Platforming Equality

Policy Challenges for the Digital Economy

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Introduction

James Muldoon

In 1980, the top five most valuable companies in the world were Exxon Mobil, General Motors, Mobil, Ford Motor and Texaco. By the second quarter of 2019, every position on this list was now occupied by a tech firm, with Apple, Microsoft, Amazon, Alphabet (Google) and Facebook rounding out the top five. Key to this dramatic shift in wealth and power has been the rise of digital platforms as a model capable of generating enormous revenue and controlling the interactions and data of its users. Ownership of platforms enabled many of these companies to build up ecosystems of goods and services for the ever-more-sophisticated collection of data, refining of algorithms and optimising of user experience.

The digital economy consists of a vast array of digital infrastructure, platforms, networks, computational machinery and data. Estimates of the size of the digital economy range from 4.5 to 15.5 per cent of the world's GDP, depending on the criteria. The current Covid-19 crisis has further crystallised the power of global tech companies, enabling them to become instrumental in governments' data-driven pandemic response units and in the new realities of remote and flexible working.

Technology companies were once regarded as harbingers of a new world full of sharing, connection, and technological solutions to a range of pressing social issues. However, over the past five years we have become more aware of the troubling aspects of their business models and practices. Tech companies have been shaken by scandals such as the Cambridge Analytica data breach, their influence on the 2016 American Presidential Election, and collusion with authoritarian governments. Ongoing concerns over their businesses include a decline in labour standards, an extractive model of harvesting data and profit, the evasion of regulatory apparatuses, and monopolistic tendencies. Alarmed citizens have rallied against them and sought new regulatory frameworks that could remedy these concerns.

Research on the digital economy has also reached new levels of sophistication, with numerous studies on platform work, algorithmic management, the transformation of labour markets and new digital business models. But the literature also remains skewed towards high-profile and visible aspects of the digital economy, neglecting a number of crucial aspects that remain more hidden from public view. We now have greater insight into food delivery and ride-hailing apps and their forms of algorithmic management, but know less about the digital infrastructure that sustains it or how this work relates to other aspects of the labour market.

One of the aims of this collection is to probe deeper into under-examined topics in the digital economy and to shed light on how they operate. Few have closely examined the reliance of the gig economy on migrant labour and how a regime of precarity and insecure citizenship intersect with new forms of low-paid platform work. We also tend to overlook global hierarchies engendered by an American-led tech revolution and the neo-colonial relations that have arisen in its wake. For every platform worker that we see driving or cycling out in the streets there are also several that remain less visible, working on "microwork" projects in their homes, undertaking caring jobs in private households and working throughout the global supply chain that makes tech products possible.

A second aim of the collection is to explore policy options for alleviating a range of new challenges that have emerged within the digital economy. Contributors move beyond theoretical discussion of the problems themselves and turn towards an analysis of responses that are open to activists, municipal authorities and government policy makers. Articles suggest a range of policy recommendations and discuss the strengths and weaknesses of different approaches. Each contributor examines a specific issue based on their own research and an analysis of the existing literature. They then provide their own perspective on the policies and approaches that would be most suitable to tackling the issue. I provide an overview of the different articles below.

In 'From a Wage to a Wager: Dynamic Pricing in the Gig Economy,' Niels van Doorn shows how variable wages in the gig economy act as a new mechanism of labour control, incentivising workers to work when and for how long companies require. Drawing on empirical evidence from Berlin, New York and elsewhere, he examines new experiments in dynamic pricing in the gig economy and the resulting insecurity and inequality for workers. He discusses a range of new grassroots labour organising initiatives and regulatory responses to the wage obfuscation and price-setting power of digital platforms. Attention is also directed to the strategies companies employ to evade regulatory regimes and to work around new schemes. Following the implementation of a minimum wage for ride-hailing workers in New York City, van Doorn reveals the perverse result of how Uber and Lyft started limiting drivers' access to their platforms, leading to a virtual 'lockout' which negatively impacted on drivers' wages. He calls for stronger enforcement mechanisms of local laws and highlights the need to reclassify gig workers ad employees in order to guarantee them not only the right to a minimum wage but other rights and insurances currently lacking.

Phil Jones writes about the less visible labour of 'clickworkers' who transcribe audio, check images, clean data and ensure the smooth functioning of our digital world. In 'Rethinking Microwork: the Invisible Labour of the Platform Economy,' Jones examines the hidden workforce of platforms such as Amazon Mechanical Turk, Appen and Clickworker, which host short tasks from requesters and enable new forms of short-term, piecemeal work. In this setup, platforms act as intermediaries between workers and requesters and take a small cut from every job that is completed on the platform. He analyses the growth of microwork and finds that

most of the those engaged in this work do it to top up their income from other full-time jobs. However, a significant minority are employed part-time or are self-employed, highlighting the rise of microwork as a response to underemployment. Jones creates a new typology of microwork and outlines the emerging problems of wage theft, insecure working conditions, and a one-sided rating system. In response, he proposes a new framework of universal workers' rights regardless of the type of job or employment contract a particular worker may have. He also outlines how this could be supported by a new model of a national insurance system and enhanced workers' rights.

In 'Against Digital Colonialism,' Renata Avila analyses the global hierarchies that have emerged in new forms of colonialism exercised through the ownership of digital infrastructure and control over networks and data. She reveals the connections between new tech empires and systems of state surveillance in which companies have acted in the service both of Western intelligence agencies and authoritarian regimes seeking to silence dissidents. Avila shows how technology companies aim to connect the next billion people in low and middle-income countries through 'free services' that offer a limited access to essential Internet services while installing privatised digital infrastructure under the control of the company. In what is similar to the 'access for data' model that Google and Facebook have used to support their advertising-based businesses, companies deploy frameworks that give them a hegemonic position in Internet infrastructure and allows them to remain dominant within the system. This is a particular danger with the latest round of WTO negotiations, with the possibility of terms favourable to the companies being inserted in new international agreements that could solidify their position for decades. She also points to the influence of tech CEOs in global diplomacy and brings to light some of their more questionable interactions with dictators and human rights abusers.

Dalia Gebrial writes on the intersection between austerity urbanism, migrant labour regimes and the platform economy. In "Dangerous Brown Workers: How Race and Migration Politics Shape the Platform Labour Market," Gebrial highlights how platform companies typically rely on a labourforce that is dominated by migrants and racially minoritised workers. She shows that global cities' reliance on low-wage migrant work is heightened in the platform economy, with accompanying poor working conditions, low pay and a higher proportion of 'irregular' work. By examining the case study of Uber in London, she points to the way migrant workers are constructed as security and terror threats and subjected to a regime of surveillance and control. In response, Gebrial calls for an end to the hostile environment, especially the condition of no recourse to public funds. She also argues for the need to establish a framework of fair dismissal for platform workers and new state-led job creation schemes to help replace exploitative platform labour jobs.

Stacco Troncoso and Ann Marie Utratel present a new model of co-operative organisation in 'Care before Code: Supporting the Development of Distributed Co-operative Organisations (DisCOs).' DisCOs are a model for organising a co-operative and commons-oriented workplace rooted in feminist economics and prioritising trust, care and human relationships. Drawing on their own experiences working in the Guerrilla Media Collective, a Spain-based co-operative which provides translation and communications services, Troncoso and Utratel introduce the DisCO model and show how it provides an alternative to the tech-centric world of blockchain and distributed ledgers. The DisCO framework builds on innovations in the commons, P2P, open co-operativism and other digital alternatives in the form of a practical working model of how an organisation could face the challenges of sustaining itself alongside providing social value to its community. Building on their groundbreaking work in 'the DisCO Manifesto,' published in 2019, the authors explain how their model works and how other organisations could adopt it for their own workplaces. The authors also extend their framework in new directions, outlining how policymakers could support the development of DisCOs through tax incentives, community spaces, commons-public partnerships and co-operative development funds.

In 'The Co-operativist Challenge to the Platform Economy," James Muldoon examines the potential for the development of UK platform co-operatives and provides policy recommendations for how this sector could be supported. He examines the growth of the platform co-operative movement and its goal of creating a more collaborative solidarity economy. Platform co-operativism challenges the precarious labour and hidden forms of data capture inherent in the corporate platform economy ad seeks to provide an ethical alternative for businesses. Platform co-operatives raise the question of the extent to which a co-operative enterprise can operate in a broader capitalist economy without creating contradictory tendencies that undermine its goal of social transformation. Despite the limitations of platform co-ops as agents of broader social transformation, Muldoon recommends a series of measures to foster the development of co-operatives including a new co-operative-friendly legal and regulatory framework; the creation of a national platform co-operative incubator; new municipal-level digital centres to nurture new platform co-operatives; and a Digital Innovation Fund for the co-operative sector to provide capital for scaling.

The collection concludes with two thought pieces from McKenzie Wark and Nick Srnicek. Srnicek offers an overview of research on the digital economy, highlighting gaps in the existing research and avenues for further studies. In 'Paths Forward for the Study of the Digital Economy,' he points to the neglect of platform care labour, data brokers, and the way in which AI is provisioned as fruitful avenues for future research. Wark writes a letter to digital labourers, reflecting on the changing nature of digital work and how new forms of solidarity could be constructed between workers.

From a Wage to a Wager: Dynamic Pricing in the Gig Economy

Niels van Doorn

Under capitalism, the wage has always functioned as an incentive to work. We sell our labour power in exchange for money – paid per unit of time or product/service – so we can survive. In large parts of the gig economy, however, this incentivizing role of the wage has been both amplified and reconfigured: the wage is no longer just an incentive but also becomes an object of prediction and experimentation; a constantly changing figure and shifting target appearing on a gig worker's phone as a peculiar form of clickbait (see image 1 below). If this sounds odd or outlandish, that's because it is – or at least it should be, even though it constitutes the daily reality of millions of gig workers who try to make a living via their apps.

These apps show them gigs that are priced 'dynamically,' meaning that the wage they receive will be 'based on perceived [real-time] changes in market conditions.'[1] While the use of dynamic pricing techniques has existed for quite some time in the world of e-commerce, particularly in the airline and hospitality industries, their implementation in the world of work is relatively novel and – as I will argue – particularly problematic. Such techniques essentially turn the wage into a recurring wager: a series of risky bets animated by the belief or hope that you will be able to cobble together a livelihood one gig at a time. The problem, as research shows, is that the house always wins.

Most sectors of the formal economy have collective agreements and/or legally enforced wage floors in place to ensure that 'the house' – i.e. private employers – does not always win. Yet this is almost never the case in the gig economy, where workers are classified as independent contractors and thus lack access to basic labour protections.[2] This legal status also bars gig workers from unionizing or collective bargaining. As I will discuss below, this gives corporate gig platforms extraordinary leeway to determine, segment, and adjust workers' wages at any given moment in time, resulting in profound wage insecurity and inequality. I start by providing an overview of various critical and empirical approaches to dynamic pricing and related techniques of wage experimentation in the gig economy. I then discuss some grassroots labour organising initiatives and one thought-provoking regulatory response that have pushed back against these developments. Finally, the closing section offers three policy recommendations, based on the preceding discussion.

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1. Aaron Shapiro, "Dynamic Exploits: The Science of Worker Control in the On-Demand Economy." Media, Inequality & Change Center. 21 March 2019. https://mic.asc.upenn.edu/media-inequality-change-center-launches-inaugural-report-dynamic-exploits-the-science-of-worker-control-in-the-on-demand-economy/.
2. For a rare exception, see Julian Hale, "In Denmark, a Historic Collective Agreement Is Turning the 'Bogus Self-Employed' into 'Workers with Rights,'" Equal Times. 4 July 2018. https://www.equaltimes.org/in-denmark-a-historic-collective.

Image 1. Screenshot showing a Deliveroo order and a wage
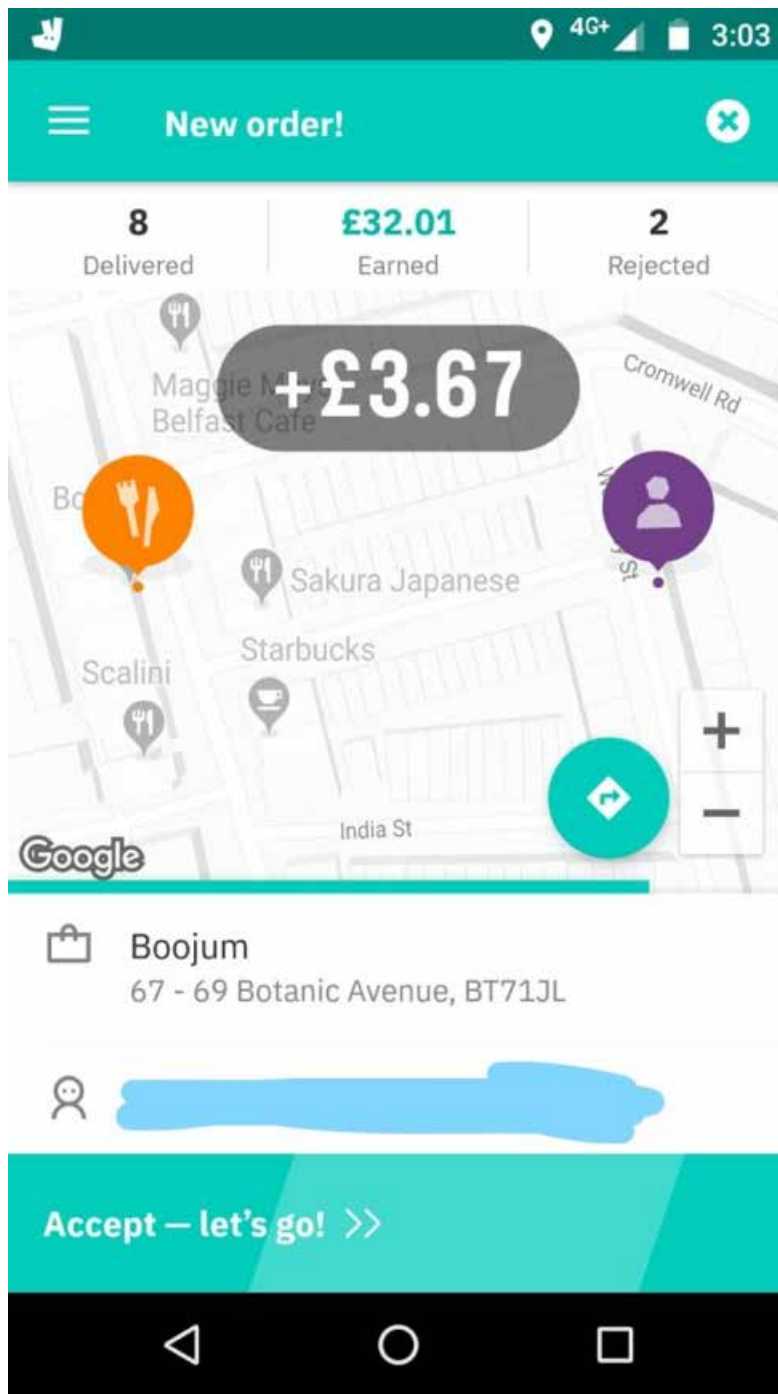
Dynamic Pricing

As Melinda Cooper has suggested, '[u]nder post-Fordist conditions, the wage itself has become something of a speculative proposition,' one that is contingent on 'unspecified hours of unpaid work readiness' and 'conditional on the achievement of performance indicators.'[3] On gig platforms, the contingency of a worker's wage is not just connected to unpaid, unpredictable waiting time (e.g. in between rides or at a restaurant) but is also amplified by pricing algorithms that turn this already 'speculative proposition' into a hyper-dependent variable whose process of determination is hidden as a trade secret. I am thus primarily concerned with the algorithmic price-setting power of gig platforms – a power that is not only market-making but also potentially livelihood-taking.

Price can be understood as 'a productive force, organizing and shaping the relation between markets and persons,'[4] by engendering 'incipient forms of inequality' and inflecting 'the relationship of the present to the future.'[5] While price is generally conceived as a signal that enables one to engage in calculative activities such as 'imagining and estimating courses of action,'[6] recently 'the possibilities of understanding that signal in meaningful ways are changing' under the influence of dynamic pricing techniques.[7] Accordingly, app-based workers are having a much more difficult time estimating their future income and the attendant courses of action required.

Recent work on dynamic pricing in the fields of economics, information science, and operations research has been grappling with questions regarding the optimization of financial and behavioural incentives in order to achieve a gig platform's desired just-in-time service level in the most cost-efficient way possible.[8] Securing an optimal service capacity in a volatile marketplace remains a challenge for ride-hailing and food delivery platforms alike. After all, while the imposition of app-based management techniques can to a large extent shape how gig workers do their job, such techniques provide less grip on when and how much they work, because this workforce is largely composed of independent contractors who can – at least nominally – determine their own schedules.

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3. Melinda Cooper, "Workfare, Familyfare, Godfare: Transforming Contingency into Necessity," South Atlantic Quarterly 111, no. 4 (2012): 646.
4. Liz Moor and Celia Lury, "Price and the Person: Markets, Discrimination, and Personhood," Journal of Cultural Economy 11, no. 6 (2018): 501.
5. Lisa Adkins and Turo-Kimmo Lehtonen, "Price: An Introduction," Distinktion: Journal of Social Theory 19, no. 2 (2018): 109.
6. Michel Callon and Fabian Muniesa, "Peripheral Vision: Economic Markets as Calculative Collective Devices," Organization Studies 26 no. 8 (2005): 1231.
7. Moor and Lury, "Price and the Person," 502.
8. See, for example, M. Keith Chen and Michael Sheldon, "Dynamic Pricing in a Labor Market: Surge Pricing and the Supply of Uber Driver-Partners," Working Paper, 11 December 2015; Gad Allon, Maxime Cohen, and Wichinpong Park Sinchaisri, "The Impact of Behavioral and Economic Drivers on Gig Economy Workers," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 29 October 2018); Harish Guda and Upender Subramanian, "Your Uber Is Arriving: Managing On-Demand Workers Through Surge Pricing, Forecast Communication, and Worker Incentives," Management Science 65, no. 5 (2019): 1995–2014; Saif Benjaafar and Ming Hu, "Operations Management in the Age of the Sharing Economy: What Is Old and What Is New?," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 17 April 2019).

Let us take food delivery as an example. In order to coax freelance couriers to log onto the app, start accepting orders, and keep working as long as is needed, food delivery platforms have had to transform how they approach the notion of a wage and how it is paid out to their courier fleets. Whereas, traditionally, couriers would work directly for restaurants that pay them a set hourly or daily wage (often off the books), to which cash tips are expected to be added with each delivery, most food delivery platforms have not only formalised and automated these financial transactions through an electronic payment system that bypasses the courier (and thus makes it easier for customers not to tip), but have also switched to a piece-rate model in which couriers are paid per delivery. Paying couriers per delivery affords platform companies a much tighter grip on their flexible labour supply, allowing them to design data-driven financial incentives that respond to sudden fluctuations of service demand in a more granular and agile manner. In economic terms, it enables operations managers to better exploit positive wage elasticities.[9]

Incentivising Gig Workers

From a behavioural economics perspective, per-delivery payment schemes come with particular 'reward schedules' whose irregular 'hit frequency' can have a powerful effect on the behaviour of couriers who no can longer count on the security of an hourly wage.[10] When logged into the app and waiting for orders to be dispatched, which is often referred to as receiving a 'ping,' couriers are faced with questions like 'When will I get my next ping?'; 'When I don't get one for a while, what may be the reason?'; 'When I do get one, what happens if I reject the offer – how will it affect my future income opportunities?'

These negotiations are then further complicated by the introduction of dynamic delivery pricing, which reconfigures the piece-rate wage into a dependent variable whose value is usually determined by a combination of the following components: a pickup fee, a drop-off fee, distance-based compensation, (estimated) time-based compensation, and – in some cases/markets – order 'desirability.'[11] Crucially, these components are themselves variables whose value and relative share can be continually adjusted in the calculation of the composite fee. Moreover, besides the components communicated by the platform, gig companies likely use their analytics capacity to incorporate additional real-time pricing factors such as market demand, weather conditions, or even a courier's behavioural data.[12] Dynamic pricing techniques and more order transparency together allow for the capture of more

9. Allon, Cohen, and Sinchaisri, "The Impact of Behavioral and Economic Drivers on Gig Economy Workers."
10. Natasha Dow Schüll, Addiction by Design (Princeton, NJ: Princeton University Press, 2012).
11. For example, the food delivery platform DoorDash includes a 'desirability' factor into its calculation of order prices, taking into account the number of times an order has been rejected by previous couriers. See https://www.theverge.com/2019/8/22/20828742/doordash-tipping-policy-change-drivers-earning-more-money.
12. Ryan Calo and Alex Rosenblat, "The Taking Economy: Uber, Information, and Power," Columbia Law Review, no. 117 (2017): 1623–90; Priya Kamat and Candice Hogan, "How Uber Leverages Applied Behavioral Science at Scale," Uber Engineering Blog (blog), 28 January 2019. https://eng.uber.com/applied-behavioral-science-at-scale/.

data on couriers' situated decision-making processes, enabling operations managers to explore questions like 'What will it take for this courier to accept this type of order?' or 'How far is this courier willing to go for this fee – and what if we add a bonus incentive?'

Back on the courier's side, such experimentation produces new questions such as 'When I get my next order, how much will they offer me?'; 'If I reject this offer, will the next offer be better or worse?' As Schüll notes with respect to machine gambling, the most potent behavioural reinforcement can be achieved through schemes 'in which subjects never know when they will be rewarded, or how much.'[13] Likewise, platform-mediated food delivery turns into a game-like experience in which couriers are constantly evaluating variable offers (substituting for set wages) intended to incentivise them to work. When an offer is deemed worth the effort, a courier accepts the 'deal' by swiping or tapping the screen and gets going. But to what extent are couriers able to determine if an offer is worth their effort – i.e. whether they should stay or go – and what can they do if it isn't?

Dynamic Pricing as a Distinctive Form of Labour Control

When considering how gig platforms orchestrate modes of algorithmic control and uncertainty, more critical attention should thus be given to the gamified conditions under which a wage can be earned and the loss of grip on these conditions. So far, however, few critical studies on algorithmic management in the gig economy have focused explicitly on the impact of dynamic pricing strategies and/or wage gamification on gig workers' experiences of insecurity – beyond Uber's infamous surge pricing system.[14] When they do, this attention is frequently subsumed under a broader concern with algorithmically mediated forms of labour control.

For instance, an insightful study by Griesbach and colleagues on platform-mediated food delivery work in New York City reports that '[p]latforms do use market mechanisms (i.e. price and choice) to match labor supply with consumer demand, creating frameworks within which workers can strategize to maximize earnings [...] But they do so within the context of technical control systems that shape and constrain workers' choices.'[15] In this account, platforms' use of ostensibly straightforward 'market mechanisms' is thus held to be conceptually and operationally distinct from a larger 'context of technical control systems.' In

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13. Schüll, Addiction by Design, 108.

