcare, child care, security work, and construction by creating digital 'job boards.' Core to the basic business proposition of these startups is the theory that workers in these sectors lack the information to avoid poor employers, and, in some cases, employers lack the training or motivation to be good employers—and that a digital job board with worker-contributed employer reputation information can make a significant positive difference for working conditions in these sectors. Our cases, as well as other literature on employer reputation systems (see Part 1 for references), suggest that this may indeed be true. At the same time, as these digital job boards grow, they will face complex regulatory, design, and business challenges that will ultimately bear on the role they play in shaping the dynamics of worker, employer, and customer power in the

labour markets they intermediate—and through this, on whether or not they will ultimately serve to promote, or erode, worker power and decent work.

Finally, the cases raise policy questions relating to the rights of self employed workers, especially 'solo self employed' (i.e., self employed with no employees). For example:

- **Revisiting competition law.** In the era of 'flexibilization,' does competition law need to be revisited to clarify that solo self employed persons must have rights to take collective action to set labour market rules, such as minimum rates or employer provision of equipment? The European Commission recently released guidance on this issue (European Commission 2022a, 2022b; see further Waas and Hießl, eds., 2021), but this guidance applies to the EU only.

- **Collective data rights.** A small but growing literature on workplace data protection rights proposes that workers should have collective, not only individual, data protection rights, especially data access rights (see e.g. Aloisi and Gramano 2019, Adams and Wenckebach 2023, Calacci and Stein 2023, Adams-Prassl et al. 2023a). The case of #PublishingPaidMe in particular raises the question of whether an argument should be made in support of collective data rights for groups of self employed, or at least solo self employed, working persons as well. Such rights could be triggered upon some threshold of organization having been met and produce obligations across multiple data controllers (e.g., employers or publishers). Such rights could be enshrined in an international labour standard on 'work-related data processing' (Adams-Prassl et al. 2023b).

- **Prohibition of non-disclosure agreements.** A compelling argument could be advanced that non-discrimination clauses or agreements regarding pay of self-employed working persons (or 'contributors,' as they are often called by publishers) serves no purpose other than to 'artificially' limit workers' ability to share information and build associational power. Notably, the practice of 'bundling' such clauses within employment or publishing agreements is not *necessary* for the performance of the main agreements. Therefore it could be said that the current practice takes advantage of employers' or publishers' existing structural power to limit workers' ability to build associational power. If this is correct, a strong argument could be made that this is effectively anticompetitive behaviour and should be prohibited.

- **Rights to an enforceable written contract.** In the United States cities of New York and Los Angeles, laws referred to as "Freelance Isn't Free" laws (see e.g. NYC Dept. of Consumer and Worker Protection n. d.) provide self employed persons with a right to an enforceable written contract. This contract must detail the work to be done, the pay for the work, and the date by which the payment will be rendered. If no date is specified, payment is to be rendered no more than 30 days after performance of the work. The law also provides protection against retaliation for the exercise of the rights. Workers whose contracts have not been honored can file a complaint to a department of city government, which will undertake enforcement action. The content of the Lads & Gangs group, for example, suggests that such laws could be relevant more broadly, beyond just these two cities in which solo self employed work is widespread.

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