14. For example, see Alex Rosenblat and Luke Stark, "Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers," International Journal of Communication 10 (2016): 3758–84; Luke Munn, "I Am a Driver-Partner," Work Organisation, Labour & Globalisation 11, no. 2 (2017): 7–20.

15. Kathleen Griesbach et al., "Algorithmic Control in Platform Food Delivery Work," Socius: Sociological Research for a Dynamic World 5 (2019): 5. For a similar analysis set in the Chinese context, see Hao Qi and Zhongjin Li, "Putting Precarity Back to Production: A Case Study of Didi Kuaiche Drivers in the City of Nanjing, China," Review of Radical Political Economics (online first).

contrast, I would argue that dynamic pricing algorithms are in fact an integral part of the technical control systems that shape the very market mechanisms through which workers' strategic choices are constrained. Importantly, market control is labour control in the case of service work such as food delivery, insofar as the production and consumption of this service overlap temporally and 'the market' thereby coincides with what in the manufacturing paradigm would have been the 'hidden abode' of production.[16]

Moreover, as Shapiro has noted, 'control is a pervasive feature of the market's configuration, not an artefact of its algorithmic execution.'[17] Rather than focusing on the role of algorithms per se, his study directs our critical attention to how gig economy platforms 'exploit calculative asymmetries that they design into the market architecture.'[18] Calculative asymmetries are created not just by enforcing information asymmetries but also through the unequal distribution of access to calculative equipment (e.g. analytics engines) and their inputs (i.e. data), which together minimize the calculative agency of gig workers trying to figure out whether a delivery or trip is worth their while. Shapiro's main contribution here is to show 'how the asymmetrical application of [dynamic] price setting allows firms to exert control over labour at the aggregate level while maintaining the façade of autonomy for the individual worker,' which helps to justify the independent contractor classification.[19]

The Situation in Berlin and NYC

My own recent research strongly resonates with Shapiro's analysis. Around the time when I was working as a Deliveroo rider in Berlin, as part of my fieldwork, the company introduced its 'distance-based fees' system, which substituted dynamically priced deliveries for the set fee of 5 euros per delivery that had until then been the standard. Although ostensibly based on the distance of a trip and the projected time the company estimated it would take to complete an order, riders were never informed about how fees were calculated – i.e. how much they were being paid per kilometre or minute. This wage obfuscation was met with a growing discontent and frustration among members of the city's rider community, especially among a group of activist riders who were part of the grassroots Deliverunion campaign (see image 2). As I have elaborated elsewhere, some of these riders attempted to gain calculative power by building their own do-it-yourself computational equipment – in the form of a web-based application – that enabled them to collect data on the distances and fees of their deliveries and to subsequently approximate Deliveroo's pricing algorithm.[20] This move to advance their calculative grip was then used as a

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16. Julia Tomassetti, "Digital Platform Work as Interactive Service Work," Employee Rights and Employment Policy Journal 22, no. 1 (2018): 1–58.

17. Aaron Shapiro, "Dynamic Exploits: Calculative Asymmetries in the on-Demand Economy," New Technology, Work and Employment 35, no. 2 (2020): 12.

18. Ibid, 2.

19. Ibid.

20. Niels Van Doorn, "At What Price? Labour Politics and Calculative Power Struggles in on-Demand Food Delivery," Work Organisation, Labour & Globalisation 14, no. 1 (2020): 136–49.

stepping stone to inspire other riders to become involved, not just in the project but in Deliverunion's more comprehensive labour struggle.

In New York City, where I also conducted fieldwork, such an endeavour would have been much more difficult to pull off. There are two primary reasons: first, because delivery workers often use multiple (up to 3-4) different apps, which makes data collection more complex and organising activities more diffuse (which company should be addressed?); and second, because wages are much more thoroughly gamified in comparison to European cities. Each company offers its own daily and weekly bonus incentives, usually presented in game-like formats, which couriers assess and compare in order to determine which app may be most lucrative for them on any given day.

Add to this that couriers frequently use the instant pay-out feature offered on nearly every app and it becomes clear how this way of working resembles the experience of gamblers in the networked, data-driven casinos studied by Schüll.[21] As they play multiple 'machines' at the same time and evaluate which ones are 'giving them love' and which are 'trash,' they run the risk of being bamboozled by delivery companies deploying wage gamification techniques to conceal the fact that, across the board, the dynamically determined base fees are slowly being adjusted downward.[22] So what can be done to curb the calculative and price-setting power of gig economy platforms and ensure that they pay out a decent, reliable wage? This will be the topic of the next section.

21. Schüll, Addiction by Design.
22. Niels Van Doorn and Julie Yujie Chen, "Odds Stacked Against Workers: Labor Process Gamification on Chinese and American Food Delivery Platforms," Socio-Economic Review, forthcoming.

Image 2: A Deliverunion flyer inviting riders to a join a meeting and take action

Grassroots Labour Organising in the Gig Economy

Although grassroots labour organising is more challenging in the gig economy, it certainly is far from impossible, as has been demonstrated by gig workers and labour advocacy groups around the world. Indeed, as Woodcock and Cant have argued, the days of emergent struggles against platform capitalism are well behind us and we can discern the formation of a more mature and institutionally robust (even if often fragmented) global movement.[23] Nevertheless, campaigns dedicated specifically to gig workers' struggles against the wage obfuscation and price-setting power of platforms are still relatively rare.

One prominent example in the North-American context is the #PayUp campaign organised by Working Washington, a state-wide labour advocacy group. The campaign has formulated three demands – a minimum wage floor of $15 plus expenses; treating tips as a supplement instead of a substitute; and wage transparency – pertinent to all gig economy platforms but addressed to delivery companies DoorDash, Instacart and Postmates in particular. So far, its biggest labour victory came at the start of 2019, when it played a pivotal role in a wave of worker protests and media attention that eventually pushed Instacart to discontinue a payment scheme using customer tips to subsidize workers' base pay – a scheme facilitated by dynamic delivery pricing insofar as this allows companies to surreptitiously integrate tips into variable offers.[24] At the end of 2019, the campaign once again played a central role in organising a nation-wide strike of Instacart workers who opposed how the company disincentivised tipping on the app.[25] Moreover, echoing Deliverunion's attempt to gain calculative agency in Berlin, the #PayUp website provides 'calculators' that allow app-based workers to submit their payment data to better understand the composition of delivery offers and how much these pay after expenses.

In the UK, meanwhile, the Worker Info Exchange (WIE) is an organisation that seeks to counter the gig economy's calculative asymmetries by leveraging the EU's General Data Protection Regulation (GDPR) to gain access to all pertinent data Uber (whose European headquarters are in Amsterdam) collects on its workforce. While its interest in driver data – obtained by pooling the outcomes of so-called 'Subject Access Requests' submitted to Uber by individual drivers – is not limited to wage issues alone, one of the organisation's primary goals is to work with data scientists in order to determine how much drivers actually make when taking into account things like idle or 'dead' time, which is a common problem in large markets

23. Jamie Woodcock and Callum Cant, "The End of the Beginning: The Struggles of Platform Workers," Notes From Below, June 8, 2019, https://notesfrombelow.org/article/end-beginning.
24. Kevin Roose, "After Uproar, Instacart Backs Off Controversial Tipping Policy," The New York Times. 6 February 2019. https://www.nytimes.com/2019/02/06/technology/instacart-doordash-tipping-deliveries.html.
25. April Glaser, "Instacart Workers Are Striking Because of the App's User Interface," Slate. 5 November 2019. https://slate.com/business/2019/11/instacart-workers-striking-app-user-interface-dark-pattern-design.html.

saturated with drivers. To achieve this, however, WIE would need access to drivers' GPS data during periods they are not completing a trip, and so far Uber has failed to make this data available.[26]

The battle over data has recently made it to an Amsterdam district court, where four UK-based Uber drivers – supported by WIE and the App Drivers & Couriers Union, among others – are appealing to the GDPR to claim not just more comprehensive and consistent data access but also the right to have insight into how Uber's algorithms work.[27] The problem with this latter claim, which would include information on the company's blackboxed pricing algorithm, is that algorithmic systems are continually being adjusted to optimise operations and are thus volatile epistemic objects. Platform-governed markets are basically giant experimental sandboxes operating at a velocity designed to resist public transparency, critique, and regulation.

Regulatory Responses: A Minimum Wage for Gig Workers

This means, in turn, that regulation and public policy will have to be more proactive and creative. Perhaps the best example of such regulatory innovation comes from New York City, where, following persistent pressure from the New York Taxi Workers Alliance and the (Uber-approved) Independent Drivers Guild, the City Council and the Taxi & Limousine Commission (TLC) introduced ground-breaking regulations at the end of 2018, setting a one-year cap on the number of ride-hail vehicles allowed on the road and a minimum hourly wage for drivers of US$17.22 after expenses.[28] This wage floor was informed by an inventive city-commissioned study by Parrott and Reich, which produced a payment formula that included the 'utilisation rate' of all ride-hailing companies active in the city, based on data the TLC could collect from these companies.[29]

This utilisation rate represents the percentage of time drivers have passengers on board, which was found to be very low (58% on average) across the platforms – confirming drivers' complaints about unpaid dead time. As Ongweso concisely explains: 'The incentive, then, was to use utilization rate in the pay floor formula to stop perpetual growth and have drivers spend less time on the road empty, hopefully reducing congestion as well. The lower the utilization rate, the higher

26. Sarah Holder, "For Ride-Hailing Drivers, Data Is Power," Bloomberg CityLab. 22 August 2019. https://www.bloomberg.com/news/articles/2019-08-22/why-uber-drivers-are-fighting-for-their-data.
27. Natasha Lomas, "UK Uber Drivers Are Taking the Algorithm to Court," TechCrunch. 20 August 2020. https://social.techcrunch.com/2020/07/20/uk-uber-drivers-are-taking-its-algorithm-to-court/.
28. Shirin Ghaffary, "New York City Has Set the Nation's First Minimum Pay Rate for Uber and Lyft Drivers," Vox. 4 December 2018. https://www.vox.com/2018/12/4/18125789/uber-lyft-drivers-wage-minimum-new-york.
29. James A. Parrott and Michael Reich, "An Earnings Standard for New York City's App-Based Drivers: Economic Analysis and Policy Assessment," Report for the New York City Taxi and Limousine Commission (Institute for the Research on Labor and Employment, 2 July 2018). https://irle.berkeley.edu/an-earnings-standard-for-new-york-citys-app-based-drivers/.

the per-trip pay floor.'[30] Instead of seeking transparency with respect to pricing algorithms, which is a reactive effort bound to play catch-up with platforms' dynamic operational strategies, the City of New York thus took control by implementing a minimum wage rule that limited the price-setting power of ride-hailing firms: when drivers make less than US$17.22 an hour after expenses, these firms are required to pay up.

In response to these measures, however, Uber and Lyft promptly started limiting drivers' access to their platforms during times of lower demand, introducing tiered quota systems and work scheduling schemes that prioritised drivers who were able to complete exceedingly difficult to reach trip targets while also maintaining a near-perfect rating. This so-called 'lockout' has had a severely detrimental impact on NYC's ride-hail drivers, who either had to be working constantly in order to maintain their spot in the top tier or had to wait around (and sometimes sleep) in their car to be available when a potentially lucrative slot opened up.[31]

Whereas the new regulations were intended to limit drivers' idle time and increase their wages, Uber and Lyft's counter-strategies thus resulted in the exact opposite and rendered ride-hail driving even more precarious. What I find striking here is how these regulatory measures made both firms act more like regular low-wage employers than ever before, resorting to automated work scheduling and segmentation techniques that are so common in service industries where margins are thin and companies are continually looking to minimize labour costs.[32] Ominously, it also tells us something about how these companies are likely to respond if they would be classified as such.

As the Covid-19 pandemic hit New York and the demand for ride-hailing services tanked, Uber decided to temporarily lift its restrictions.[33] While this move was ostensibly intended to help drivers during the city-wide lockdown, it has also enabled a situation where driver supply can (again) vastly outnumber customer demand. This would inevitably have a negative impact on the company's utilisation rate, meaning it has to pay out more per trip to meet the minimum wage regulations. Now that a public health crisis has collapsed the market, however, Uber seems to be less worried about these expenses. After all, the lockdown essentially produces the same outcome as its lockout: fewer drivers are active on its platform.

Or perhaps it is just even less concerned with playing by the rules. Even before the pandemic, drivers and labour advocates expressed their dismay at how the TLC was failing to properly enforce its own regulations and had started changing its language from 'minimum pay per hour' to 'average pay per hour,' thereby

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30. Edward Jr. Ongweso, "The Lockout: Why Uber Drivers in NYC Are Sleeping in Their Cars," Vice. 19 March 2020. https://www.vice.com/en_us/article/pkewqb/the-lockout-why-uber-drivers-in-nyc-are-sleeping-in-their-cars.
31. Ibid.
32. Alex J. Wood, "Powerful Times: Flexible Discipline and Schedule Gifts at Work:," Work, Employment and Society 32, no. 6 (2018): 1061–77.
33. Andrew J. Hawkins, "Uber Is Lifting Restrictions on Drivers in NYC in Response to Coronavirus," The Verge. 19 March 2020, https://www.theverge.com/2020/3/19/21187261/uber-lift-restrictions-driver-app-nyc-coronavirus.

relinquishing the universal wage floor.[34] While the pandemic has rightfully shifted public attention to how ride-hailing and delivery companies are inadequately protecting workers' health and safety, it also appears to have further weakened the city's commitment to minimum wage enforcement.[35] Consequently, drivers who see themselves forced to stay logged on are reporting sharp income drops and can barely survive,[36] especially as Uber and Lyft are delaying access to the State of New York's unemployment insurance.[37]

Proper regulatory enforcement would ameliorate this situation, especially for high-volume drivers, yet it would undoubtedly also result in new restrictions. The reason why so many drivers can continue to work on these platforms at a time when masses of low-wage workers are being laid off or furloughed is precisely because gig economy companies continue to find ways to evade labour laws, including minimum wage regulations. As such, drivers cannot make a living with Uber during the pandemic, yet they cannot really do without the app either. I address this conundrum in the final section below.

34. Peter Rugh, "Uber Exploited, Lyfted Down: How Ride-Share Companies Cheat Drivers Out of Minimum Wages," The IndyPendent. 6 October 2019. https://indypendent.org/2019/10/uber-exploited-lyfted-down-how-ride-share-companies-cheat-drivers-out-of-minimum-wages/; Ongweso, "The Lock-out."

35. For example, see Dara Kerr, "Uber Hears Drivers' Demands, Ships out Masks for Coronavirus Protection," CNET. 9 April 2020. https://www.cnet.com/news/uber-hears-drivers-demands-ships-out-masks-for-coronavirus-protection/.

36. Aziz Bah, "I'm a New York City Uber Driver. The Pandemic Shows That My Industry Needs Fundamental Change or Drivers Will Never Recover," Business Insider. 29 July 2020. https://www.businessinsider.com/uber-lyft-drivers-covid-19-pandemic-virus-economy-right-bargain-2020-7.

37. Noam Scheiber, "Drivers Say Uber and Lyft Are Blocking Unemployment Pay," The New York Times. 24 March 2020. https://www.nytimes.com/2020/03/24/business/economy/coronavirus-uber-lyft-drivers-unemployment.html.

Policy Recommendations

The reason I have been dwelling on the fate of Uber drivers in New York City is because it presents a unique case study of the ongoing struggle to abolish the wage as a wager. In conclusion, three policy recommendations can be derived from this case:

Policy Recommendation 1: Gig economy companies should be statutorily obliged to share their data with city authorities.

Obtaining relevant and comprehensive data from gig economy companies is a critical base requirement for achieving meaningful regulatory change. The unique data sharing arrangement between the TLC and New York-based ride-hailing platforms enabled Parrot and Reich to calculate existing hourly wages after expenses and recommend a new minimum wage for app-based drivers.[38] Their study thereby effectively side-stepped the wage obfuscation introduced by dynamic pricing algorithms and the gamification of payouts.

Policy Recommendation 2: City authorities should strengthen their enforcement capacities to ensure gig economy companies adhere to new regulatory frameworks.

Policymakers should not only work toward establishing minimum wage requirements; they should also increase their commitment to regulatory enforcement once these requirements are in place, especially now that the Covid-19 pandemic is plunging national economies into a major recession. As platform companies are attempting to leverage this crisis by courting local governments, emphasising corporate social responsibility and reformulating their value proposition for cities,[39] it is important not to surrender the political will to maintain the rules, norms, and standards that protect workers. This includes not replacing universal wage floors with average wage objectives, however determined, given that such averages to not accurately represent 'large deviations in the income ditribution of drivers.'[40] There

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38. In contrast, the city of Seattle could not establish such an arrangement with Uber and Lyft as it explored the implementation of a minimum wage. Instead, it commissioned Parrot and Reich to conduct their own survey in order to calculate how much drivers were making. Yet shortly before this study could be sent to the city, a research team from Cornell's ILR School submitted their alternative report – commissioned by Uber and based on exclusive access to the company's data (Kerr 2020). Beyond the ensuing controversy over diverging results and methods, this incident shows the ethical and political importance of ensuring open access to data that may be proprietary but is in the public interest. As an open letter denouncing the Cornell/Uber study (signed by this author) states: "The acceptance of the company's data and analytical parameters, especially when policymakers have commissioned a study on this very matter, normalises the company's systematic withholding of basic information needed by regulators to govern." For the open letter see: https://medium.com/@gigeconomyresearchersunited/open-letter-and-principles-for-ethical-research-on-the-gig-economy-3cd27924cc08.

39. Niels Van Doorn, Jelke Bosma, and Eva Mos, "Disrupting 'Business as Usual': COVID-19 and Platform Labour," Futures of Work. 13 July 2020. https://futuresofwork.co.uk/2020/07/13/disrupting-business-as-usual-how-covid-19-is-impacting-platform-mediated-labour-and-social-reproduction/.

40. Eszter Bokányi and Anikó Hannák, "Understanding Inequalities in Ride-Hailing Services Through Simulations," Scientific Reports 10, no. 1 (2020): 1; See also Louis Hyman et al., "Platform Driving In Seattle" (Ithaca, NY: Cornell University, ILR School, Institute for Workplace Studies, 6 July 2020).

is no 'average driver.' Instead, all drivers should earn at least the local minimum wage. In countries where local jurisdictions cannot set wage floors autonomously, policymakers should endeavour to include gig workers in national or state-wide minimum wage legislation.

Policy Recommendation 3: National legislation should be passed to ensure a comprehensive system of labour rights and protections for all gig workers.

This could be achieved by reclassifying gig workers as employees, which would not only guarantee that all gig workers have the right to a minimum wage, regardless of where they work, but would also grant them additional rights and insurances they are currently missing (e.g. the right to collective bargaining and sick pay). The tide seems to be turning, as more courts and legislators are deciding that platform companies should treat their workforce as employees.[41] Yet we should also anticipate how these firms will react to reclassification efforts. They will not only fight court decisions and ignore new laws, as they have done in California,[42] but will also limit gig workers' access to their platforms, as in New York, or ultimately withdraw from a city or country altogether – as Deliveroo did in Germany.[43] To shrug or celebrate and say 'good riddance' is to ignore the elephant in the room; namely the reason why so many workers, predominantly immigrants and minorities, continue to seek out and rely on app-based gig work.[44] This is not an argument against reclassification per se, but rather a warning that it is not a solution in and by itself. We need more ambitious and truly comprehensive approaches that overcome the shortcomings of existing employment law.

Make no mistake, there are no easy fixes here. Beyond concrete policy recommendations, even beyond the realm of policy proper, what is required is the political vision and will to achieve more radical forms of redistributive social justice. Ultimately, then, my most urgent and far-reaching recommendation is to raise wages and improve working conditions across low-wage industries, so that workers have real alternatives and do not have to accept the ever-changing rules of the games gig economy companies play – with their wages and access to the app. Until this happens, Uber and its ilk will continue to attract mostly racialised labour market outsiders and will be able to leverage the plight of these precarious workers to justify their operations and resist regulation (as Uber has done in response to the revocation of its operating license in London). Moreover, to truly abolish the wage as a wager, the decommodification of labour needs to extend beyond the gig economy and involve stronger interventions in welfare and immigration regulation to ensure a robust defence of workers' rights. Only a policy and political agenda geared toward the emancipation of the most vulnerable and dispossessed can keep workers in need from taking a chance on predatory platforms.

https://digitalcommons.ilr.cornell.edu/reports/71.

41. Bama Athreya, "Uber's Achilles Heel: The Rule of Law," Connected2Work (blog), 29 July 2020. https://connected2work.org/blog/ubers-achilles-heel-the-rule-of-law.

42. Carly Graf, "Uber, Lyft and Doordash Bring Their Battle Against AB5 to November Ballot," The San Francisco Examiner, July 5, 2020. https://www.sfexaminer.com/news/uber-lyft-and-doordash-bring-their-battle-against-ab5-to-november-ballot/.

43. Van Doorn, "At What Price?"

44. Niels van Doorn, Fabian Ferrari, and Mark Graham, "Migration and Migrant Labour in the Gig Economy: An Intervention," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 8 June 2020). https://papers.ssrn.com/abstract=3622589.

Rethinking Microwork: the Invisble Labour of the Platform Economy

Phil Jones

The rapid development of artificial intelligence over the last decade has not yet brought about the dystopian scenario of mass unemployment predicted by its critics. Paradoxically, on arriving at automation's 'last mile' there has been a flourishing of new work – precarious and poorly paid – pushing the horizon of human redundancy ever-further into the future.[1]

Indeed, present AI innovations turn on an illusion. What so often appears as algorithmic power is in fact an ambient workforce, supervising Uber's algorithms, rating Google's search results and making sure our Facebook feeds are clear of violent imagery. These 'ghost workers' train the data for autonomous vehicles and facial recognition software; they transcribe audio for chatbots and power the cloud computing of companies like Microsoft. They are the workers that step in when the algorithm falls short, the workers that clean the data and, ultimately, make our digital lives legible.[2]

We find this hidden workforce of on-demand workers on microwork platforms such as Amazon Mechanical Turk, Appen and Clickworker. These platforms host short data tasks that are outsourced by requesters ranging from smaller start-ups to companies like Google, Amazon and Microsoft. The platforms act as intermediaries and take a cut from every transaction between the two parties.[3]

Tasks on the platforms might include labelling objects on a photo, transcribing audio of voices, copying or translating short pieces of writing and filling in surveys. These tasks fulfill the work that:

1. Algorithms are still unable to complete
2. Workers can complete more precisely and efficiently
3. Workers can complete at a lower cost

For this reason, workers on these platforms have been described as 'artificial artificial intelligence,' 'humans in the loop,' and 'data with a human touch.'[4]

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1. Mary Gray and Siddharth Suri, Ghost Work: How to stop Silicon Valley from building a new under-class (Houghton Mifflin Harcourt: USA, 2019).
2. Ibid.
3. Nick Srnicek, Platform Capitalism (Polity Press: London, 2016).
4. Appen, "Data with a human touch." August 2017. https://appen.com/wp-content/uploads/2017/08/Appen-Healthcare.pdf; Appen, "What is human-in-the-loop machine learning." 2019. https://appen.com/blog/human-in-the-loop/.

The use of microwork sites is growing rapidly. A survey by the Trades Union Congress and the University of Hertfordshire found that as much as 5.8% of the UK working age population use microwork sites at least once a week.[5] The majority of those surveyed said they were in full-time employment, suggesting that microwork tops up incomes in a moment of ongoing wage stagnation.[6] A significant minority said they were part-time or self-employed, also suggesting that the growing popularity of microwork is a response to under-employment.[7] In response to a global survey of workers using five microwork platforms conducted by the ILO, over 60 per cent of respondents expressed a desire for more work other than microwork, again suggesting a high degree of underemployment – 41 per cent of participants reported actively looking for other paid work.[8]

Microwork platforms recruit workers by promising flexibility and independence in terms of the schedule, quantity and location of work. The flipside of this is that the work is highly contingent: temporary and casual tasks, often lasting little more than a few minutes. Workers patch together a livelihood out of bits and pieces of work, meaning workers end up working for multiple requesters over the course of a single day. As 'independent contractors,' they receive none of the rights or benefits that come with 'worker' or 'employee' status.

Treatment of workers differs depending on the type of platform they work for, which can be divided into two distinct but mutually overlapping kinds: crude crowd platforms and tailored crowd platforms (See Figure 1). Using this typology, it's possible to generalise that curated crowd platforms tend to service long-term clients and, for this reason, use tests and formal applications to decide which workers can use the platform, while crude crowd platforms are open to anyone who wishes to outsource or fulfill tasks (though requesters often provide tests for tasks requiring specific skills).

5. Trades Union Council and University of Hertfordshire. "Platform Work in the UK 2016-2019." Foundation for European Progressive Studies. 2019. https://www.feps-europe.eu/resources/publications/682-com_publications.publications.html.
6. Ibid.
7. Ibid.
8. Janine Berger, Marianne Furrer, Ellie Harmon, Uma Rani and M. Six Silberman. "Digital Labour Platforms and the Future of Work: Towards decent work in the online world." International Labour Organization. 2019. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_645337.pdf.

Figure 1: Typology of microwork platforms

	Crude Crowd	Curated Crowd
Platforms	Amazon Mechanical Turk, Clickworker, Microworkers, Lionsbridge	Appen, Playment, Mighty AI, Hive, Scale, Wirk, Microsoft UHRS, Google Raterhub
Tasks Hosted	Generalist: clickwork such as surveys, data entry, content moderation, as well as some machine learning tasks	Specialist: Machine learning training – data classification and labelling, audio transcription, sentiment analysis
Project Length	Highly contingent: 30 second – 30-minute tasks (though some may be longer)	A mixture of highly contingent and longer term 'task projects', where smaller tasks are packaged together to offer 8-40 hours' worth of work
Requesters	General requesters - marketing, sectoral and academic researchers. Also some large tech companies	Google, Microsoft, Uber, Facebook, Amazon, IBM, Tesla
Average Payment	$2-3 per hour	$7-9 per hour

Working Without Pay or Rights

a) Low Pay or no Pay

While pay differs significantly from platform to platform, it is generally very low, with average hourly earnings often totalling well below the minimum wage in most EU countries.[9] Pay is especially low on crude crowd platforms (*see Figure 2*).

Figure 2: Hourly pay by platform (US$)

		Paid work			Paid and unpaid work		
		Median	Mean	Observations	Median	Mean	Observations
AMT USA	2017	7.50	8.51	222	5.63	6.54	222
	2015	6.00	7.56	652	4.66	5.56	651
AMT India	2017	2.14	3.40	217	1.67	2.53	217
	2015	2.19	3.95	98	1.66	2.95	98
CrowdFlower	2017	1.50	2.65	298	1.11	1.95	299
	2015	1.50	3.04	306	1.00	1.92	307
Clickworker	2017	3.19	4.49	389	2.13	3.19	390
Prolific	2017	4.55	5.45	450	3.56	4.26	446
Micorworkers	2017	1.60	3.00	444	1.01	2.15	448
All platforms	2017	3.00	4.43	2027	2.16	3.31	2029
	2015	4.39	5.92	1056	3.33	4.26	1056

Source: "Digital Labour Platforms and the Future of Work: Towards decent work in the online world." International Labour Organization. 2019.

On these platforms, pay has to be low for the sites to remain both profitable and popular with requesters. The majority of work on sites like Mechanical Turk and Clickworker is not geared toward doing tasks that algorithms can't do but tasks that workers can do at a lower cost and faster pace than algorithms; thus, price as opposed to accuracy is often what motivates requesters.[10] The fact that paying a minimum wage on these platforms would effectively make outsourcing tasks financially unviable suggests that legislators and policymakers should seriously consider the role of these platforms in the UK economy, a problem returned to in the policy section below.

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9. Ibid.
10. Mannas Mittal and Yaron Singer. "Pricing Tasks in Online Labor Markets." Association for the Advancement of Artificial Intelligence Workshop, 2011. https://www.aaai.org/ocs/index.php/WS/AAA-IW11/paper/viewFile/4001/4266/.

One of the largest surveys carried out on microwork sites found that over 30 percent of workers regularly experience wage theft.[11] While some of this figure is due to requester malfeasance, a significant number of incidents are the result of the way platforms organise workflow and payment. Wage theft is often baked into the architecture of many platform's, which allows requesters to dock or deny pay due to:

1. **Task time limits** – strict timeframes on the completion of tasks, if broken, can result in non-payment. This is because much of the work offered on these sites can already be done by machine learning algorithms; workers retain the upperhand in terms of pace.[12]

2. **'Bad quality'** – tasks that do not meet requester standards will go unpaid. On Amazon Mechanical Turk, for the same task completed by a multitude of workers, those in the majority are paid while the outlier is assumed to be incorrect and forgoes payment.[13]

3. **Lack of checks and balances** – Requesters can easily deny payment illegitimately. While microwork platforms supply rating systems that allow requesters to review workers, no such system exists for workers to do the same. This means repeated offenders are difficult to identify.

On top of explicit wage theft, workers on these platforms also fall victim to excessive and unregulated data appropriation. A platform like Amazon Mechanical Turk not only imposes a levy on every transaction between workers and requesters but also receives a data set about every task completed on the platform.[14] This effectively gives Amazon a carbon copy of the task's product as well as information about how the task was completed entirely free of charge.

b) Lack of Workers' Rights and Benefits

The characteristic contractual arrangement of microwork is 'self-employment.' In theory, this means that individuals and firms are free to negotiate terms agreeable to both parties, according to the minimum standards set out by legislation.[15]

On microwork platforms self-employment disproportionately benefits the contractor, allowing them to avoid costly financial obligations such as national insurance payments. The worker, on the other hand, loses the rights and benefits of being an employee or worker yet receives few of the gains associated with self-employment - for instance, pay is non-negotiable (see Figure 3).

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11. Mary Gray and Siddharth Suri. Ghost Work: How to stop Silicon Valley from building a new underclass. Houghton Mifflin Harcourt: USA, 2019.

12. Alexander Quinn, Benjamin Bederson, Tom Yeh and Jimmy Lin. "CrowdFlow: Integrating Machine Learning with Mechanical Turk for Speed-Cost-Quality Flexibility," Human Computer Interaction Lab, 2010. See: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.232.4190&rep=rep1&type=pdf.

13. M. Six Silberman and Lilly Irani, "Operating an employer reputation system: Lessons from Turkopticon 2008-2015.' Comparative Labor Law and Policy Journal, 37 (2016): 505–542 .

14. Amazon Mechanical Turk. "Participation Agreement." 2020. https://www.mturk.com/participation-agreement.

15. Gov.uk. "Employment Status." 2020. https://www.gov.uk/employment-status/worker.

Figure 3: Employment rights for employees, workers and the self-employed

Self-Employed	Worker	Employee
Not covered by employment law	Statutory minimum wage	All of the rights listed in the 'worker' column and:
Rights and responsibilities are agreed with contractor on an individual basis	Statutory minimum amount of paid holiday	Statutory sick pay
Still entitled to protection from poor working conditions and some forms of discrimination.	Statutory minimum level of rest breaks	Statutory maternity and paternity pay
	Protection from unlawful deductions from wages	Statutory redundancy pay
	Protection for whistleblowing	Protection against unfair dismissal
	Protection from working more than a 48-hr week.	Time off for emergencies
		Minimum notice periods for dismissal or resignation

Source: Gov.uk, 2020.

With platforms like Uber and Deliveroo, there is a strong argument to be made that workers using the platform are not self-employed, but actually work for the companies. Both platforms set the terms of the work, control the workflow, set pay rates and even decide when workers can work.[16] By the estimation of some, workers on these platforms thus represent 'dependent contractors,' a section of the self-employed who are contracted long-term by a single employer, and should, therefore, be eligible for workers' rights.[17]

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16. Kari Paul, "California landmark workers' rights bill sends waves through gig economy firms." The Guardian. 11 September 2019. https://www.theguardian.com/business/2019/sep/11/.
17. Matthew Taylor, Greg Marsh, Diane Nicol, Paul Broadbent, "Good Work: the Taylor review of modern working practises." Department for Business, Energy and Industrial Strategy. 2017. https://www.gov.uk/government/publications/good-work-the-taylor-review-of-modern-working-practices.

With microwork, the case is less clear cut. Instead of one platform doing all of the above, a multitude of requesters design tasks, set pay rates and control the workflow. Workers on these platforms are employed by innumerable requesters, but undertake their work at a single site of work, where pay, organisation and often hours are non-negotiable. In short, they neither fit the rigid categories that comprise the UK's system of workers' rights, nor do they readily meet the criteria set out for 'dependant contractors.'[18] As we will see, this is why extending a single 'worker' definition to all employees, temporary and zero-hour workers as well as self-employed contractors offers a better – though still imperfect – solution to this problem.

Policy Solutions

While microwork represents a global challenge for policymakers, some of the proposals recommended here are targeted at the UK's labour market and are, therefore, highly specific to one country's institutional and legal arrangements. Other proposals outlined here are generalisable and thus transferable to the labour markets of other national and international jurisdictions.

a. Platform Equality

There are many issues specific to microwork platforms that are not yet covered by existing legislation. Problems like wage theft and one-sided rating systems are either entirely unique to microwork or do not affect the wider labour market to anything like the same degree. For this reason, government should introduce legislation that specifically targets the architecture of these platforms:

To prevent wage theft it should be legislated that all completed tasks are paid for by requesters. As it stands, payment is only made to those who complete tasks to a satisfactory standard, an arrangement that disproportionately benefits requesters. To make the errors of workers less costly, requesters should use other channels to incentivise good work, i.e. the available ratings systems, which allow requesters to mark down workers for persistently poor work. This would mean that rather than forfeiting pay, workers who repeatedly produce 'bad work,' either through negligence or malfeasance, get a bad reputation and are identifiable as such by other requesters.

Rating systems should be made multi-sided so that workers can review requesters. These should be modelled on Turkopticon, an innovative requester reputation system designed by workers on Mechanical Turk.[19] The plug-in overlays the worker's screen and allows them to rate requesters and publicize this information in real-time. Rather than being external to a platform's architecture it should be made internal. By allowing workers to warn others on the platform about 'bad' requesters, such a system would help iron out inequities between workers and requesters. Worker messaging services should be made a legal obligation of microwork sites. As it stands, workers are forced to use forums and Reddit threads to discuss platform

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18. Ibid.
19. Silberman and Irani, "Operating an employer reputation system: Lessons from Turkopticon 2008-2015".

problems, bad requesters, as well as hints and tips around task completion. This creates a lag in response times and makes the real-time communication that workers share in other lines of work close to impossible. Internal messaging services would go some way to improving communication between workers.

Shorter tasks should include a 'finders fee' to cover the lengthy fallow periods between tasks. This would cover the large amounts of shadow work undertaken by workers to simply find tasks. A worker that undertakes 15 two-minute tasks undertakes significantly more unpaid shadow work than one who does two 15-minute tasks. The 'finders fees' for time spent searching for tasks should, therefore, be graded, so that two-minute tasks receive a greater payment boost than a five-minute task. These payments should be incurred by requesters via monthly taxes on their earnings and paid to taskers on a monthly basis.

b. Universal Workers' Rights

In an age where arrangements like the gig economy and microwork are testing the very legal definitions upon which the labour market rests; where employees are in decline and the self-employed on the rise; and where a highly interconnected world means all workers face the same global risks – pandemics and climate catastrophe – we need a system of universal rights that no longer privileges certain segments of the labour market, but provides the same safety net and benefits for all.

This would mean that all who exchange their time for a wage, whether it be a salaried employee or a 'self-employed' microtasker, are categorised under the single banner of 'worker' and are given the same access to the full range of rights usually preserved for employees.[20] As we see in Figure 3, workers on microwork sites are not covered by employment law, and are not extended even the most basic level of security in terms of rights and benefits. There is no good reason why, for instance, minimum wage legislation or holiday pay should not be extended to such workers.

In most cases, this greater extension of rights would not entail radical adaptations to existing legal or institutional arrangements. The scope of minimum wage legislation or working time directives, for instance, would simply be amended to include a larger section of the labour market.

But because many rights arrive as financial support from employers, the means of receiving such support would need to be adapted for those who are not contracted full-time or over the long-term. For these workers, holiday, sick and maternity pay should be paid through a new government fund, set up in the country where the work is completed, which distributes these benefits, financed by the platforms through existent tax and national insurance contributions (NICs). For instance, in the UK, this would mean that microwork companies pay national insurance and tax on any work carried out on their platforms within the UK, which would go into the fund and then be distributed as financial support such as sick or holiday pay. Platform companies could choose to place some or all of the burden of this tax on requesters via additional levies on using the platform, but platform companies

20. The Institute of Employment Rights. "UK Sick pay nearly worst in Europe and in breach of international law." The Institute of Employment Rights. 13 March 2020. https://www.ier.org.uk/news/uk-sick-pay-nearly-worst-in-europe-and-in-breach-of-international-law/.

should be responsible for paying the tax in the first instance.

The amount of financial support workers would have available to them would be defined by the amount of hours they work. This would mean that those who work full-time hours on microwork sites would have the same amount of holiday and sick pay available to them as, say, a full time employee. Part-time or shorter hours would mean a reduction of the full value of benefits available.

c. A New National Insurance System

To make workers' rights – and indeed employer responsibilities – universal, the national insurance system should be levelled up, so that all employers and contractors of labour pay a set rate of national insurance contributions (NICs) per annum, and all in the new universal category of 'worker' pay a slightly lower rate (with remittances for low-income workers). As it stands, employers are being incentivised to misrepresent the legal status of workers to avoid paying NICs, frequently downgrading employees to 'worker' or 'self-employed' and depriving them of the rights they deserve (see Figure 4).

Figure 4: Type of NICs in 2020[21]

As it stands, the self-employed pay two types of NICs: Class 2: £3.05 a week if profits are above £6,475 a year Class 4: 9% on profits between £9,501 and £50,000 a year. 2% extra on profits over £50,000	While employees pay one type of NICs and their employer another: Class 1: 12% on earnings above £9,504 a year and an additional 2% on £50,000 a year Employer NIC: 13.8% of employee earnings above £8784

Adjusting the parameters of NICs so that employers and firms continue to pay the same but workers pay less overall, all employers and contractors should continue to pay 13.8% of earnings per annum and all employees, workers and self-employed a flat 10%. While this represents slightly more for some sections of the labour market (and slightly less for others) the gains accrued in rights and benefits far outweigh what appear at first glance as income losses. There would also be a system of remittances for lower earners, making below £9,504 a year, such as those using microwork sites as their main source of income (see below).

Unlike the present system of remittances which distinguished between 'self employed' and 'employee,' all workers would pay the same 10% national insurance and have access to financial benefits such as maternity allowance and a state

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21. Gov.uk. "National Insurance rates and categories." 2020. https://www.gov.uk/national-insurance-rates-letters; Gov.uk. "Self-Employed National Insurance rates." 2020. https://www.gov.uk/self-employed-national-insurance-rates.

pension. Due to the nature of being 'self-employed,' these benefits would not be paid by employers, but by a government fund for 'self-employed' workers.

Similar proposals to adapt NICs to curb bogus 'self-employment' have been made elsewhere but without the significant raise in the standard and availability of rights proposed here.[22] The system here proposed would mean that the responsibilities of employers and contractors are set by their use of labour as opposed to their legal relationship to it.[23] In other words, any firm, platform or institution that uses labour pays the same rate into national insurance, no matter the form of labour.

Making sure all receive the same rights no matter their relationship to the contracting firm or employer requires that all workers operating on these platforms inside the UK pay a flat percentage of their income. This allows us to soften the hard distinctions between self-employment and dependent employment found across our legal and social insurance systems. Indeed, microwork to a significant degree already flattens these distinctions; thus, adapting NICs accordingly would simply reflect a transformation already underway.

Rather than this being based on each worker's income category, all contractors would now pay 13.8% of all the wages they have paid each month. This moves our insurance system away from one where contributions are worked out by the firm's or contractor's relationship to individual workers to one where the value of total labour used determines how much the contractor pays.

So that all have the same access to universal rights and benefits, all workers should pay the same national insurance contributions, once their wages meet a certain threshold. However, significant reductions in contributions would be available for low-income workers, whether they be microworkers, on a standard contract or small business owners. Unlike our present system, these reductions would not entail reduced access to any rights. The point being that income should not dictate which rights are available to workers.

22. Benedict Dellot and Fabian Wallace-Stephens. "Entrepreneurial Audit: Twenty policy ideas to strengthen self-employment and micro businesses in the UK." RSA: Action and Research Centre. 9 February 2017. https://www.thersa.org/discover/publications-and-articles/reports/the-entrepreneur-ial-audit.
23. Colin Crouch, Will the Gig Economy Prevail (London: Polity Press, 2019).

d. Better Rights

Even if you are currently an 'employee,' the range of rights available are far from comprehensive. Indeed, in terms of financial support for workers, the UK's employment rights rank among the worst in Europe.[24] Support currently available needs significant enhancement to meet international standards.

Of particular concern in wake of the coronavirus pandemic is statutory sick pay (SSP). In the UK, SSP is among the worst in Europe, and was found to be in breach of the European Social Charter, which described it as 'manifestly inadequate.'[25] If we compare the UK's £95.85 per week for up to 28 weeks to other European countries, we see just how far it falls short.[26] In the Netherlands, which has the most generous SSP, workers receive 70% of their pay for up to two years.[27] In Norway, employers are obligated to pay a worker's full salary for up to a year.[28]

SSP in the UK should combine the best facets of the Norwegian and Dutch systems and offer full pay for up to two years. Even if micro- or gig-workers had access to SSP, at its current rate it would hardly provide enough to live off, given that most of these workers do not have savings or other consistent sources of income.

Aside from issues with specific rights, the UK system also has general problems, not least limits on the rate of income necessary to access the system. Large numbers of workers, including those that use microwork sites, currently make below the lower earnings limit of £118 per week, meaning they do not qualify for any financial support from their employers.[29] Considering that part of the point of Universal Workers' Rights is to decouple access to rights from hours and income, this limit should be entirely lifted, so that all workers have access to the same amount of holiday and sick pay.

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24. "Which Countries in Europe Offer the Fairest Paid Leave and Unemployment Benefits." Glass-door, 2016. https://www.glassdoor.com/research/app/uploads/sites/2/2016/02/GD_FairestPaidLeave_Final-2.pdf.
25. The Institute of Employment Rights. "UK Sick pay nearly worst in Europe and in breach of inter-national law." The Institute of Employment Rights. 13 March 2020. https://www.ier.org.uk/news/uk-sick-pay-nearly-worst-in-europe-and-in-breach-of-international-law/.
26. Gov.uk. "Statutory Sick Pay." 2020. https://www.gov.uk/statutory-sick-pay.
27. European Commission. "Netherlands: Sick pay and benefits in the event of illness." European Commission: Employment, Social Affairs and Inclusion. 2020. https://ec.europa.eu/social/main.jsp?-catId=1122&langId=en&intPageId=4992.
28.. Ibid.
29. Gov.uk. "Rates and Allowance: National Insurance contributions".

e. Data Rights

On top of enhancing and extending the existing system of rights, any new settlement must take into account the growing role data extraction plays in the expropriation of workers. To make sure that workers as well as firms see the benefits of the data economy, a new set of rights must include:

The right to access data – workers on microwork sites produce vast amounts of data, not only about their work but also their personal habits and preferences. This data should be made available to workers, so they can gather insights into work flow and working time; enhance their own working practises in ways they see fit; bolster their power in collective bargaining negotiations; and identify the kinds of data that are collected by firms and contractors.[30]

The right to a data dividend – a data tax should be levied on every microwork platform. This tax would be calculated based on a given platform's monthly profits, based on the assumption that platforms with higher profit margins are better at extracting and moneitising data. The decision as to whether payment of this tax is shared with larger requesters – clients like Google and Facebook – should be the prerogative of individual platforms. The balance of the taxes should then be paid to all workers on these platforms, based on the hours they work, as a monthly dividend.

The right to a data fund – part of the data tax should be collected in a national fund, collectively owned by all the microworkers across the platforms operating in that country. This could be invested and produce a yearly return, or go toward organising workers' conferences or a union. There has so far been little in the way of unionisation among microworkers, partly due to the geographical challenges posed by remote work, and the pressures associated with a large global pool of cheap workers. Another limit is that starting a union entails sourcing new funding.

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30. Hettie O'Brien and Matthew Lawrence, "Data and the Future of Work". Commonwealth. 20 July 2020. https://www.common-wealth.co.uk/reports/data-and-the-future-of-work.

Dangerous Brown Workers: How Race and Migration Politics Shape the Platform Labour Market

Dalia Gebrial

It is notoriously difficult to secure basic workers' rights in the platform economy.[1] Across the world, workers have organised against platformisation's most excessive violations, achieving significant gains despite the overwhelming barriers to unionisation written in its DNA.[2] Many of these struggles focus on the central contradiction upon which platforms are built: the (mis)classification of workers as independent contractors. This contradiction, whereby workers are legally and culturally defined as self-employed, yet subject to levels of employer control that often exceed traditional employment, is considered to be at the heart of many of its exploitative practices.[3]

However, platform work is not an abstract model designed in Silicon Valley and deployed top-down to workers across the world. It is an unfolding, contingent phenomenon that has emerged through and alongside particular contexts – contexts it has shaped and been shaped by, and which are critical to understanding the particular model of exploitation proliferating throughout the working world. We must take these grounded realities into account when building a platform labour movement and policy framework capable of asserting platform workers' rights.

What is the Platform Economy?

The platform economy refers to the intersection between the digital and gig economy. This paper focuses specifically on what De Stefano calls "work on-demand via apps"[4] – a subset of the platform economy where gigs are assigned via location-based apps, typically involving "local, service-oriented tasks"[5] like minicab driving, domestic work and courier work.[6] Popular apps like TaskRabbit and Uber fall under this category.

1. Mark Graham and Jamie Woodcock. "Towards a Fairer Platform Economy: Introducing the Fairwork Foundation." Alternate Routes 29 (2018): 242–53.
2. Niels Van Doorn, "On the Conditions of Possibility for Worker Organizing in Platform-Based Gig Economies." Notes From Below (2019). https://notesfrombelow.org/article/conditions-possibility-worker-organizing-platform.
3. Miriam A. Cherry, "Beyond Misclassification: The Digital Transformation of Work." Comparative Labor Law & Policy Journal 2 (2016): 1-27. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2734288#.
4. V. De Stefano, "The Rise of the "Just-in-Time Workforce": On-Demand Work, Crowdwork and Labour Protection in the "gig-Economy." (Geneva: International Labour Organization, 2016) 1.
5. International Labour Organization. 'Crowdwork and the Gig Economy (Non-Standard Forms of Employment). https://www.ilo.org/global/topics/non-standard-employment/crowd-work/lang--en/index.htm.
6. Alex Rosenblat, Uberland: How Algorithms Are Rewriting the Rules of Work (California: University of California Press, 2018).

The prevalence of this work model has skyrocketed in the past decade. In the UK, the proportion of adults doing some form of platform work at least weekly effectively doubled between 2016 and 2019 – from 4.7% to 9.6%.[7] A report by the European Commission showed that in 2018, an average of 7% of the adult working population across 14 European countries provide some of their labour over location-based apps.[8] A similar figure was reached for the US, where 7% of workers are digital gig workers.[9] Similar data for the Global South is harder to come by – however researchers are keeping an eye on the particular ways in which this work model is unfolding across Africa and Asia in particular.[10] Considering many of the biggest platforms were founded less than a decade ago, the proportion of the Euro-American workforce it engages suggests a rapid rise – and it is forecast to continue growing. Researchers have outlined how this rise was facilitated by the conditions created following the 2008 Global Recession.[11] As traditional economic and political institutions failed to protect people's livelihoods, the appeal of 'being your own boss' and promise of a job – no matter how insecure – felt like a lifeline for many.

Where is Platformisation Happening, and to Whom?

However, there is more to be said about the social, spatial and political contexts in which the platform economy has been cultivated. Firstly, platformisation is happening in particular *spaces* – it is a fundamentally urban phenomenon.[12] Its business model relies on the rapid accrual of data network effects – the data of a continually *increasing* number of people. This requires the population density and demands of cities. Gaining a foothold in heavily networked 'global cities' like London and New York is particularly key to the sustenance of global platforms, as they rely primarily on venture and data capital.[13] Platformisation is also primarily happening in particular *sectors* – namely urban and social infrastructure. This includes the obvious, like transportation and courier work. However, it also refers to social reproductive work, like elderly and child-care, private household cleaning,

7. Ursula Huws, et al., 'The Platformisation of Work in Europe', (2019), 5. https://www.feps-europe.eu/attachments/publications/the%20platformisation%20of%20work%20in%20europe%20-%20final%20corrected.pdf.

8. A. Pesole, et al., 'Platform Workers in Europe Evidence from the COLLEEM Survey.' JRC Science for Policy Report. Luxembourg: European Commission, 2018. https://publications.jrc.ec.europa.eu/repository/bitstream/JRC112157/jrc112157_pubsy_platform_workers_in_europe_science_for_policy.pdf.

9. Sarah Grotta, 'Payment for Work in the U.S. Gig Economy'. Viewpoint. Marlborough: Mercator Advisory Group, 2019. https://www.mercatoradvisorygroup.com/Viewpoints/Payments_for_Work_in_the_U_S__Gig_Economy/.

10. Mark Graham, Digital Economies at Global Margins (Cambridge: MIT Press, 2019).

11. Nick Srnicek, Platform Capitalism (Cambridge: Polity Press, 2017); Rosenblat, Uberland: How Algorithms Are Rewriting the Rules of Work.

12. Francesca Artioli, 'Digital Platforms and Cities: A Literature Review for Urban Research'. Cities Are Back in Town. Paris: Sciences Po Urban School, 2018. http://blogs.sciences-po.fr/recherche-villes/files/2018/06/WP01_2018-Artioli.pdf; Michael Hodson, Andrew McMeekin, and John Stehlin, 'Platform Mobilities and the Production of Urban Space: Toward a Typology of Platformization Trajectories'. Environment and Planning A: Economy and Space, 2020; Jathan Sadowski, 'Cyberspace and City-scapes: On the Emergence of Platform Urbanism'. Urban Geography (2020): 1–5.

13. Jathan Sadowski, 'When Data Is Capital: Datafication, Accumulation, and Extraction'. Big Data & Society 6, no. 1 (2019).

sex work, home repairs, gardening or beauty and grooming services.[14] While not often considered 'infrastructural', these services are essential to the functioning of cities, taking on the omnipresent, systemic quality that defines infrastructure.[15] Furthermore, the on-demand provision of these services is increasingly becoming a benchmark for global cities in particular.[16] Finally, platformisation is happening to particular *workers*. Existing research on the platform economy often notes that the platform workforce is largely migrant workers and/or the racially minoritised. However, this is often treated as incidental rather than a central driving force of the platform business model.

Austerity Urbanism

The post-2008 recession and its fallout had a significant impact on urban workers. It dispossessed swathes of the workforce, particularly those already marginalised by race, migration, sexuality and gender, pushing them into the hands of the insecure, 'entrepreneurial' work model offered by platforms. It also crippled public and urban planning budgets, undermining the provision of public infrastructure and creating space for private sector intervention. What Jamie Peck calls 'austerity urbanism' refers to this dual process of "government downsizing" and "rolling privatization."[17] Despite the branding of platforms as part of a 'sharing economy' – suggesting a cooperative model – the political economy of large platform companies is typical of a corporate private entity. They are profit-driven, subject primarily to antitrust and intellectual property laws and responsive to competition, rather than long-term sustainability and public value.[18]

The absorption of public infrastructure needs into the platform model is particularly visible with childcare, elderly care (both of which often overlap with cleaning work) and transportation platforms – sectors which have all been decimated by austerity,[19] yet are highly demanded in contemporary urban contexts. Services not typically considered public utilities, like private household cleaning and home repairs/household tasks, are nonetheless essential urban reproductive services reliant on a combination of unpaid and outsourced women workers – the pressure

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14. Ursula Huws, *et al.*, 'The Platformisation of Work in Europe', (2019).

15. Kendra Strauss, "Labour Geography III: Precarity, Racial Capitalisms and Infrastructure." Progress in Human Geography, 2019; A. De Coss-Corzo, H. A Ruszczyk, and K Stokes, eds. Labouring Urban Infrastructures. Manchester: Manchester Urban Institute, 2019. http://hummedia.manchester.ac.uk/institutes/mui/InfrastructuresZine191007.pdf.

16. Ashlin Lee, *et al.*, "Mapping Platform Urbanism: Charting the Nuance of the Platform Pivot." Urban Planning 5, no. 1 (2020): 116–28.

17. Jamie Peck. "Austerity Urbanism." City 16, no. 6 (2012): 626.

18. Ashlin Lee, *et al.*, "Mapping Platform Urbanism: Charting the Nuance of the Platform Pivot".

19. For impact of cuts on care work, *see*: Nick Bailey, Glen Bramley, Maria Gannon, Annette Hastings, and David Watkins. "The Cost of the Cuts: The Impact on Local Government and Poorer Communities." York: Joseph Rowntree Foundation, 2015. https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/Summary-Final.pdf; for impact of cuts on transportation, *see*: TfL. "TfL's Budget Shows Operating Deficit Almost Halved as Mayor Calls for Government Investment in Transport." London: Transport for London, 2019. https://tfl.gov.uk/info-for/media/press-releases/2019/march/tfl-s-budget-shows-operating-deficit-almost-halved-as-mayor-calls-for-government-investment-in-transport; For impact of cuts on London councils, *see*: London Councils, "London's Local Services: Investing in the Future," 2018. https://www.londoncouncils.gov.uk/our-key-themes/local-government-finance/london%E2%80%99s-local-services-investing-future/london%E2%80%99s-local.

on which is increased by the dismantling of the welfare and social state. In high-income countries, the combination of an ageing population, decreased social care provision, increased participation of middle- and upper-class women in the labour force results in demand for cheap, outsourced domestic work paid hourly.[20] This greater demand is captured by private platform companies.

The capacity of monopolistic platforms to collect vast amounts of urban data also gives them a level of insight into the city that is traditionally the domain of the state.[21] This scale and type of data collection takes on an infrastructural quality, as the "managed and built environments increasingly depend on data in real-time."[22] The acquisition of such infrastructural power by private platform companies, through a mutually dependent combination of accruing data network effects and providing cheap labour is made partly possible by austerity urbanism, in which the state not only withdraws from the provision of public social and urban infrastructure, but actively manages its transition to the private sector.[23]

20. Margarita Estévez-Abe and Barbara Hobson. "Outsourcing Domestic (Care) Work: The Politics, Policies, and Political Economy." Social Politics: International Studies in Gender, State & Society 22, no. 2 (2015): 133–46. https://doi.org/10.1093/sp/jxv011.
21. Josh Gabert-Doyon. 'What Citymapper's Business Plan Tells Us about the Future of Smart Cities'. CityMetric. 2019. https://www.citymetric.com/transport/what-citymapper-s-business-plan-tells-us-about-future-smart-cities-4800.
22. Peter Kawalek and Ali Bayat. 'Data as Infrastructure – Paper for the National Infrastructure Commission'. Data for the Public Good. London: National Infrastructure Commission, 2017, 1. https://www.nic.org.uk/publications/data-infrastructure-paper-national-infrastructure-commission/.
23. Mara Ferreri and Romola Sanyal. 'Platform Economies and Urban Planning: Airbnb and Regulated Deregulation in London'. Urban Studies 55, no. 15 (2018): 3353–68..

Immigration and the Post-2008 Infrastructural Workforce

The urban infrastructural workforces undergoing significant platformisation have historically been dominated by migrants and the racially minoritised;[24] indeed, the reliance of global cities on low-wage migrant work is well documented.[25] These sectors often have a history of informal, poor working conditions, which is related to the social, cultural and political status of the workers in them.[26] This is heightened when immigration controls are tightened, which results in a higher proportion of migrants being categorised as 'irregular.' The social and economic effects of being 'irregular,' or dancing precariously on the edge of regularity, creates a pool of workers whose material conditions make them vulnerable to labour exploitation. In this way, immigration controls function as a "tap regulating the flow of labour" and as a "mould shaping certain forms of labour."[27]

The 2008 financial crisis, and the response to it from political and financial institutions, further degraded the work opportunities and conditions for migrant workers globally. Migrant workers are often among the most vulnerable to labour exploitation and social marginalisation in times of economic crisis.[28] This manifests in the form of hostile immigration policy, a rise in national populism in response to perceived job scarcity and the outsourcing of so-called 'unskilled' labour to private companies as part of cost-cutting measures. Together, these factors place migrant workers at heightened risk of precarity and therefore exploitation.

The UK provides a paradigmatic example. Ethnic minority workers in the UK experienced the brunt of the recession - experiencing higher levels of unemployment and lower wages than their white counterparts.[29] Like many nations across the Global North, the UK has also seen an uptick in right-wing populism and conservative immigration policy, which has manifested in the 2012 Hostile Environment legislative framework. This set of policies pushes service providers, like healthcare professionals, educators, employers and landlords, to act as border agents - making them legally liable for checking someone's documentation before

24. A. Çaglar, and N.G. Schiller. Migrants and City-Making: Dispossession, Displacement, and Urban Regeneration (Duke University Press, 2018).

25. S. Sassen, The Global City: New York, London, Tokyo (Princeton: Princeton University Press, 2001); Chris Hamnett, "Social Polarisation in Global Cities: Theory and Evidence." Urban Studies 31, no. 3 (1994): 401–24.

26. Huda Tayob and Suzanne Hall. "Race, Space and Architecture: Towards and Open-Access Curriculum." London: London School of Economics and Political Science, Department of Sociology, 2019. http://eprints.lse.ac.uk/100993/3/Race_space_and_architecture.pdf.

27. Bridget Anderson, "Migration, Immigration Controls and the Fashioning of Precarious Workers." Work, Employment and Society 24, no. 2 (2010): 301.

28. Ibrahim Awad, "The Global Economic Crisis and Migrant Workers: Impact and Response." International Migration Programme. Geneva: International Labour Office, 2009. http://ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms_126183.pdf.

29. Danny Dorling, "Race and the Repercussions of Recession." Bulletin: Runnymede's Quarterly. London: Runnymede Trust, 2009. https://www.runnymedetrust.org/uploads/publications/pdfs/360-BulletinDecember09.pdf; Paul Fisher and Alita Nandi. "Poverty across Ethnic Groups through Recession and Austerity." University of Essex: Institute for Social and Economic Research, 2015. https://www.jrf.org.uk/report/poverty-across-ethnic-groups-through-recession-and-austerity.

providing them with essential services. It also creates a "labyrinthine immigration system"[30] that is complex and expensive to navigate and remain on the 'correct' side of. Migrants often find the rules change "under their feet", and lose status without realising.[31] The social effects of this framework is the criminalisation of access to the means of survival (work, housing, healthcare, banking) for those without particular versions of leave to remain,[32] and the cultivation of a culture of surveillance and suspicion[33] towards racially minoritised people.[34]

Through a myriad of political, social and economic measures, we can therefore see a rise in the systematic enforcement of fear, punishment and precarity upon racialised populations in the UK - the sharp edge of which is felt by the working class and those with uncertain migration status. This has a significant impact on how migrants interact with the labour market. Increased border controls produce precarious workforces, who are not officially unionised, unlikely to come forward cases of abuse or exploitation and whose (official or unofficial) denial of access to public services and formalised work labour makes them prone to being stuck in poor working conditions. This is because, while strict immigration controls do not abolish the root causes of migration, they do increases the proportion of migrants who are classified as irregular, or are forced to stay and live in a country through 'illegal' means.[35]

This combination of slashed public spending and the social and material precarity of migrant workers provide ripe conditions for rolling out a 'lean' model of work based on not resourcing labour rights. It is a framework that benefits from its workers being socially and politically rendered disposable, and having few other options in the labour market. Furthermore, the 'on-demand' model relies on a pool of constantly available, surplus labour,[36] the creation of which is formented by the systemic cultivation of precarity and anxiety by the Hostile Environment detailed above. Indeed, infrastructural work is not the only kind of work that is adaptable to the logistical framework of the platform model – other forms of work can be broken down into 'tasks' and mediated through a programmable digital platform (*see* Phil Jones' contribution to this collection). Rather, it is the legal, political and social contexts of urban infrastructural work and workforces that lend themselves to the political economic interests and power dynamics of the corporate platform economy.

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30. Maya Goodfellow, Hostile Environment: How Immigrants Become Scapegoats (London: Verso, 2019).

31. Ibid.

32. NRPF Network. "Who Has NRPF?" NRPF Network, 2017. http://www.nrpfnetwork.org.uk/information/Pages/who-has-NRPF.aspx.

33. This is bolstered by increased immigration raids (including in the workplace), data sharing between the Home Office and third sector organisations and public political campaigns such as Operation Vaken (Home Office UK 2013).

34. Liberty. "A Guide to the Hostile Environment." (London: Liberty, 2019). https://www.libertyhuman-rights.org.uk/issue/report-a-guide-to-the-hostile-environment/.

35. R. Andersson, Illegality, Inc.: Clandestine Migration and the Business of Bordering Europe (Oakland: University of California Press, 2014).

36. Alex Foti, General Theory of the Precariat: Great Recession, Revolution, Reaction (Amsterdam: Institute of Network Cultures, 2017).

Case Study: Uber in London

The material and social precarity of low-income migrant workers in London have helped construct the mould that shapes the platform workforce. Indeed, migrant workers turn to platform labour for many reasons. The relatively low barrier to entry is appealing to people who struggle to find work through other means; for most platforms, the 'onboarding' process is simple, quick and does not require personal networks or an interview/probation period. The dominance of platforms in migrant-heavy workforces also means that those already making a living in these sectors have had to turn to platforms to continue accessing work.

My own qualitative research with Uber drivers in London indicates that the automated distribution of work via the platform is appealing to workers who have experienced prejudice or unfair treatment by a human boss - a finding substantiated by other studies of migrant platform workers in Europe.[37] This relief is often expressed alongside frustration with and suspicion of the algorithm that designates them work - yet drivers I spoke to often sought comfort in the idea that the algorithm does not know their religion or ethnic background. This does not mean the algorithm is not shaped by racial and gendered inequalities - in fact, the rating system upon which the algorithm is based tends to aggregate existing prejudices within society.[38] Nonetheless, the relative sense of fairness and autonomy makes platform work appealing when compared to other available options.

Different platforms have different documentation requirements in the UK. Larger platforms tend to have more stringent documentation requirements and checks - possibly due to heightened media scrutiny. Most big platforms have a right to work check as part of 'onboarding,' in line with Hostile Environment legislation; in other European countries, where regulations are less strict, documentation is not required by all platforms.[39] Undocumented migrants are therefore shut out of platform labour in the UK - although anecdotal evidence and observation of online worker forums indicates a 'black market' where workers 'rent' their account for a percentage fee to those who without necessary documentation. This indicates an ecosystem of practices around the platform economy that provide one of the few paths to earning for undocumented migrants. However, this frequently sparks moral panics in the media about "illegal immigrants" with potential "criminal backgrounds" working in the UK through platforms.[40]

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37. Niels van Doorn and Darsana Vijay., "The Appeal and Challenges of Platform-Based Work from the Perspective of Three Migrant Workers - Part 2." Platform Labor, 2020. https://platformlabor.net/blog/the-appeal-and-challenges-of-platform-based-work-2.
38. Aaron Belzer and Nancy Leong. "The New Public Accommodations: Race Discrimination in the Platform Economy." The Georgetown Law Journal 105, no. 1271 (2017): 1272–1322; Julietta Hua and Kasturi Ray, "Beyond the Precariat: Race, Gender, and Labor in the Taxi and Uber Economy." Social Identities 24, no. 2 (2018): 271–89.
39. Niels van Doorn and Darsana Vijay. "The Appeal and Challenges of Platform-Based Work from the Perspective of Three Migrant Workers - Part 2".
40. Leigh McManus, "Deliveroo and Uber Eats Riders are Renting Their Jobs to Illegal Immigrants." Daily Mail Online, 2019. https://www.dailymail.co.uk/news/article-6562151/Deliveroo-Uber-Eats-riders-renting-jobs-illegal-immigrants.html.

Moral panics surrounding the prevalence of migrant workers in platform work in turn shape how platform workers are regulated by the state, and also the development of the platform model itself. A consistent theme in my research has been Uber drivers reporting feeling excessively surveilled by police and Transport for London regulators, who conduct searches and inspections in places where drives congregate, such as near airports, train stations and social hotspots. This is related to a racialised portrayal of Uber drivers as potential sexual predators and terrorists - a moral panic surrounding racialised and migrant men that has a long history in the UK, Europe and North America.[41] In 2017, Uber's license was revoked, partly citing these 'public safety' concerns, despite Uber drivers being subject to identical background checks as the white-dominated black cab industry.[42] There is also no evidence suggesting increased risk of unsafe activity by private hire drivers compared to black cab drivers.[43] The LTDA - the main union representing black cab drivers - has conducted a persistent campaign against Uber, on the basis that Uber drivers are threats to the public. Indeed, the LTDA General Secretary described getting into an Uber as "like getting in a sea of sharks" because of "these third world countries" that Uber drivers come from.[44]

The ability of Uber drivers to gather outside airports and train stations has been challenged on the basis of anti-terror laws,[45] and the gathering of racialised men in public space has been flagged by officials within TfL as a potential terror threat.[46] This has been further bolstered by extensive media coverage pointing to Uber drivers as sexual and security threats - a sense of which consistently appeared in my research as causing anxiety, frustration and fear for those trying to make a living through the platform. I have also observed consistent policing of drivers, whose cars are searched and inspected, and who are routinely asked to show their documentation. Similarly, couriers have described being frequently stopped and searched by police in spaces where they gather - such as outside restaurants (where they are often not allowed to enter) or outside 'dark kitchens' supplying food for multiple restaurants on the app.[47]

In turn, the design of the Uber app has evolved in light of this systemically enforced suspicion and hostility towards its workers. The response by platforms to these moral panics - fuelled by the state-sponsored production of marginalisation by the Hostile Environment - has been to adapt the algorithm to lower the bar of deactivation for workers. The rating system, and the management algorithm on which it is built, is centred around suspicion of the worker and the word of the

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41. Gargi Bhattacharyya, Dangerous Brown Men: Exploiting Sex, Violence and Feminism in the 'War on the Terror (London: Zed Books, 2008).
42. Transport for London. "Licensing Information." 2018. https://tfl.gov.uk/info-for/taxis-and-private-hire/licensing/licensing-information#on-this-page-3.
43. Georgina Lee, "Are Black Cabs Safer than Ubers?" Channel 4, 2017. https://www.channel4.com/news/factcheck/factcheck-are-black-cabs-safer-than-ubers.
44. Dominic Gover, "Uber: 'Third World Immigrant Drivers' Are Dangerous, Claims Black Cabbies' Leader." International Business Times, 2014. https://www.ibtimes.co.uk/uber-third-world-immigrant-drivers-are-dangerous-claims-black-cabbies-leader-1478806.
45. Sian Berry, "Proposals for Reducing Problem Parking on Pancras Road." London: Camden Green Party, 2015. https://camden.greenparty.org.uk/assets/files/localparties/camden/Pancras_Road_Parking_Proposals_Aug2015.pdf.
46. London Transport Committee. "Transport Committee - 8 July 2015; Transcript of Agenda Item 7 - Taxi and Private Hire Services in London." Meeting Minutes. London: TfL, 2015. https://tfl.gov.uk/cdn/static/cms/documents/board-20170919-item03-minutes-20170719-for-approval.pdf.
47. Sarah Butler, "How Deliveroo's 'Dark Kitchens' Are Catering from Car Parks." The Guardian, 2017. http://www.theguardian.com/business/2017/oct/28/deliveroo-dark-kitchens-pop-up-feeding-the-city-london

customer. In Uber's case, a driver can be deactivated temporarily or permanently due to a customer complaint, or if their rating dips below an average of 4.7 stars out of 5.[48] Appealing deactivation is a difficult and lengthy process, as drivers have few modes through which they can contact Uber, apart from a standardised, online complaints system. This is of course compounded by potential language barriers.

The highly reactive and severe treatment of workers, which is coded into the management algorithm, is key to how platforms cultivate trustworthiness in the context of the moral panics surrounding their workers;[49] the claim being that workers, prone to unsafe behaviour, are immediately dealt with if a customer flags their behaviour. However, this is not mutual; whilst drivers can 'rate' customers, there is no indication that a customer with a consistently low rating will lose access to their account.

This is similarly the case for Uber's recently introduced 'safety toolkit' for passengers, which includes an emergency assistance button, the option to share location with up to five 'trusted contacts', report if a driver's behaviour made them feel unsafe and access to further information about their driver.[50] Such an infrastructure of recourse to safety is not implemented in the app's affordances for drivers however, despite minicab driving being a notoriously dangerous profession, with drivers frequently at risk of abuse and violence from passengers.[51] The app design and algorithmic management model is therefore constructed around an assumption that risk only exists from the worker toward the customer. This is not based in the statistical reality of how risk is experienced on both sides, but rather in racialised anxieties surrounding the platform workforce. In this way, Uber's model has been built off the social and political status of its workers - enabling the offshoring of the model's risks, costs and accountability to its demonised and disempowered workforce.

The power of the algorithm to instantaneously cut off a worker from their income source is integral to the precarity experienced by workers; one driver described the rating system to me as "a sword on top of [his] head". With limited options in the labour market, and the dominance of particular platforms in the sector they work in, drivers frequently expressed anxiety around potentially upsetting customers, for fear of receiving a bad rating or complaint that could jeopardise their ability to work. This encourages drivers to withstand abuse, harassment or repeatedly having to undertake unprofitable rides; the phrase "keeping my head down" is a consistent theme when interviewing drivers. The lack of labour protections, stemming from workers not being legally recognised as employees, leaves workers vulnerable to dismissal without process or reason and unprotected by official union recognition. The anxiety felt by drivers as a result is compounded by the systemic imposition

48. Ngai Keung Chan, and Lee Humphreys. "Mediatization of Social Space and the Case of Uber Drivers." Media and Communication 6, no. 2 (2018): 29-38.

49. Alexandra Mateescu and Julia Ticona. "Trusted Strangers: Carework Platforms' Cultural Entrepreneurship in the on-Demand Economy." New Media & Society 20, no. 11 (2018): 4384-404.

50. Sachin Kansal, "New Safety Toolkit Arrives in the United Kingdom | Uber Newsroom United Kingdom." Uber Newsroom, 2018. https://www.uber.com/en-GB/newsroom/new-safety-toolkit-arrives-united-kingdom-2/.

51. Rene Chun, "Rough Ride-Share: Why Drivers Are Also at Risk of Violence." The Guardian, 2020. https://www.theguardian.com/us-news/2020/feb/06/uber-rideshare-lyft-safety-crime; Kristin Kloberdanz, "Taxi Drivers: Years of Living Dangerously." Consumer HealthDay, 2020. https://consumer.healthday.com/espanol/encyclopedia/work-and-health-41/occupational-health-news-507/taxi-drivers-years-of-living-dangerously-646377.html.

of precarity and exclusion from public life that the Hostile Environment creates, including the inaccessibility of Universal Credit and secure work - or work where you are not under threat from immigration raids in the workplace.[52]

By excluding migrants from the means of survival or social security, workers are pushed to withstand exploitative labour models. There is a strong sense amongst migrant platform workers that if you are spat out of the system, you will struggle immensely to get back in. The sense of systemic disposability experienced by platform workers is therefore constructed in the image of the systemic disposability resulting from the racial and migration politics of cities like London post-2008.

Policy Implications

Given the racialised and highly-disciplinary nature of the current context of platform work, migrants' rights and anti-racism must lie at the heart of an effective platform labour movement and policy framework. This is because without the coercive effects of both immigration law and racialisation (which are often interdependent processes), the conditions in which the corporate platform model has arisen and thrived would not exist – and the socio-political fabric upon which this exploitative model relies on would be compromised. This analysis is rooted in the understanding that platform work did not have to turn out this way: the digitisation of all or parts of the labour process does not unavoidably result in the exploitation we see today. Rather, the structural rendering of populations as exploitable has been captured, reinvented and adapted by changing technological and network capabilities.

1. Hostile Environment

The Hostile Environment produces material and social precarity for migrants and those perceived to be migrants. This pushes many migrant workers into a position where they have no choice but to take on poorly waged and conditioned work.

a) Steps should be taken to end the hostile environment, especially the policy that renders there being no recourse to public funds (NRPF).

b) NRPF criminalises the access to basic services for a large proportion of migrants, and especially affects those with care responsibilities. This forces migrant workers to withstand exploitative, unfair and even abusive work conditions as they have no safety net for them and their dependents in the event of income loss.

c) Scrapping these policies is key to undermining the "mould" that shapes particular workforces to be exploitable by the platform economy's current form.

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52. Lisa O'Carroll. "'It Was a Fake Meeting': Byron Hamburgers Staff on Immigration Raid." The Guardian, 2016. http://www.theguardian.com/uk-news/2016/jul/28/it-was-a-fake-meeting-byron-hamburgers-staff-on-immigration-raid.

2. Labour Rights

The algorithmic management model treats platform workers as disposable, and places added insecurity for racialised and migrant platform workers who are disadvantaged by the rating system. Instantaneous and unexplained 'deactivation' violates the norms surrounding fair dismissal as outlined by the UK government.[53] Establishing a framework of fair dismissal for platform workers is sorely needed.

a) A framework of fair dismissal must recognise that loss of income for any period of time is a drastic measure of last resort. Before dismissal can occur, workers must have a right to an extended investigation process that follows a transparently outlined procedure (see point below), the ability to be accompanied by a union representative at all stages of investigation or disciplinary procedure, a fair system of warning and a genuine opportunity for appeal.

b) Workers must also have access to a written version of the dismissal and disciplinary procedure upon starting work, which outlines exactly under what circumstances a worker can be disciplined or dismissed. This document must be available in a range of languages, and be adhered to during the investigation process.

3. Creating Demand for Jobs

If the platform labour market has been built upon - and as replacement for - decimated public services and an informalised labour market, then part of the policy response will lie in shaping a new labour market with better working conditions. One route to achieving this would be state-led job creation schemes. Such a scheme would be intended to:

a) Create alternative job options to those available in the platform labour market, with better working conditions, including employment security as well as control over working hours. Public sector workers need not have to choose between security and flexibility (as is often presumed to be the case). A practical balance between quantity of working hours, choice of working schedule and decent pay can be struck with correct policy in place.[54]

b) Meet the demands of an ageing population and repair a withered social fabric. A large (and growing) part of wealthier economies now centres upon reproductive labour. As Hester and Srnicek note, social reproduction jobs across health care, education, food service, accommodation, and social work now account for 23% to 28% of the labour force, and this only looks set to increase over the next 5 years.[55] Their analysis suggests that 47% of total job growth between 2014 and 2024 is set to be in sectors associated with social reproduction.

53. GOV.UK. "Dismissing Staff." https://www.gov.uk/dismiss-staff/fair-dismissals.
54. Living Wage Foundation, "Living Hours." 2020.
55. Helen Hester and Nick Srnicek, "The Crisis of Social Reproduction and the End of Work." Open-Mind, 2018. https://www.bbvaopenmind.com/wp-content/uploads/2018/03/BBVA-OpenMind-Helen-Hester-Nick-Srnicek-The-Crisis-of-Social-Reproduction-and-the-End-of-Work.pdf..

c) Achieve sustainability goals necessary to fight climate change. As these public works.

Such job creation schemes would echo the large-scale schemes of Roosevelt's New Deal (initiatives that were also spawned in times of crisis and extreme precarity). More radically, they could take the form of a job guarantee, that would blunt the threat of job shortages (and therefore also the power dynamics between employers and workers).[56]

Why Should the Public Sector Lead this Job Creation?

Public sector employees are relatively cheap. On Autonomy's calculations, due to National Insurance contributions and returns from income tax, the net cost of public sector employees is relatively low.[57] Creating between 300,000 and 500,000 new public sector roles, for instance, would amount to just over 1% of annual public spending.[58]

Public sector jobs offer a greater degree of protection from market volatility (and exploitative employers). As the Covid pandemic has shown, in times of crisis private employers are often the first to deal out layoffs, potentially throwing many thousands into unemployment and underemployment; conditions, as we have seen, that are fertile for the platform economy to thrive in. The public sector, by contrast, can be oriented to aims other than shareholder value and CEO pay, thus potentially providing much greater security for staff at all levels.

The More Universal the Better

As demonstrated, the platform economy exploits conditions that place racialised populations in positions of extreme precarity and inequality (both materially and in terms of opportunity). This production of a particular population (stratified predominantly by race and class) is best met with universal measures. Universalism - services with little to no cost at the point of use, coupled with a lack of conditionality - meets the needs of the most vulnerable and exploited whilst also providing social goods for wider society at large. At the same time, a rollout of universal basic services would help roll back the cuts that public services have witnessed under austerity urbanism.[59]

56. TUC (2020) "A new plan for jobs - Why we need a job guarantee." https://www.tuc.org.uk/re-search-analysis/reports/new-plan-jobs-why-we-need-new-jobs-guarantee.
57. Jones et al., "Public Sector as Pioneer." London: Autonomy, 2020. https://autonomy.work/portfolio/publicsectorpioneer/.
58. Ibid.
59. J. Portes, Reed, H. and A. Percy, "Social prosperity for the future: A proposal for Universal Basic Services." 2017. https://www.ucl.ac.uk/bartlett/igp/sites/bartlett/files/universal_basic_services_-_the_institute_for_global_prosperity_.pdf.

Against Digital Colonialism

Renata Avila

Over the past nearly fifty years, the architecture of the Internet has changed from a largely democratic network of autonomous nodes to a distributed feudal structure, which centralises flows of data into a few hands.[1] Rich countries dominate, with most of the profits heading to Silicon Valley or China.[2] The aim of Big Tech is evident. There is a race to connect the next billion people to their 'walled garden,' a version of the Internet that is no longer open or directed towards the public interest. They want to control critical infrastructure globally, from cables to satellites, in order to get their hands on the missing datasets of the global poor.[3] This paper examines this process of how dominant countries within a global system benefit from the digitisation of poor and middle-income countries in what appears to be a new form of colonialism.

I call this process digital colonialism, referring to the deployment of imperial power over a vast number of people, which takes the form of rules, designs, languages, cultures and belief systems serving the interests of dominant powers. In the past, empires expanded their power through the control of critical assets, from trade routes to precious metals. Today, it is not states but technology empires that dominate the world through the control of critical digital infrastructures, data and the ownership of computational power. By collecting the personal data of citizens on a scale unprecedented in human history, companies can serve as conduits of misinformation campaigns that can alter the flow of global geopolitics and even change the outcome of elections. As Michael Kwet has described:

> 'this structural form of domination is exercised through the centralised ownership and control of the three core pillars of the digital ecosystem: software, hardware, and network connectivity, which vests the United States with immense political, economic, and social power. As such, GAFAM (Google/ Alphabet, Amazon, Facebook, Apple, and Microsoft) and other corporate giants, as well as state intelligence agencies like the National Security Agency (NSA), are the new imperialists in the international

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1. Tai Liu, Zain Tariq, Jay Chen, and Barath Raghavan. "The Barriers to Overthrowing Internet Feudalism." HotNets-XVI: Proceedings of the 16th ACM Workshop on Hot Topics in Networks (November 2017): 72–79.

2. In this picture, the contribution of the EU market is marginal. Europe's presence manifests its power through regulation, with taxes and technical standards to operate in their markets or through litigation. The European strategy, so far, has been merely defensive and focused in the European market, but, as the paper later explains, with increased ambition and an eye on setting global standards as well. See Adam Satariano and Monika Pronczuk, "Europe, Overrun by Foreign Tech Giants, Wants to Grow Its Own." The New York Times. 19 February 2020. https://www.nytimes.com/2020/02/19/business/europe-digital-economy.html.

3. UN News, "Globally, Youth Are the Largest Poverty-Stricken Group, Says New UN Report." United Nations. 20 September 2018. https://news.un.org/en/story/2018/09/1019952.

community. Assimilation into the tech products, models, and ideologies of foreign powers – led by the United States – constitutes a twenty-first century form of colonisation.'[4]

I will add that the phenomenon is not exclusively led by the United States. China is increasingly following the Silicon Valley pattern of behaviour and playing a similar role in digital colonialism. Yet this new form of colonialism is largely invisible. Public disquiet about the growing power of tech companies only touches upon the surface of a much deeper problem. With almost half of humanity without access to basic forms of connectivity and entire countries with a pending digitisation process, new patterns of domination have just begun to emerge. This paper identifies these problems and suggests a technical and regulatory path to neutralise and reverse them in order to secure a future of digital autonomy, democracy, sovereignty and dignity.

The Infrastructural Takeover of the New Tech Envoys

Last century, car manufacturers were shaking hands with Nazi leaders.[5] Today, the CEOs of the most powerful tech companies act as envoys to seal deals with heads of state accused by human rights watchdogs of enabling genocides and crimes against humanity. In some cases, such as Myanmar, their role has been crucial for the perpetuation of a genocide.[6] The modus operandi of tech companies with poor nations resembles a continuation of former colonial relationships, this time through technology. They offer deals that appear shiny but are ultimately extractive and deprive emerging economies of a digital future they can govern. These countries use software, hardware and platforms produced elsewhere and end up shaping their entire publically funded digital education systems. Tech companies are conditioning generations to learn their way of doing technology, with no room for alternatives.

Early manifestations of this process can be seen in the 'free' provision of critical infrastructure – from cables to connectivity – to large populations. This process led to the silent privatisation of the digital infrastructure of entire nations.[7] Big Tech CEOs were meeting heads of state, shaking hands and promising alliances for a connected future.[8] The most audacious even used Washington as a backdoor

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4. Michael Kwet, "Digital Colonialism: US Empire and the New Imperialism in the Global South." Race & Class 60, no. 4 (2020): 3–26.

5. Scott Nehmer, Ford, General Motors and the Nazis (Bloomington, Indiana: Author house, 2013).

6. Paul Mozur, "A Genocide Incited on Facebook, With Posts From Myanmar's Military." The New York Times. 15 October 2018. https://www.nytimes.com/2018/10/15/technology/myanmar-face-book-genocide.html.

7. For instance, the former President of Argentina, Mauricio Macri, wanted to take the entire public administration into "Facebook at Work". https://www.facebook.com/mauriciomacri/photos/a.105382683477/10153937457908478/?type=3.

8. Anderson Antunes, "Mark Zuckerberg Meets With Brazil's President At the 7th Summit of the Americas, In Panama." Forbes. 11 April 2015. https://www.forbes.com/sites/andersonan-tunes/2015/04/11/mark-zuckerberg-meets-with-brazils-president-at-the-7th-summit-of-the-americas-in-

to reach places like North Korea, Cuba and China.[9] Some nations even opened tech embassies in Silicon Valley, signalling their availability to tech companies, which increasingly behaved like states who provided "aid" and well-intentioned efforts to digitise countries through free infrastructure and services.[10] This included proposals to build broadband cables and spread connectivity in remote areas using balloons.[11] What started as an aggressive public relations campaign around 2013 has continued discreetly by the five leading tech companies in developing countries across the world, particularly in Africa.

The accelerated penetration of tech companies in emerging markets has taken place not only via generous offers of connectivity and infrastructure to populations. Tech giants have also been providing digital infrastructure to dozens of governments, ranging from cloud services to entire mail and office suites. Amazon and Microsoft have led this process, followed closely by Facebook and Google. The fact that an entire nation delegates its digital services to a company based in Silicon Valley is alarming. The company is then in a position to handle not only highly sensitive government documents, but also is in possession of critical information relating to the entire country.

But national security advisors, parliaments and watchdogs remain largely silent about this new form of dependency aside from a few notable cases where sanctions and political pressure have been deployed. This has included the case of Microsoft providing services to Russian firms;[12] Iranian users unable to get security updates from US-based products and services;[13] and even deleted accounts on services as vital as GitHub, a platform which hosts code for developers. This is an important reflection on the fragility of a tech industry highly dependent on a US-based ecosystem of products and services, which becomes vulnerable to political vendettas, national security letters and collaboration with security services.[14]

panama/; Newley Purnell, "Mark Zuckerberg Promotes Facebook Growth in India." The Wall Street Journal. 27 October 2015. https://www.wsj.com/articles/mark-zuckerberg-promotes-facebook-growth-in-india-1445959248.

9. Tom Cheredar, "Google's Eric Schmidt Makes a Secret Visit to Cuba." VentureBeat. 29 June 2014. https://venturebeat.com/2014/06/29/googles-eric-schmidt-makes-a-secret-visit-to-cuba/.

10. Adam Satariano, "The World's First Ambassador to the Tech Industry." The New York Times. 3 September 2019. https://www.nytimes.com/2019/09/03/technology/denmark-tech-ambassador.html; Stephen Shankland, "Google's Third Subsea Cable Will Pump Data from Portugal to South Africa." CNET. 28 June 2019. https://www.cnet.com/news/google-third-subsea-cable-equiano-connect-portu-gal-south-africa-nigeria/.

11. "Project Loon" was started by Google and is now an independent company actively operating in Africa and other continents to bring connectivity with balloons. See: https://loon.com/.

12. Anastasia Lyrchikova, "Exclusive: U.S. Sanctions Curb Microsoft Sales to Hundreds of Russian Firms." Reuters. 22 January 2018. https://www.reuters.com/article/us-ukraine-crisis-russia-microsoft-exc-lu/exclusive-u-s-sanctions-curb-microsoft-sales-to-hundreds-of-russian-firms-idUSKBN1FB0MU.

13. Maziar Motamedi, "Locked out: Did US Tech Company Overcomply with Iran Sanctions?" Al Jazeera. 31 July 2019. https://www.aljazeera.com/ajimpact/locked-tech-company-comply-iran-sanc-tions-190731081829014.html.

14. Erik Kirschbaum, "Snowden Says NSA Engages in Industrial Espionage: TV." Reuters. 26 January 2014. https://www.reuters.com/article/us-security-snowden-germany/snowden-says-nsa-engages-in-in-dustrial-espionage-tv-idUSBREA0P0DE20140126.

Digital colonialism is also occurring in the classroom. An entire generation is being prepared as a potential workforce for tech giants. As Kwet has argued:

> 'the importance of technology choices for schools cannot be overstated: the specific technologies deployed will forge path dependencies by shaping the habits, preferences and knowledge base of the first tech generation from childhood. Education offers the ultimate breeding ground for Big Tech imperialism; product placement in schools can be used to capture emerging markets and tighten the stranglehold of Big Tech products, brands, models and ideology in the Global South.'[15]

Yet, in schools that can barely afford to function, refusing generous donations by tech companies offering to provide digital infrastructure, including software, hardware and connectivity, is hard to resist. There are almost no rules controlling or prohibiting such donations and no global movement seeking to increase awareness of these nefarious practices. Any effort to bring technology to schools is generally praised. But this masks a colonial diplomacy that provides the companies with more than what it costs to deliver these services. By imposing their products and services on students, and not offering even a glimpse of an alternative, an entire generation will become accustomed to proprietary services and will not be exposed to diverse products.

Workforces receiving training today will only be trained and prepared to use the technologies produced by the current wave of tech companies, creating circles of dependence. Skills developed by workers will be connected to specific products and therefore benefit the profitability of the few.[16] It will have a tremendous impact in stifling the development of new cultures of collaboration. Children all over the world are passively learning technologies they cannot improve, adapt or build upon. This stagnates digital innovation. Instead of building blocks, the children of today are provided with locked digital black boxes they have to accept as they are. Parents, more often than not, are keen and supportive of the implementation of technology in the classroom without further analysis of the tech imposed on kids. There is little awareness about the long term consequences of the choices adopted by the public education authorities. This has the possibility of effectively colonising a country beyond its future workforce as it locks organisations into specific software which will be difficult to change in the future.

This also leads to a rapid de facto privatisation of education infrastructure. It is not only the individual students that are shaped by the dominant tech firms. It is also educational data that are now in the hands of these firms, allowing them to develop further commercial products instead of facilitating an 'education data commons' that would help countries develop public interest digital services. In this new form of digital colonialism, data and money flow in one direction, with little to no privacy for digital users or taxes on the profits of tech companies. Without ownership and control over this data, developing countries cannot develop the

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15. Kwet, "Digital Colonialism: US Empire and the New Imperialism in the Global South."
16. Lionel Laurent, "Google and Facebook Are Sucking the AI Brains Out of Europe." Bloomberg, 1 July 2019. https://www.bloomberg.com/opinion/articles/2019-07-01/google-and-facebook-are-sucking-the-ai-brains-out-of-europe.

products they need to become equal participants in the digital economy. A similar situation is also occurring with health data, emergency response and even citizen security. The technology sector is rapidly moving to provide the infrastructure of oppression and control, especially of the most vulnerable, often disguised as donations. One company engaged in such practices is Palantir, which provided predictive policing systems for six years, 'free of charge,' to New Orleans.[17] Over six years, and without public scrutiny, the program experimented on the population without their knowledge or consent.

The other use of data-driven state intervention is immigration policy in the US. Discriminatory, algorithm-driven immigration enforcement was used to fuel a wave of deportations of vulnerable workers in the US, with little scrutiny or public accountability.[18] The deportation services rely heavily on a data infrastructure provided by tech giants. Today, Amazon is the custodian of the most valuable dataset enabling deportations, with questions surrounding whether they use their customer data to enhance it.

Increasingly, there is also a merger of political power and tech power in the US, which is then extrapolated to the rest of the world. A handful of huge corporations, like Amazon Web Services and Palantir, have built a 'revolving door' to develop and entrench Silicon Valley's capacity to expand their services abroad.[19] The neocolonial role of international aid takes a new shape, this time as technology, as the revolving door between the most powerful governments in the world and technology companies manifests in global diplomacy. The CEOs of tech companies navigate the world as 'new envoys' of digital colonialism – diplomats showcasing the power of their enormous technical empires to heads of state. Often, their revenues are larger than the entire GDP of their countries they are visiting, and their arrival sends a distorted message of prosperity and progress to overcome systemic inequalities and leapfrog into a better future. For many precarious and debt-fuelled governments, it is difficult to reject offers of 'free' digital infrastructure and services. In addition, current global trade rules run the risk of consolidating a regime favourable to digital empires, blocking the possibility of smaller actors to innovate and take ownership of their digital futures.

17. Ali Winston, "New Orleans Ends Its Palantir Predictive Policing Program." The Verge. 15 March 2018. https://www.theverge.com/2018/3/15/17126174/new-orleans-palantir-predictive-policing-program-end.
18. Karen Hao, "Amazon Is the Invisible Backbone of ICE's Immigration Crackdown." MIT Technology Review. 2 April 2020. https://www.technologyreview.com/2018/10/22/139639/amazon-is-the-invisible-backbone-behind-ices-immigration-crackdown/.
19. LLC, Empower, "Who's Behind ICE? The Tech and Data Companies Fuelling Deportations," October 2018. https://mijente.net/wp-content/uploads/2018/10/WHO%E2%80%99S-BEHIND-ICE_-The-Tech-and-Data-Companies-Fueling-Deportations_v3-.pdf.

The Global Regulation of e-Commerce: the Battle Ahead at the WTO

Trade agreements today are the primary source of rulemaking at the global level, encompassing an expansive list of issues. Because of this, they have become the preferred vehicle for an accelerated process of digital colonisation. Trade agreements cover a wide array of subjects that extend far beyond traditional trade matters. They have been useful tools for global corporations to dilute or eliminate government policies protecting local industries, minimise regulatory costs, challenge domestic consumer protections, weaken the leverage of local producers and maximise corporate profits at the expense of citizens' rights.

The growing significance of the Internet for international trade means that attempts at trade liberalisation of digital systems are inevitable. They are the desired vehicle for Big Tech as it is more efficient lobby than influencing domestic processes or even regional processes. A global trade agreement, even if it takes longer to approve, harmonises rules everywhere. Trade agreements are more stable than domestic legislation and cannot be modified when a new government with a different agenda is elected. Any breach to them is costly and national governments cannot legislate against them without risking dispute. Changing a global treaty can take decades and is a costly process. In brief, digital trade agreements are the modern vehicle to consolidate digital colonisation.

In recent years, global trade discussions have increasingly touched on digital issues, such as cross-border data transfers, online privacy, cybersecurity, regulation of spam, and net neutrality. Large tech companies have high stakes in these discussions, as they benefit greatly from both the elimination of what they consider to be trade barriers and also the harmonisation of regulations, which reduces the cost of compliance and government mandates.[20] Through further acceleration, we might end 2021 with a global treaty regulating data flows. This will happen at a very vulnerable institutional moment, after the 2020 Covid-19 crisis and the leadership collapse at the World Trade Organisation. The consequence of this chain of events was the suspension of the Ministerial Conference scheduled to take place and the departure of the head of the most important multilateral trade body.

The digital global trade future is both uncertain and unpostponable, and a global treaty might be inevtiable. If it takes place, the global negotiation on digital trade will not be a balanced one. It will be the result of the power of the few and the needs of the many. And, unlike in the past, heads of state will not have the final word – their leadership is rapidly being replaced by tech giants.

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20. Burcu Kilic and Renata Avila, "Opening Spaces for Digital Rights Activism: Multilateral Trade Negotiations." Internet Policy Observatory. 31 March 2018. http://globalnetpolicy.org/wp-content/uploads/2018/06/Trade-Report_IPO_FINAL_060818.pdf.

What happens now when corporations concentrated in a few jurisdictions provide all the vital architecture for digital markets? How are such dependencies reflected in the political arena, as technology becomes yet another diplomatic area of tension? In the most recent global trade negotiation, a new form of polylateralism, that is, the inclusion of non-state actors in diplomatic interactions has emerged. CEOs of tech corporations such as Jack Ma made their way to the World Trade Organisation Ministerial Conference and advocated for provisions favourable to them, organising alliances that merged developed and developing countries with tech giants. [21] The policy goal of economic development provides ample justification for the rapid digital colonisation of entire territories and the rush to approve new rules to regulate e-commerce. Multinational companies and governments together promote a utopian vision of the future in which technology will be a driver of exponential positive leaps for the global poor. However, the reality is far removed from this glittery picture. In fact, there is no conclusive data to show that e-commerce leads to meaningful development with positive benefits for the global poor.

At the moment, talks on digital trade are displacing a development agenda that could dramatically reduce poverty. Disguised as pathways to development that promise a digital future of prosperity, such plurilateral and polylateral alliances are increasingly jeopardising the future of digital sovereignty. For example, accepting the proposed terms by tech corporations in a global treaty could prevent city governments from deciding to hire local cloud providers to manage their public data commons. They could also prohibit a national parliament from restricting the use of proprietary software in schools or demanding audits on the algorithms used to score pupils' performance.

The critical question is to what extent can we rely on privatised services that may limit a country's sovereignty during an emergency or a digital social welfare intervention. These are precisely the aspects of government action that may be restricted by new global trade agreements. The net effect of these agreements has been to impose new standards and practices on people who do not really have a choice or the knowledge to understand their long-term consequences. This could be devastating for workers, creating increasingly precarious work conditions and making enforcement of local labour laws more difficult. It could even enable enhance technology-mediated global control over workers' performance.[22]

But most of the headlines, activism and attention around digital issues takes place far away from the multilateral arena. News and reporting are concentrated in Silicon Valley and certain other places. There is an absence of systematic monitoring of what is happening at the global regulatory space, where the higher risk of digital colonialism is not only present but planned and starting to be implemented. The first challenge for a digital liberation movement will be to

21. Amiti Sen, "Jack Ma Champions e-Commerce Liberalisation at WTO." The Hindu BusinessLine. 12 December 2017. https://www.thehindubusinessline.com/news/world/jack-ma-champions-ecommerce-liberalisation-at-wto/article9989936.ece.
22. Duncan McCann, "e-Commerce Free Trade Agreements, Digital Chapters and the Impact on Labour." International Trade Union Confederation. 2019. https://www.ituc-csi.org/IMG/pdf/digital_chapters_and_the_impact_on_labour_en.pdf.

block any attempt at creating a new agreement sponsored by tech companies at the WTO level. Once a global treaty is approved, tech giants will "crystallise their dominance through uniform, globally applied rules. This framework would further limit smaller actors, block the possibilities of alternatives to emerge, and constrain nation states in their ability to regulate tech companies.

The next WTO Ministerial Conference will take place while the world is still dealing with a global pandemic which accelerated global digitisation, consolidating the market dominance of tech giants.[23] It will be celebrated in a highly favourable political environment praising the benefits of technology to overcome economic and social crises. It will happen without the vigilant eye of civil society in most countries focussed on other crises. This is particularly the case in African and Latin American nations concerned with internet shutdowns and surveillance.[24] It will be the most important trade agreement to either consolidate the digital colonisation of the world or create a path towards digital autonomy and sovereignty.

A Blueprint for Digital Sovereignty

This paper highlights three key issues with which to start a critical conversation about establishing the basis for a dignified, sovereign digital future: public education, public procurement and international cooperation. I include a set of suggested steps below:

1) Public Education for Digital Emancipation

The first point is to encourage the development of ecosystems of digital skills beyond basic coding. One of the areas of strategic intervention to prevent digital colonialism is education and access to knowledge that can create active participation in shaping the digital society. Low income countries should not give up on the possibility of being actively involved in digital creation. Children should be provided with tools and trained in neutral technology to give them options in the future.

Today, many countries fail to do this, training citizens as mere users of predetermined pieces of software rather than creators of their own tools. A profound reform in the global education system is the first step to produce greater awareness of the digital products and services we consume and also the data extractivism and the dynamics of control and domination we are subjected to. It is imperative to develop an education system that explains how technology is made, and how technology could be shaped to reflect other sets of values. Retaking the power of digital creation for the next generation will reactivate the stagnated digital innovation landscape.

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23. UN News, "Globally, Youth Are the Largest Poverty-Stricken Group, Says New UN Report." United Nations. 20 September 2018. https://news.un.org/en/story/2018/09/1019952.
24. Digital Rights groups in Africa were easily neutralised and did not oppose or even scrutinise the deployment of free basics in up to 27 African nations. See Nothias, Toussaint. "Access Granted: Facebook's Free Basics in Africa." Media, Culture & Society 42, no. 3 (2020): 329-48.

2) Public Procurement to Change the Rules of the Game and Decentralise Tech Power

The role of public investment and procurement should be a fundamental part of a blueprint against digital colonialism. When imagining a blueprint for the future, governments aiming at gaining back control of vital infrastructure should put public interest first when assessing new investments in technology. They should invest in their own infrastructure to transmit data, at least for government information and also information of strategic sectors. They should prioritise and create incentives for the creation of regional data centres and for local developers and local industries to provide services and equipment. Furthermore, governments should invest more and better in decentralised platforms and services to provide citizens with a basic participatory infrastructure. They should also pass comprehensive legislation to open all black boxes, prioritising sustainability and adaptability of the systems they deploy.

This could be achieved by changing the procurement rules to protect citizens and also to allow small actors to compete and local industries to offer added value beyond just price and efficiency. Together with a comprehensive reform of public procurement of technology, an anti-lobbying frame should be put in place to regulate technology donations and aid projects, especially the large ones.

As an immediate step, attention should be directed to the practices of tech giants, exposing their machinations and questioning their narratives, especially in relation to tech education and bridging the digital gap. Instead of celebrating 'tech envoys,' media and advocacy groups need to closely scrutinise these visits and tech companies' interactions with governments. The visits should be considered as a form of lobbying and both domestic regulation and global ethical norms should regulate them. Donations from tech companies to governments should be regulated, and their acceptance, just because it is free of charge, should not be automatic. This is especially relevant to the education sector, but also important for security and internal governmental affairs. When a government seeks to deploy technology produced elsewhere and donated free of charge, the long-term consequences should be seriously considered

There should be a mandatory and open registry of 'public good' technical projects by tech companies. We should demand the full disclosure of the not-for-profit projects Big Tech companies conduct in emerging economies. Projects such as free laptops and large infrastructure projects should be evaluated as to whether they are giving more to a country than they are receiving in terms of data power. Rights impact assessments should be conducted for such projects, and the highest privacy and data protection standards available globally should be applied. This would avoid the global poor becoming the data mine and testing field of Big Tech companies. These rules should also apply to private-public partnerships.

3) A Different Era of Digital Cooperation

A third point is inter-state collaboration to develop and maintain public digital infrastructure and design a more resilient multilateral digital agenda. There is currently a lack of global coordination against digital colonisation beyond the WTO system. There are many different bodies that all play an important role in shaping our digital future, from standards bodies to institutions like UNESCO or UNCTAD. The global digital agenda cannot only look at trade, but must also consider development, cooperation and even peacebuilding.

Public sector innovation should be well funded and promoted globally, and the public sector North-South exchange should be encouraged as a new form of technical cooperation. Instead of transferring millions every year for new software licenses going to just two jurisdictions, intergovernmental cooperation in public sector free software could grow and lead to the creation of pools of code, optimising investment and resilience. The focus should be on developing local capacities inside public administrations and tech teams able to solve problems.

Designing policies against digital colonialism and a digital transformation based in sovereignty and dignity is possible. Indeed, by taking back our education system, public infrastructure and combining the power of the many, a new digital transformation based on sovereignty and cooperation can be enacted. It would be more creative, participatory and public interest oriented, with citizens and institutions creating the technology they need to serve, instead of serving the data needs of quasi monopolies.

Conclusion

For the battles ahead in the global trade arena, the path will be easier if digital cooperation is already taking place in other areas, such as public education, a new set of practices around public procurement of technology and the reconfiguration of global norms and standards. While this paper has proposed a positive agenda of creating a new public digital infrastructure, current events might prevent it from happening. The imminent global trade negotiations demand rapid action before the global trade system and emerging trade wars shut down this possibility.

The future of digital colonialism looks increasingly tied up in a global struggle between the US and China. As Juan Ortiz Freuler has argued:

> 'Everything seems to indicate that we are entering a digital cold war. If this is so, it is time for the peripheries to start giving shape to a digital non-aligned movement. Such a movement could operate as a buffer between the PRC and the U.S. – striving to protect the value of an open Internet, helping us adapt the Internet to become the knowledge-sharing tool that our times demand, and offering the necessary cover so that no nation feels coerced into joining an intranet that does not work in the interests of its people.'[25]

Activists, consumer groups and freedom advocates should design a coherent and robust strategy ahead of the next multilateral negotiations on the regulation of e-commerce. A global treaty on e-commerce could consolidate global monopolies, lead to cultural homogeneity and tie the hands of governments in their ability to adapt digital technology to their needs. To avoid a future of subjugation and exploitation, developing countries must have more of a meaningful choice aside from the pre-drafted plans of multi-national tech companies, backed by the most powerful governments of the world. The answer, as presented in this paper, is in a combination of new alliances, considerable investment in the digital transformation of the public sector, and the necessary delay of any multilateral negotiation at the WTO that could block the possibility of a more dignified digital future.

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25. Juan Ortiz Freuler, "TikTok, Trump and the Need for a Digital Non-Aligned Movement." openDemocracy. 15 August 2020. https://www.opendemocracy.net/en/oureconomy/tiktok-trump-and-need-digital-non-aligned-movement/.

Stacco Troncoso and Ann Marie Utratel

Care before Code: It's What Makes DisCOs Different

How can emergent technologies be put to use in the service of emancipatory goals to reshape how we work? The tech sector has been a great disruptor of the labour market and a range of industries. But too often this has been accompanied by increased surveillance, data harvesting and precarious labour.[1] For all their disruption, the one thing Silicon Valley has not touched is the ownership and governance structure of a typical capitalist firm.[2] How can organisations transform work in such a way as to prioritise care, relationships and social value?

We introduce the DisCO model to fulfill this purpose. DisCO stands for Distributed Co-operative Organisations.[3] This is an accessible approach to people working together to create value in ways that are co-operative, commons-oriented and rooted in feminist economics. These values are nourished in small, federated communities. DisCOs harness the utility of tech without being completely tech-centric, emphasising mutual trust and the need to have not only reliable but also enjoyable collaborative relationships. Distributed ledger/blockchain technologies are put to use when these values and their resulting human relationships have become strongly rooted.[4]

DisCOs are a cultural and structural framework combining influences from other forms and movements into a practical toolkit. The framework is based on existing, disruptive economic alternatives normally absent from the blockchain space. They are:

1. The Commons and P2P: Self-organised systems stewarding resources to meet human needs while leveraging the power of networks.[5]
2. Open Co-operativism: Combining Open Source and Commons principles with

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1. Trebor Scholz, Uberworked and Underpaid: How Workers Are Disrupting the Digital Economy (Cambridge: Polity Press, 2017).
2. Richard Barbrook and Cameron Andy. "The California Ideology." Imaginary Futures: From Thinking Machines to the Global Village. http://www.imaginaryfutures.net/2007/04/17/the-californian-ideology-gy-2/.
3. See https://disco.co-op/ and https://disco.co-op/manifesto/ for a more thorough overview.
4. For an accessible yet thorough introduction to the Blockchain, we recommend this video course, as well as Daniel Drescher, Blockchain Basics: A Non-Technical Introduction in 25 Steps (New York City: Apress, 2017).
5. See https://primer.commonstransition.org/1-short-articles/1-2-what-are-p2p-and-the-commons-and-how-do-they-relate.

those of the co-operative and social solidarity movements.[6]

3.   Open Value Accounting: Enables value sovereignty by rewarding meaningful contributions to projects, rather than wage labour.[7]

4.   Feminist Economics: Challenges normative economic abstractions while factoring reproductive and care work.[8]

These influences, together with a strong focus on accessibility and social and economic justice, provide DisCOs with vastly different affordances to other available alternatives such as Decentralised Autonomous Organisations (DAOs). DAOs are blockchain-based entities that can operate autonomously to execute payments, levy penalties, and enforce terms and contracts with minimal human interaction – like a virtual robot that can automate governance processes and execute investments and payments for an individual or organisation.[9]

DisCOs design their accounting and governance structures as convivial tools from the bottom up. These are developed through a process of community deliberation on how to best enact a series of co-operative values and principles. Shifting the design of technologies and their social impact away from grand architects and investors, DisCOs provide more democratic and ethical templates to build disruptive technologies. These, as we will see, provide different pathways to enact more desirable futures of work which are neither dependent on un-checked technological disruption or on top-down governmental interventions.

The Covid-19 crisis has been a bucket of cold water for many economic forecasts about the future of work. The abject failure of neoliberalism to provide urgently needed solutions for the crisis has exposed the structural inadequacies of the market/state, and revealed the exponential rise of voluntary or otherwise typically undervalued work.[10] Frontline workers and mutual aid practitioners are routinely hailed as heroes, yet economically sacrificed as martyrs.

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6. For more information see https://primer.commonstransition.org/1-short-articles/1-5-what-is-open-co-operativism.

7. For more information see http://wiki.p2pfoundation.net/Category:P2P_Accounting.

8. For an introduction to feminist economics see https://wbg.org.uk/blog/what-is-feminist-economics/.

9. For a more in-depth look at Decentralised Autonomous Organisations we recommend this critical overview by Primavera de Filippi: https://www.guerrillatranslation.org/2014/11/20/ethereum-freen-et-or-skynet/, for a basic introduction see https://blockchainhub.net/dao-decentralized-autono-mous-organization/.

10. On the concept of the market/state see David Bollier, "State Power and Commoning: Transcend-ing a Problematic Relationship." A Report on a Deep Dive Workshop convened by the Commons Strategies Group in co-operation with the Heinrich Böll Foundation. July 2016. https://cdn8.commons-strategies.org/wp-content/uploads/2016/07/State-Power-and-Commoning.pdf. See also David Bollier and Silke Helfrich, Free, Fair, and Alive: The Insurgent Power of the Commons (Gabriola, British Columbia: New Society Publishers, 2019).

Meanwhile, some of the world's richest companies, often in the tech sector, enjoy unprecedented growth.[11] Many of these are willing partners in publicly-funded mass surveillance and citizen control programs.[12] The surge of online remote work is treated as a disembodied extension of office work, bypassing the human affective needs of digital teams in the rush to demand more invisibilised productivity. The uselessness of alienating, unnecessary jobs that exacerbate consumption in the name of growth becomes crystal clear, yet stimulus packages are directed towards propping up big business with corporate-level payouts, while artificial scarcity hampers urgent public health responses.

Socio-economic instability can be a banquet for predators, especially when combined with promises of disruptive technology, but it also provides the opportunity for radical innovations and solutions based on human trust. DisCOs can address the Covid-19 crisis by creating bottom-up resilience and restoring our relationships – both to one another and the planet.

11. See https://www.schroders.com/en/insights/economics/covid-19-why-the-tech-giants-have-emerged-as-winners/.

12. Félix Tréguer, "The State and Digital Surveillance in Times of the Covid-19 Pandemic." SciencesPo Center for International Studies. CERI Unité Mixte de Recherche. 1 June 2020. https://www.sciences-po.fr/ceri/en/content/state-and-digital-surveillance-times-covid-19-pandemic.

DisCO in 7 Principles and 11 Values

Co-operatives have formally existed for more than 175 years and, arguably, the spirit of co-operation that led to their creation has been a hallmark of human existence.[13] The commons has long been defined as communities working together with shared resources to achieve common goals.[14] Co-operatives formalise the practice of commoning and facilitate legally regulated operations in the marketplace.

DisCO adds seven additional principles to the original seven co-operative principles in order to reunite co-operativism with its commons origins and better prepare it for technological futures.[15] Building on the groundwork laid out by movements such as Platform and Open Co-operativism,[16] the seven DisCO principles are:

1: Put your effort where your heart is: values-based accountability

Most companies and indeed, many co-operatives, orient their production toward profit and meeting market demands. In DisCOs, production is explicitly guided by need, including social and environmental priorities. This orientation towards positive outcomes is the heart of a DisCO's values. The needs-based priorities defined by the co-operative are embedded in each DisCO's legal statutes, as well as the technologies and cultural practices that let DisCOs assess and reflect on the outcomes of their effort.

2: Building whole-community governance

Co-operatives are traditionally geared towards bringing democracy to the workplace. But their economic activity has knock-on effects throughout broader chains of production and consumption. Rather than restricting democratic principles to one organisation, DisCOs extend rights of ownership and decision making powers to all those affected by a DisCO's activities. Inspired by the multi-constituent social care co-ops in Quebec, Canada and Emilia Romagna, Italy, DisCOs place measurable value on the distinctive contributions of a defined community that can include workers, neighbouring communities, suppliers, clients, those who perform reproductive and affective labor, financial backers, etc.

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13. For a condensed history of the co-operative movement see https://www.culturalsurvival.org/publi-cations/cultural-survival-quarterly/co-operatives-short-history.
14. Bollier and Helfrich. Free, Fair, and Alive.
15. See https://www.ica.co-op/en/co-operatives/co-operative-identity.
16. See our article on Platform Co-operativism and Open Co-operativism to find out about the history and differences between both movements: http://commonstransition.org/from-plat-form-to-open-co-operativism/.

3: Active creators of commons

Typical market enterprises permit the exploitation of shared wealth, such as land, natural resources or human knowledge. According to mainstream economics, businesses are drivers of a process of enclosure, whereby resources are turned into commodities and relationships into services. DisCOs reverse this trend by actively generating decommodified, open-access resources. These commons can be digital (e.g. code, design, documentation, legal protocols and best practices) or physical (e.g. productive infrastructure, deliberation spaces, machinery).

4: Rebalancing the scale: rethinking global/local economics

Corporations extract resources as if they were infinitely abundant, while restricting immaterial flows of knowledge, usually reproducible at marginal cost, through intellectual property laws and patents. Conversely, DisCOs support and provide a business model for the Design Global, Manufacture Local template.[17] Here, physical production is kept local and needs-based, while knowledge, resources and value flows are shared at the global level with like-minded initiatives to create political and cultural counterpower to the prevailing corporate/capitalist economy.[18]

5: Care work is the core

Care and affective work are essential in DisCOs and are supported through established mutual support structures. These include a rotating list of designated mentors and support "buddies" in a roster where each person both gives and receives support within the group.[19] Emphasis is placed upon openly expressing observations and criticisms about the workings of the group and also sharing individual and collective aspirations, preoccupations and humour. This helps build stronger interpersonal bonds and better trust-based communication. Beyond individual members, DisCOs extend the notion of care work towards the collective as an entity represented by the upkeep of its goals and values. This empowers individuals to undertake, or at least understand, what would usually be considered bureaucratic or administrative work. This work is often channeled to either a highly-paid upper management class, or a low-paid assistant function, both acting in the interest of the capitalist class. Upkeep of a DisCO's social mission is the responsibility of working circles or self-organised teams which collectively manage specific needs (e.g. building community, following leads for livelihood work, evaluating potential co-op members) to ensure that the DisCO is healthy and able to continue fulfilling its values.

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17. For an overview, see https://truthout.org/articles/reimagine-dont-seize-the-means-of-production/.
18. Value flows is the economic vocabulary informing DisCO interactions. For more information, visit https://valueflo.ws/.
19. See https://wiki.guerrillamediacollective.org/Mentoring. See also https://wiki.guerrillamediacollective.org/Mutual_Support.

6: Reimagining the origin and flows of value

In the capitalist marketplace, production is determined hierarchically and is exclusively oriented toward profit, while value is measured through opaque mechanisms and financial instruments.[20] Further, the value only becomes manifest through market exchange. Everything else is externalised, omitted from the value equation. In DisCOs, production is communal and value measurement is transparent. Three types of value are highlighted and rewarded:

1. productive market value (the DisCO's goods and services paid for by clients);
2. pro-bono value (the commons created through self-selected volunteer work); and
3. care work value (towards the collective and among its members, see above).

All are tracked through complementary value metrics that apply to all DisCO members. Recognising different types of value influences functions including payments, work priorities and certain key decisions. This recognition gives visibility and empowerment to other values left out by the market nexus.

7: Primed for federation

Co-operatives worldwide have a combined turnover of US$3 trillion, which is similar to the aggregate market capitalisation of Silicon Valley's largest businesses (Microsoft, Amazon, Google, Apple and Facebook).[21] Unfortunately, this economic power is dispersed, with many co-ops only nominally acknowledging the sixth co-operative principle: co-operation among co-operatives. Unlike networks, which may or may not share common goals, federations are held together by shared commitments and power is equitably distributed among all nodes. Federations also provide viable alternatives to the dangers of scaling, where a worldview is simply extended from a centre of power and forces everything in its path to conform to its values.

DisCOs are distributed and differentiated structures that replicate themselves through a standard federation protocol.[22] This allows federations of DisCOs to achieve critical mass without regimenting all parts. The modularity of DisCO Value Tracking allows DisCOs to mutualise economic power (as well as shared, non-monetary resources) for greater impact. Every node retains the levels of

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20. Alex Pazaitis, Primavera De De Filippi, and Vasilis Kostakis. "Blockchain and Value Systems in the Sharing Economy: The Illustrative Case of Backfeed." Technological Forecasting and Social Change. Science Direct, June 10, 2017. https://www.sciencedirect.com/science/article/abs/pii/S0040162517307084.
21. In 2018, these were similar numbers, but at the time of writing MAGAF has leapt to US$4.9 trillion. https://www.cnbc.com/2020/07/30/apple-amazon-alphabet-facebook-added-200-billion-in-value-thursday.html. Source for Co-operative stats: Measuring the size and scope of the co-operative economy: Results of the 2014 global census on co-operatives. Dave Grace & Associates, 9 October 2014: https://portailco-op.hec.ca/in/details.xhtml?id=h%3A%3Ac3357139-31ae-4270-83ef-9d24884e-2be3.
22. See https://wiki.guerrillamediacollective.org/index.php/Distributed_Co-operative_Organization_(DisCO)_Governance_Model_V_3.0#Federation_Protocol.

trust, mutual support and well-being that only small groups can achieve, while still achieving a larger collective impact by being part of broader economic networks. The long-term goal is to make co-operatives transcend their status as a form of economic alternative and instead, become a collective economic counterpower.

Complementary to the 7 principles, DisCOs also introduce 11 key values which, taken together, provide the framework to tackle the present challenges posed by the Covid crisis.[23] Rather than turn to big state or corporate solutions, in the DisCO model, social and environmental change is brought to life from below by federated collectives which actively educate in post-capitalist, feminist economics. Volunteer work is no longer ignored or undervalued and is factored into the value equation. Digital working teams communicate through established working rhythms, where both practical and affective realities are continually discussed.[24] Finally, all production is oriented toward the urgent issues of our time, but without sacrificing wellbeing or a friendly, enjoyable workplace environment.

These principles and values are articulated through DisCO Governance models (plural), designed to adapt to the cultural and contextual specificities of each DisCO. At the same time, they share common patterns that help fulfil the DisCO principles, as we will explain.

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23. For the additional 11 DisCO Values see: https://wiki.guerrillamediacollective.org/Open_Value_ Co-operativism_and_DisCO_in_7_Principles_and_11_Values#11_Values.
24. See https://wiki.guerrillamediacollective.org/Community_Rhythms.

DisCO-Tech and Commons Governance

The DisCO Governance model is an extensive reworking of an orphaned open source governance protocol.[25] It was developed and put into practice by Guerrilla Media Collective (GMC), a Spain-based co-operative focussing on language and communications services, which became the first DisCO pilot.[26] In 2018, a group of experts on decentralised/non-hierarchical organisations, facilitation, peer governance, distributed tech and mutualised finance were invited to help reimagine the model,[27] which resulted in a new version: The Distributed Co-operative Organisation Governance and Economic Model.[28]

Here is a brief overview. Co-op members are owners and shareholders, each holding different types of shares in the collective. These correspond to value-tracked pro bono and livelihood work, as well as reproductive or care work (see below). Shares in these three types of work determine how much is paid on a monthly basis. The money to pay shares come from the productive work performed by the co-op's worker-owners, which is accounted for in internal credits (1 credit = 1 Euro), creating shares.[29] The shares accrued by co-op members correspond to the work done in these three areas of value:

1. **Paid work** performed for outside clients who are invoiced by GMC as an agency. We call this the 'livelihood work' stream.

2. **Pro-bono work** in a DisCO's specific productive area. For example, members of GMC choose articles to translate pro-bono based on their enthusiasm and how the material aligns with their values.[30] These translations are presented in Guerrilla Translation's websites,[31] with the consent of, but at no cost to, the authors. These translations create an open knowledge commons. This is described as the 'love work' stream.

3. **Care work** which, as explained in the 5th DisCO principle above, includes 'caring for the collective and its social mission' ensuring that all the collective's administrative, communication and economic needs are cared for,

25. See https://disco.co-op/governance-model/ for the full governance model, or read this simplified overview as applied to Guerrilla Translation: https://www.guerrillatranslation.org/our-governance-model/. The original Better Means Governance Model can be read here. The changes have been so substantial that it should not be taken as a reflection of our current governance model, but mainly an inspiration.
26. See https://guerrillamedia.co-op/ and https://wiki.guerrillamediacollective.org/.
27. For a summary of the meeting see https://www.guerrillatranslation.org/2018/08/22/punk-elegance-how-guerrilla-translation-reimagined-itself-for-open-co-operativism/.
28. "Distributed Co-operative Organization (DisCO) Governance Model V 3.0." DisCO.co-op, Guerrilla Media Collective. https://disco.co-op/governance-model/.
29. For more on how this model operates in practice see the DisCO Governance Model. https://wiki.guerrillamediacollective.org/Distributed_Cooperative_Organization_(DisCO)_Governance_Model_V_3.0.
30. See https://wiki.guerrillamediacollective.org/Guerrilla_Translation%27s_Goals_and_Values.
31. Guerrilla Translation currently has two blogs (English https://www.guerrillatranslation.org/ and Spanish https://www.guerrillatranslation.es/) to present their pro-bono 'Love Work,' with other languages planned for the near future.

and 'caring for the humans that make up the collective.'

These are proportionally accounted for and treated as shares, and are the basis for the distributions of income.[32] Note that the same value metrics are used for both types of productive work (in this case, translations). DisCO's model of income distribution diverts a portion of paid work towards the pro-bono work previously performed by members. Net funds held on account are distributed on a monthly basis: 75% to pay members' agency (livelihood) shares, and the remaining 25% pays for pro bono (love) shares.

Meanwhile, reproductive work is tallied in hours and distributed according to each member's ratio of benefits versus contributions.[33] These care work hours dynamically affect the 75%/25% Livelihood/Love split described above. Members who performed fewer care hours while earning more in the Livelihood/Agency or Love/Probono streams will have a proportional deduction from their pay. Those adjustments are redistributed towards those contributing more care hours. In practice, this means that if all members perform roughly the same amount of care work over a month, the 75%/25% split on Livelihood and Love shares will remain intact. Any imbalances are immediately compensated. The system enables flexibility and fair compensation toward activities that each DisCO values as essential for their health and reproduction.

This type of share-holding is in contrast to that found in a corporation. While shareholders in a corporation accrue power through money, the DisCO model treats power differently. DisCOs value forms of power understood as 'shared capacity to act' and 'collective strength' centered around work undertaken for the commons.[34] A corporation employs wage labor to produce profit-maximising commodities through privately owned and managed productive infrastructures. By contrast, DisCOs work together for social and environmental purposes while also creating commons and building community, locally and/or globally. The model allows members to choose to do work that they consider value-aligned, and therefore worthwhile. This is how DisCOs model a practice of economic resistance.

Various things are accomplished through this method. First, all members can gain income for both types of productive work, whether pro-bono or paid for by a client. Second, nobody has to compete internally for paid work versus the equally important pro-bono and care work. All three types of work are equally valued within a DisCO. Meanwhile, there are variable tiers of external pricing based on the client's means and budget.[35] Clients with the greatest financial means who are aligned with the DisCO's principles and values, and who wish to provide support for developing its mission, are offered the top tier rate. Extra income from this level of client payment goes directly toward repaying the collective's internal pro-bono

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32. For more details on how income is distributed in a monthly basis, read the DisCO Governance Model's section on "The Monthly Payment Pipeline": https://wiki.guerrillamediacollective.org/Distributed_Co-operative_Organization_(DisCO)_Governance_Model_V_3.0#What_this_looks_like_in_practice:_the_Monthly_Payment_Pipeline.
33. For more information, consult the DisCO Governance Model's section on Care Work Value.
34. For a short overview of power to/over/with/within, see this article: https://www.powercube.net/other-forms-of-power/expressions-of-power/.
35. For the pricing tiers (as used by Guerrilla Translation) see the DisCO Governance Model.

shares (this additional income is also used to offset the cost for work performed for clients in the 'solidarity tier,' i.e. value-aligned small organisations with minimal or inadequate budgets). This sliding scale helps nurture relationships and supports collectives and initiatives with the least financial means, creating better and fairer access to the DisCO's services.

Currently in testing phase, the DisCO Deck is a custom platform being developed to facilitate the value tracking, redistribution and payment protocols of this governance model. Based on the Value Flows economic vocabulary,[36] DisCO Deck balances lightweight, DLT tech (such as CommonsPub) for Intra-DisCO accounting and blockchain technologies for transactions and value mutualisation with other DisCOs and generative economic entities.[37] In contrast to an automated platform auto-executing smart contracts (i.e. DAO), the DisCO Deck will help educate mission-oriented co-operatives in new, inclusive economic flows that support all their members.

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36. See https://valueflo.ws/.
37. See https://commonspub.org/.

DisCO Policies

What needs to happen for DisCOs to grow and flourish across the economy? This is the purpose of the DisCO Project: to provide educational tools and experimental spaces for the transnational development of DisCO.[38] It's an undertaking that needs ongoing support to reach a broad base of potential advocates and participants.

DisCOs are designed to be developed from the bottom-up. To create the desired co-operative economic counterpower, they will need to find each other and network through agreements. Supportive legal and policy frameworks would greatly enhance some of the potentials described in this paper. As explicitly political and federated initiatives, DisCOs also act as a training ground for deliberative and inclusive decision-making processes, preparing members for responsible civic action. In this way, DisCOs could act as pilots to prefigure new forms of policy around networked politics.

Given DisCO's transnational orientation, the following recommendations are general and non-domain specific. Individual DisCOs and federated DisCO networks need to actively campaign for legislative change at various levels in applicable jurisdictions. Additionally, the objective is for the state to provide the necessary infrastructure to empower and protect the creation and upkeep of DisCOs, but not direct the process of federated DisCO development.

Arguably, the development of DisCOs centered on ecologically and socially-oriented work can directly address urgent crises at their root, radically democratising social and public health provision and large infrastructure management. This lessens the need for costly post-hoc state interventions and brings a more democratic distribution of economic power, alleviating government enforcement of redistributional strategies through taxes or benefits.

DisCOs also provide solutions for state actors by providing meaningful employment, narrowing the digital divide, and actively addressing the gendered aspects of work. To support these goals we propose that states and municipalities enable DisCO development through:

1. The provision of special economic incentives for DisCOs, implemented as:

    a. Tax benefits, including reducing the tax rate dynamically calculated against measurable social and environmental gains, social security bonuses for employing underprivileged or marginalised persons and more;
    b. State-supported microcredit systems with demurrage based interest rates based on achievement of co-defined social provision goals. These can be delivered through co-operative banks, some of which may practice forms of DisCO accounting. State-supported social and crypto currencies are another possibility;
    c. Direct financial injection and social investment through renewable, interest-free loans. These can act as seed funding for DisCOs and

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38. For more information see https://disco.co-op/disco-project/.

enable positive credit valuation;

   d. Public subsidies towards DisCOs Worker Self Directed Nonprofits as a more democratic and mandate-accountable alternative to traditional NGOs;[39]
   e. The monetary value of employee pro-bono work could be treated as a tax-deductible contribution to the non-profit co-op.

2. The development of legal frameworks to provide DisCOs with appropriate institutional (i.e. state, federal) support to facilitate their operation and innovative accounting practices.

3. The development of commons-public partnerships as an alternative to the established public-private, following the Preston and Evergreen models,[40] with DisCOs facilitating:

   a. Municipal service provision for local economies;
   b. FLOSS-built & open licensed, common-pool civic knowledge resources;
   c. Practical workplace education on feminist economics, the commons, decentralised technology and the ethical market sectors offered by participating DisCOs.

4. Supportive municipal policies for provision or support for physical infrastructures for DisCOs, including hackerspaces, hackerlabs, maker and co-working spaces. Unused municipal facilities could serve as short- or long-term incubators for knowledge work, skill sharing and technology transfer, as well as for the development of new, federated DisCOs.

5. Support of community investment funds for federated DisCOs, with dispensations for:

   a. DisCO federation contributions;
   b. Tax-exempt charitable donations;
   c. State sponsorship (see point 1).

6. DisCO-oriented work training programs with DisCOs providing practical education in their specific sectors, as well as the DisCO methodology and tools. This would include credit convalidation for higher education.

7. Research and higher education support, leveraging existing DisCO open-access documentation, training programs and pedagogical materials.

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39. Read more on worker self-directed nonprofits here: https://www.theselc.org/worker_selfdirected_nonprofits. Guerrilla Media Collective is constituted as a non-profit and socially oriented worker owned co-operative legally registered in Andalusia, Spain.
40. For more on commons-public partnerships (the order of words is important) see https://www.common-wealth.co.uk/reports/public-common-partnerships-building-new-circuits-of-collective-ownership.

8. Support of DisCO initiatives as bottom-up facilitators of Green New Deal projects. Compared to public-private solutions, this would:

   a. Disburse funding for GND projects more equitably and at a lower risk;
   b. Enable substantial savings, absent a profit motive;
   c. Bring the benefits of impact at scale through highly federated actors, focused on regenerative economies of scope, not scale.

9. Prioritisation of DisCOs and DisCO federations over for-profit entities when capitalising on products/services derived from publicly funded research, including healthcare and medicine, code and end-consumer products. This would ensure fair pricing, ethical application and open licensing.

10. Policy development in concert with the International Labour Organisation and the International Co-operative Alliance to recognise transnational, onchain DisCOs as federated co-operatives.[41]

At present, a variety of DisCO pilots in various sectors such as the arts, textile recycling/reuse, permaculture, education, online marketplaces and medicine are presently being created. Research findings from these pilots would experientially validate DisCOs advantages and potentially facilitate policy uptake. Complementarily, there is abundant existing research on many of DisCO's formative influences, such as multi-constituent social solidarity and co-operative sectors, existing Commons-public partnerships, the benefits/savings of FLOSS, blockchain/DLT experiences in record keeping and inventory tracking, can be included into DisCO-focused policy proposals.

DisCOs are designed to be autonomous in operation and not state dependent. From a legal standpoint, co-operatives are private entities. But in the interest of long term remediation — social, economic, environmental — governments would be called upon to prioritise support for generative, restorative industries, and to divert funding and subsidies away from harmful, extractive and exploitative ones. If DisCOs, to paraphrase the IWW, aim to 'build the new world in the shell of the old,' it must be acknowledged that the old world still holds vast amounts of power.[42] The affordances of radical, prefigurative projects such as DisCOs will always be affected by the constraints of existing systems, including public policy.

What DisCO proposes is radical economic subsidiarity: distributed production and economies not of scale, but of multi-faceted scope. With the increasing awareness and discussion (even if divisive) of our many global crises, taking a stand becomes more important, collectively and individually. Covid-19 has required countless people

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41. Onchain and Offchain are terms used in the DAO space to distinguish algorithmic based governance (Onchain) from human agreements (Offchain). We argue that the very dichotomy of off/onchain elevates the blockchain as the primary focus of attention, subordinating social practices. In the DisCO Manifesto we argue that everything occurs 'onlife' where the corporeal dimension and human and environment needs precede all other consideration. For a simple description of Onchain/Offchain governance, see: https://education.district0x.io/general-topics/what-is-governance/off-chain-governance/.
42. Industrial Workers of the World. For their website: https://iww.org/ To read their history: https://en.wikipedia.org/wiki/Industrial_Workers_of_the_World.

to work from home, which has also raised many reflective questions on the purpose and effects of those jobs. For true change to happen we must first address the productive and reproductive spheres of work, the decisions about what we produce and why, and how we regard fairness in the way we treat each other. Lasting change can't be predicated on individualistic patterns of consumption, but consider this question: as citizens (more than consumers), can we continue to support the exploitative labor practices of the ever-growing economic power monopolies exemplified by Amazon, or do we see ourselves capable of contributing to the revolution of work, as exemplified by DisCO?

While compatible with existing economic forms (i.e. co-operatives) and actively working to subvert the right-libertarian bent of most blockchain economics towards associationist ends, DisCOs also pave the way for decommodification and non-market exchange thanks to their commons orientation. They train us to resist and create capacity for whatever the future may hold.

Finally, DisCOs place a new and more empowered political subject at the centre. Beyond the precariat, DisCOs exist to care for and reproduce commoners – understood as people in communities who steward their own resources according to the rules, norms and values they set for themselves. With the sustenance of 2.5 billion people depending on natural resource commons and an abundance of commoning practices taking place in digital spaces, mutual aid groups, food production, cohabitation and fablabs and makerspaces, the logic of commoning is evident in the ongoing Covid reality.[43] DisCOs catalyse these practices into a feminist economic and care-oriented framework, paving the way for pervasively sustainable commons-based alternatives to the dominant order.

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43. See https://www.theguardian.com/commentisfree/2020/mar/31/virus-neighbours-covid-19.

DisCO Resources

The DisCO Project is constantly creating new resources to advocate for DisCOs. Sign up to the DisCO.beat newsletter for updates. Also, see DisCO.co-op's stories section for more stories.

DisCO.co-op website

DisCO Manifesto

1 minute DisCO video trailer

Short intro article: Last Night A Distributed Co-operative Organisation Saved My Life: A brief introduction to DisCOs

Practical experiences of Guerrilla Translation as a DisCO: Tales of a DisCO Straight from the Dance Floor

Take back the App! Episode of the Laura Flanders show featuring DisCOs, Platform Co-ops and more…

April 2020 DisCO Webinar recording

45 min presentation (and audio/podcast version) Rage Against the Machine and Science Friction: a video introduction to DisCOs.

All Your DAOs Belong to Us (interview with the DisCO CAT – Community Algorithmic Trust)

Deliberate Dancing: A Critical Investigation of DisCO's Potential to Re-Politicise the Economy. (Research paper)

DisCO Governance model Overview from Guerrilla Translation and Full model.

The Co-operativist Challenge to the Platform Economy

James Muldoon

After a year of hard work, you want to plan a short vacation in the summer to relax and unwind. You log on to Airbnb and search through their listings to find an affordable short-term rental property. Barcelona, Valencia and Amsterdam all look promising so you start doing more research. But then you learn about neighbourhoods overrun by tourists with up to one Airbnb listing for every four properties; property barons with over 100 listings, taking houses off the long-term market; and Airbnb suing cities to fight against regulations designed to protect local residents and collect tourism taxes.[1] You also see an article about renewed plans for the company's public listing post-coronavirus, which could see it's venture capitalist backers cashing in to the tune of US$18 billion.[2]

But as you read more, you learn that in each of the three cities there is a co-operative alternative that promotes sustainable tourism. Fairbnb.coop, founded as a co-operative in 2018, enforces a "one host/one house" rule to prevent the displacement of local residents and invests half of its 15 percent commission in social projects chosen by hosts and travellers. The co-operative aims to develop into a multi-stakeholder platform in which local hosts could support their own social projects and plan what's best for their city. It sounds like a nice idea, but how realistic is this as a viable alternative? Currently, it's only available in a select few European cities. You wonder if this model could ever take off and if it could spread across different industries. This paper examines the potential for the development of UK platform co-operatives and provides specific policy recommendations to support the growth of the sector.

The Rise of Platform Co-operativism

Platform co-operatives adopt the democratic ownership and governance structure of workers' co-operatives and utilise a digital platform for the sale of goods or services. Advocates contend that platform co-operatives offer a fairer alternative to current business models through a plural ownership and governance structureimproved conditions for workers and real engagement with stakeholders.[3]

1. Rebecca Mead, "The Airbnb Invasion of Barcelona," The New Yorker. 22 April 2019. https://www.newyorker.com/magazine/2019/04/29/the-airbnb-invasion-of-barcelona; Niko Kommenda, Helen Pidd and Libby Brooks, "Revealed: the areas in the UK with one Airbnb for every four homes," The Guardian. 20 February 2020. https://www.theguardian.com/technology/2020/feb/20/revealed-the-areas-in-the-uk-with-one-airbnb-for-every-four-homes. Paris Martineau, "Inside Airbnb's Guerilla War Against Local Governments," Wired. 20 March 2019. https://www.wired.com/story/inside-airbnbs-guerrilla-war-against-local-governments/.
2. Erin Griffith, "Airbnb Says its I.P.O. Plans are Back on Track," New York Times. 9 June 2020. https://www.nytimes.com/2020/07/15/technology/airbnb-ipo.html.
3. For further reading on platform co-operatives see Trebor Scholz, "Platform Cooperativism: Chal-

They emerged in the late 2000s and there are currently around 400 initiatives in 97 cities in the eco-system, with plans for an index produced by the Platform Cooperativism Consortium based at the New School for Social Research in New York City. Platform co-operatives such as Fairmondo, Stocksy United, Equal Care Co-operative, Faibnb, Coop Cycle, Up & Go, Resonate, Modo and Locomotives Cooperative are beginning to challenge dominant companies in a range of different industries.

The principles behind platform co-operativism are not new. Workers' co-operatives have a long history in the UK and US stretching back to the Rochdale Society of Equitable Pioneers, founded in 1844, establishing the Rochdale principles on which certain co-operatives continue to operate. These principles included open membership, democratic control (one person, one vote), equitable distribution of surplus, limited return on equity and the promotion of education. Today, the co-operative economy is worth £38.2 billion per year in the UK with 7,063 independent co-operatives employing 241,714 people and having over 14 million members. This amounts to around 1% of business turnover, although roughly half of this is accounted for by two large co-operatives: the Co-operative Group and the John Lewis Partnership. The platform co-operative market, in contrast, is extremely limited with only a handful of platform co-ops trading consistently in the UK.

The Co-operative Economy[4]

£38.2 billion per year

7,063 independent cooperatives

14 million members

lenging the Corporate Sharing Economy," Rosa Luxemburg Stiftung. New York City, 2016; Trebor Scholz and Nathan Schneider, eds., Ours To Hack and Own: The Rise of Platform Cooperativism, a New Vision for the Future of Work and a Fairer Internet (New York: OR Books, 2016).
4. Co-operatives UK (2020) The Co-operative Economy Report 2020. Co-operatives UK. Manchester. Icons created by Aneeque Ahmed, Larea and Thomas Knopp from the Noun Project.

In 2018, the UK incubator program, UnFound, was launched to support the development of platform co-operatives by providing them with an education program, and mentoring on business support, governance models, pitching and funding strategies.

A report published by Nesta and Co-operatives UK in 2019 called for further investigation into how platform co-operatives could be supported through different capital models, regulatory regimes and funding.[5] In the same year, Anna Burnicka and Jan J. Zygmuntowski published a report revealing that in Europe roughly €1.3 billion of financial resources could be allocated to platform co-operatives in order to support the development of the model.[6]

A Typology of Platform Co-operatives

Platform co-operatives can be divided into a number of subcategories based on their ownership structure and main activities. The graph below shows the range of different options available to organisations wishing to adopt the platform co-operative model.

Figure 2. A Typology of Platform Co-operatives

	Labour platform	Online marketplace	Governance/ software	Data/ resource sharing
Worker-owned	Up & Go	Fairbnb. coop	Loomio (co-op run platform)	Driver's Seat
Producer-owned	Guerrilla Translation	Stocksy United		
Multi-stakeholder	SMART	Fairmondo	Collective Tools	Cooby tec
Consumer-owned				MIDATA

Information sourced from the Internet of Ownership Platform Co-operatives Directory.

5. Simon Borkin, "Platform co-operatives – solving the capital conundrum" Nesta and Co-operatives UK. London, 2019.
6. Anna Burnicka, Anna and Jan J. Zygmuntowski "#CoopTech: Platform Cooperativism as the Engine of Solidary Growth," Instrat. Warszawa, 2019.

1. Ownership structure:

Worker-owned: the workers of the co-operative collectively own and manage the organisation. This could involve close collaboration in the day-to-day management of the collective or allowing a group of individuals to run the platform while workers gain increased benefits from their work due to their co-ownership of the platform.

Producer-owned: producers of the goods or services sold on the platform collectively own and manage the organisation. Producers of products such as music, photography and household goods can use a shared platform to pool resources and benefit from network effects without necessarily collaborating in the design and marketing of their products.

Consumer-owned: businesses owned and managed by consumers with the aim of fulfilling their needs. There are many examples of non-digital consumer collectives from credit unions and electricity co-ops to food co-ops. A number of data co-operatives have emerged in which individuals pool their data to form a trust to be controlled democratically by its members.

Multi-stakeholder: An umbrella term which incorporates a range of different co-operatives that include workers, users, founders, service providers and broader community members as part of their ownership and governance structure. An example is Resonate, a stream-to-own music platform in which artists (45%), listeners (35%) and workers (20%) all have a stake in the co-operative.

2. Activity:

Labour platform: a digital platform to connect workers with clients to fulfil short-term, on-demand, tasks such as cleaning, care work, food delivery and ride shares.

Online marketplace: facilitates online transactions between multiple parties – either for the sale of goods, digital services or experiences. The role of the platform is to connect parties and reduce transactions costs through creating a system of trust.

Governance/software: platform co-operatives that develop new online tools and systems for social co-ordination and group management. This could be software that allows other organisations to streamline workflow or facilitate new processes of digital democracy.

Data/resource sharing: these platform co-operatives can be ways for consumers to share resources, pool data in the form of a data trust or enable users such as patients to ensure the safety and social utility of their medical data.

The typology is not exhaustive as it is difficult to create a simple table that would incorporate every type of platform co-operative. There are a wide variety of activities platform co-operatives could undertake, which could lead to a number of other columns added to the table. Future typologies might also try to distinguish between different classes of ownership and governance to create three dimensions

of analysis.

Many platform co-operatives are incorporated through the required legal structure, but the most important aspect of being a co-operative is upholding the international co-operative values and principles. Not all co-operatives involved in digital work could be classified as platform co-operatives, only those that use a multi-sided platform as a core part of their business model. Similarly, not all businesses that engage in "sharing" or collaborative forms of work and distribution of resources are true co-operative following the co-operatives values and principles.

Between Entrepreneurialism and Emancipation

Platform co-operatives aim to create alternative organisational forms to corporate platforms such as Airbnb, Facebook and Amazon. This is based on their democratically owned and governed structure and on their pursuit of a social goal rather than being a purely for-profit enterprise. Some of their leading advocates such as Trebor Scholz – who popularised the idea in 2014 – understand the movement as aiming to remedy the corrosive effects of capitalism by creating a more collaborative and less exploitative economy.

As a movement, platform co-operativism harks back to the original spirit of the Internet as an open, shared and non-commercial space of collaborative production. It seeks to facilitate new forms of digital work that do not rely on hidden forms of data capture and the precarious labour of a digital underclass.

But there is a certain ambivalence regarding the precise aims of the movement and its relationship to existing economic and political structures. For some, platform co-operatives seek to benefit individual co-operative members and their local communities by offering fairer working conditions in which members share the full fruits of their labour. In this vision, co-operatives would exist alongside for-profit companies in a mixed economy developed through a change in consumer behaviour towards more ethical and co-operative businesses.

Institutions such as Co-operatives UK have argued that the co-operative model offers significant business benefits such as boosted productivity, innovation and resilience. They point to studies demonstrating co-operatives have certain advantages in comparison to conventional firms. For example, They are almost twice as likely to survive their first five years of trading and are more productive than conventional businesses with less staff turnover, lower absenteeism rates, staff working "better and smarter," and production organised more efficiently.[7] This is due in part to workers being more involved with their organisation, higher levels of

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7. Ed Mayo, ed., "The Co-operative Advantage: Innovation, co-operation and why sharing business ownership is good for Britain," Co-operatives UK. London, 2015.

trust and more effective knowledge sharing.[8] Co-operatives also promote a more equitable distribution of profits and a lower pay differential between executive and non-executive workers.[9]

A more radical vision for platform co-operatives is one which views them as agents of resistance against capitalism and the embryonic starting point of a post-capitalist and co-operative society. This transformative ideal draws from the thinking of co-operativists from the early 19th century such as Robert Owen, who imagined co-operatives as leading to an ideal harmonious society. The radical potential of co-operatives was also seen by Karl Marx who understood them as 'great social experiments' that could serve as transitional institutions between a capitalist and future communist society.[10] This radical vision looks beyond what a single co-operative could do for its members; it seeks to imagine how a movement of co-operatives could begin to have a larger impact on a transition towards a new economic system. The idea is that through a gradual and peaceful evolution new values and practices will emerge which will come to replace the competition, poverty and insecurity of a capitalist mode of production.

In reality, most platform co-operatives exist in a space between these two poles, combining an ethical business model that seeks innovation and increased productivity alongside a broader desire for social change. For some, the desired end goal is some kind of suitably tamed capitalism or market socialism, while for others it is a post-capitalist and co-operative society. The question is whether operating as a co-operative enterprise within a competitive capitalist economy creates contradictory tendencies that could undermine the ultimate goals of social transformation.

Critics have argued that co-operatives cannot compete against corporate firms because their competitors will always be more willing to lower wages, cut costs, and pursue aggressive business practices in the face of competition. Rosa Luxemburg believed that cooperatives 'are obliged to take toward themselves the role of capitalist entrepreneur – a contradiction that accounts for the failure of production cooperatives, which either become pure capitalist enterprises or, if the workers' interests continue to predominate, end by dissolving.'[11] The international history of co-operatives throughout the twentieth and twenty-first centuries reveals that they have struggled to compete with corporate firms and scale beyond small initiatives, with even the most remarkable examples – such as the Mondragon Corporation – offering mixed results.

Marisol Sandoval has studied platform co-operatives and through extensive interviews has highlighted the paradoxes of the "entrepreneurial activism" that they adopt: 'on the one hand it seeks to restore a collective alternative imagination, but on the other hand it surrenders to market power by relying on the organisational

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8. Virginie Pérotin, "What do we really know about worker co-operatives? Cooperatives UK. Manchester, 2016.
9. Mayo, "The Co-operative Advantage".
10. Karl Marx, Inaugural Address and Provisional Rules of the International Working Men's Association.
11. Rosa Luxemburg, Social Reform or Revolution (Militant Publications, London, 1986).

form of a business enterprise to advance this vision.'[12]

Once in competition with other firms, there is a tendency to pursue goals that would advance the interests of the co-operative and to become siloed from broader social issues. While there are many examples of co-operatives that have provided for their members, there are few historically significant instances of workers' co-operatives leading social struggle that has created significant change in broader society. The historical evidence suggests that co-operatives are most promising when considered alongside other forms of activism and political change. This would involve working through trade unions, municipal associations and state institutions.

Despite these limitations, platform co-operatives can still play a vital role as one piece of a broader institutional puzzle of a new economic system. This would require the cultivation of an ecosystem of support from local councils practicing community-wealth building and local procurement strategies to a revitalised labour movement and struggles in workplaces. There are a number of specific institutional forms of support that would be required for platform co-operatives to continue to scale.

Policy Challenges for the Platform Co-operative Ecosystem

In comparison to other European countries such as France, Italy, Switzerland and Germany, which have some of the largest co-operative economies in the world, platform co-operatives in the United Kingdom face a particularly inhospitable climate. They have limited sources of funding, face complex regulations and statutory duties, and must deal with a general lack of awareness about their business model. Due to these hurdles, there are few platform co-operatives that have emerged in the UK out of start-up phase. This paper highlights three major issues for emerging platform co-operatives:

1. Finance

Platform co-operatives face difficulties in accessing sufficient capital for startup and development, with venture capitalists and even impact investors reluctant to invest in the co-operative model due to a lack of return on investment. The Welsh Co-operative and Mutuals Commission found that half of all co-operatives have experienced difficulty in accessing finance.[13] A lack of capital hinders the capacity of platform co-operatives to develop the necessary infrastructure and software to compete against corporate platforms and meet consumer expectations.

Research has begun into alternative schemes such as the "community shares" model which provides a non-transferable share in the company with "one-member,

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12. Marisol Sandoval, "Entrepreneurial Activism? Platform Cooperativism Between Subversion and Co-optation." Critical Sociology 34, no. 1 (2019): 51-79.
13. Welsh Cooperative and Mutuals Commission (2016) Report of the Welsh Co-operative and Mutuals Commission, Welsh Co-operative and Mutuals Commission.

one-vote."[14] Shares would be withdrawable at the discretion of the co-operatives board. This model is designed for patient capital and would encourage a form of crowdfunding in which individuals and organisation could invest without granting a wealthy shareholder disproportionate influence over the direction of the co-operative. So far, over £150 million has been raised through this method across the United Kingdom.[15]

However, there are limitations to the amount of institutional investment that could be available through this model as it would exclude most venture capitalists and limit investors to community members, trusts, foundations and philanthropists. Many larger organisations have their own criteria and requirements attached to their grants which may not fit with this model. It has been most successful at mobilising a community around a platform co-op to invest small amounts of money in its initial phases of development.

Another funding idea has been a proposal for the establishment of a National Investment Bank to supply capital specifically to the co-operative, mutual and social enterprise sector.[16] This has the advantage of opening up a larger pool of capital without co-operatives having to source funding from within their own networks. A National Investment Bank would fill a gap in the supply of patient capital that is currently not provided by the private sector and venture capitalists.

2. Regulation

For platform co-operatives to prosper in the UK they will require a more user-friendly regulatory framework to make it quick and simple to start a new co-operative and to convert existing companies into co-operatives. Currently, the entire legal and regulatory framework is designed for companies, often providing disincentives for individuals to form co-operatives due to the extra layer of rules and regulations not faced by private companies.

Co-operatives must register with the Financial Conduct Authority rather than Companies House, which adds costs and burdens them with more onerous reporting duties. Co-operatives UK has gathered evidence that suggests issues with HMRC and Companies House resulted in up to £11,000 in additional costs for some newly converted co-operatives societies.[17] Converting companies also resulted in the status of "Closed/Converted" on their records leading some banks to take this as denoting closure. Furthermore, it created ambiguities with HMRC, sometimes requiring new registrations and partial accounts.

Co-operatives UK has worked with its members and government to create a clear agenda for improving the legal and regulatory framework for co-operatives to make it easier to form new co-operatives and to safeguard against cooperative degeneration. Currently, starting and running a co-operative is more costly and

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14. Simon Borkin, "Platform co-operatives – solving the capital conundrum" Nesta and Co-operatives UK, London, 2019.

15. More information on community shares is available at http://communityshares.org.uk/.

16. Mathew Lawrence, Andrew Pendleton, Sara Mahmoud, "Co-operatives Unleashed – Doubling the size of the UK's co-operative sector". New Economics Foundation. London, 2018.

17. Co-operatives UK, "Making it easier to convert a company into a society," 5 February 2020. https://www.uk.coop/making-it-easier-convert-company-society.

complicated than it needs to be and action urgently needs to be taken to reduce this burden on the co-operative sector.

3. Support

The co-operative model is not widely known, making it difficult for individuals to understand the different options open to them when starting a new business. It also increases the difficulty for other institutions to engage with co-operatives once they are established. There is a certain familiarity with the traditional business model of corporate platforms that ensures it remains dominant in comparison to platform co-operatives.

For those starting out as a new co-operative there is limited education and support to help them navigate the early years and establish the know-how to run their co-operative business. It is more difficult for them to seek financial advice, engage in business planning and understand the lifecycle of a co-operative. Another challenge faced by co-operatives concerns staffing, with greater difficulties in attracting, hiring and retaining staff members who may see the co-operative model as less attractive than traditional businesses.

It is crucial for co-operatives to have specialist advice available to them that address problems specific to their sector. The current lack of government interest in and support for the co-operative sector makes it less attractive for further investment and development.

Policy Recommendations

To ameliorate these three main barriers for platform co-operatives, this paper recommends the following constructive steps to help support the sector:

1. a new co-operative-friendly legal and regulatory framework
2. the creation of a national platform co-operative incubator
3. new municipal-level digital centres to nurture new platform co-operatives
4. a Digital Innovation Fund for the co-operative sector to provide capital for scaling

Policy Recommendation 1: the UK government should establish a legal and regulatory framework that addresses the specific needs of co-operatives.

Starting and running a platform co-operative should be as easy as a company limited by shares. The government should simplify the current regulations to remove disincentives for emerging businesses.[18] In addition, it should provide:

1. statutory duties for public bodies to promote co-operatives and consider co-operatives over private enterprises for government contracts.
2. taxation incentives for profits from co-operatives reinvested back in the development of the co-operative.
3. an alternative to the current discrepancy between establishing a for-profit enterprise via Companies House versus a co-operative via the Financial Conduct Authority
4. education programs aimed at raising awareness of the benefits of the co-operative model for businesses and the broader economy.
5. Clarification on internal policy for how companies can convert to co-operative societies while continuing as the same corporate entity for tax purposes.

Policy Recommendation 2: the UK government should fund a national platform co-operative incubator that provides new co-operatives with the training and seed funding needed to get started.

Those interested in founding new platform co-operatives to serve socially useful purposes require a clear pathway for how to move from startup phase to trading consistently. The idea behind a national incubator program is to create a new model of a startup incubator that mirrors certain aspects of the Y Combinator design, but supports ideas that would provide social value rather than generate large profits for investors.

The government-funded program should combine seed funding to pay a platform co-operative's expenses in the early phases in addition to working with them to figure out how to refine their ideas and help them understand the purpose and direction of their co-operative. It could be based on the pilot accelerator program

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18. See also Lawrence, Pendleton, Mahmoud, "Co-operatives Unleashed".

developed by UnFound with eight platform co-operatives in 2018. It should also be sensitive to the issue of gendered and racialised exploitation reproduced within the co-operative economy and therefore designed to help founders from marginalised communities and those underrepresented in the tech sector.[19]

Policy Recommendation 3: Local councils should create a digital hub in each municipality to support the development of platform co-operatives.

After the initial support of an incubator program, platform co-operatives will require working space and support in specialist business planning, financial management and scaling. A digital hub would provide these to new co-operatives who could rent out space at the hub from a municipal council for subsided rent. The hub would also be a centre for running support and mentoring services to platform co-operatives for the first years of the co-operative's lifecycle.

One prototype for this model is Space4, a tech co-op working space, supported by Islington Council in London. The local government purchased a long lease on a property and selected tech co-op, Outlandish, to run the space to support a new generation of tech co-ops.

Policy Recommendation 4: the UK government should establish a Digital Innovation Fund to provide capital for platform co-operatives to expand their business.

The next step in the life of a platform co-operative would be to take an existing prototype or model that has proven effective and to expand its operation. To compete with existing corporate platforms, co-operatives would require significant capital investment which could be achieved through a new fund, similar to proposals for a National Investment Bank for co-operatives, proposed by the New Economics Foundation. Keeping in the spirit of co-operatives, the Fund could have worker representatives on it to ensure co-operatitve members had a seat at the table.

This Fund would provide the capital needed to adequate finance the co-operative sector with a specific emphasis on the types of loans needed by platform co-operatives. It would allow successful platform co-ops to access levels of finance that could not be provided by a community shares model or other crowdsourcing activities. Such funding would need to be limited to a select few co-operatives with a proven track record and excellent potential to make a significant social impact with their model.

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19. Niels van Doorn, "Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy," Information, Communication & Society 20, no. 6 (2017): 898–914.

Recoding our Digital Future

To find an alternative to the extractive platform models of Big Tech we need to support the digital co-operative economy with greater levels of investment and support. Platform co-operatives will only thrive in a well-developed ecosystem of supporting institutions and infrastructure that enables co-operatives to grow. New democratically controlled alternatives to corporate platforms do not necessarily create the conditions for a transformation of the broader economic system, but they do provide the basis for empowering workers, fairer businesses and a collaborative culture of shared value creation. They could serve as practical examples of an alternative ownership model, offering inspiration for further struggle and political organising.

Paths Forward for the Study of the Digital Economy

Nick Srnicek

Twenty years ago, the digital economy could plausibly have been portrayed as a niche sector. Today, that no longer holds true. Key elements of the digital economy – data, computing, networks, platforms, and so on – are increasingly fundamental infrastructure for the global economy as a whole. This has only become more pronounced with the current Covid-19 crisis, as companies like Amazon, Apple, Google, and Microsoft make plays to expand their digital empires across new work-from-home realities and to implement themselves at the heart of the new surveillance architecture of pandemic healthcare. In this short piece, I want to reflect on where contemporary research on the digital economy stands, and give some thought as to where it has yet to go. There has been a significant and growing body of research paid to the different elements of labour, platforms, and capitalism within the digital economy. But as I hope to show, there still remains major gaps in our knowledge.

Labour

Perhaps the area that has received the most scholarly attention to date is that of workers in the gig economy. Uber drivers epitomise the figure of the worker in the modern digital economy: precarious, ostensibly self-employed, poorly paid, algorithmically managed, and increasingly organised and resistant. Mountains of books and articles have been written about this form of work, its relation to longer-term labour market trends around outsourcing and precaritization, and the parallels to earlier moments of capitalist history before the standard employment relation became the Western norm.[1] We know a great deal about the demographics of the people taking this work, about the legal loopholes that enable companies to evade labour laws, and about how these workers are using new tools and tactics to fight back. The amount of attention paid to this type of work is understandable as a reflection of the ongoing attacks against labour rights and protections – Uber-like work appears as the imminent future of work for many.

While the apparent rise of the gig economy may signal qualitative consolidations in the precaritization of work, the quantitative importance of this work is often overstated, with relatively few workers being involved in such work – and even fewer in the ride-sharing and food delivery jobs that receive the most attention from

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1. Steve Vallas and Juliet B. Schor, "What Do Platforms Do? Understanding the Gig Economy," Annual Review of Sociology 46, no. 1 (2020); Ursula Huws, Labor in the Global Digital Economy: The Cybertariat Comes of Age (New York: Monthly Review Press, 2014); Katherine C. Kellogg, Melissa A. Valentine, and Angèle Christin, "Algorithms at Work: The New Contested Terrain of Control," Academy of Management Annals 14, no. 1 (2020): 366–410.

academics and policy makers. Most workers remains outside the gig economy – and even within platform-mediated gig work, more workers are involved in caring for others than in carrying passengers. This is one of the endemic gaps in the literature – the fact that surveys of gig work repeatedly show that household services is the largest type of work being performed via platforms, yet the level of attention this work receives is far less than Uber, Deliveroo, or other similar businesses.[2] There has been relatively little attention paid to the conditions experienced by these workers, their demographic make-up, or their business model, despite their overwhelming significance to the world of digital work. Given the ongoing growth of social reproduction work in the advanced capitalist countries, this neglect of platform care labour is striking. How is this digitally-mediated work related to the ongoing crises of social reproduction? How does it impact the global chains of care that have been studied by many? How does it reflect class, race, and gender differences – and how is it impacting their consolidation? We currently know little that might help us answer these sorts of questions, and future research needs to focus on carers as much as couriers.

Platforms

If gig work has been a significant focus of academic research, so too has its capitalist firm corollary, the sharing economy. Research on companies like Uber and Airbnb has proliferated in the last decade with a number of scholars patiently taking apart the self-mythologising discourse of innovation performed by these platforms and their investors. The idea that these firms are innovators, democratisers, or even profitable has received sustained (and justified) criticisms from many quarters. The more general business model – that of the platform – has also been analysed from multiple angles. The impact of these intermediaries, and the ways in which they differ from more traditional business models, have been examined by critical scholars, business consultants, economists, and many more. The importance of network effects, the role of cross-subsidisation, and the significance of data to these firms has been well covered at this point, as has the importance of fostering ecosystems of groups with a stake in improving and maintaining the platform.

Much attention has also been given to another widespread internet-based business model, that of the ad-driven (or surveillance-driven) business. Companies like Facebook and Google have built their massive conglomerates on the backs of personal data siphoned off from billions of users. Turning this data into the promise of targeted advertising has become the entire foundation of these companies (despite growing concerns about whether these promises pay off). Yet at the same time, the shadowy data industry that runs parallel to these major platforms – comprised of innumerable data brokers and other similar firms – has faced relatively little scrutiny, either in academic research or in the press. These companies, like Acxiom or Datalogix, are not household names, but they function as surveillance machines just as much as Mark Zuckerberg's platform does. We need

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2. Ursula Huws et al., "The Platformisation of Work in Europe: Results from Research in 13 European Countries" (Brussels: Foundation for European Progressive Studies, UNI Europa, and University of Hertfordshire, 2019), 22; Davide Dazzi, "Gig Economy in Europe," Italian Labour Law E-Journal 12, no. 2 (2019): 100.

to know more about these companies – who they are, what they collect, who they sell data and data products to, and so on.

In the past couple of years, attention has increasingly been paid to artificial intelligence (AI) as the deep learning revolution continues to change many aspects of businesses and the economy more broadly. In this vein, the focus has almost solely been on the uses made of AI – for facial recognition, assessing job applications, and so on. A number of scholars have pointed out the biases inherent to many of these systems and the ways in which they perpetuate existing social hierarchies. Facial recognition algorithms have consistently been shown to be inaccurate – particularly so for people of colour. AI systems used to sort through job applications have likewise been revealed as easily gameable and often biased against non-white-sounding names and working class backgrounds. In response to these types of issues, many organisations and academics have put forth calls for AI ethics – a set of principles that would lay out the legitimate, fair, and equal use of AI. While the specifics of these principles vary from proposal to proposal, they all nonetheless remain focused on the use of AI: what is the appropriate way to deploy this technology?

By contrast, the provisioning of AI has seen much less scholarly attention. By this we mean the fact that contemporary AI requires large amounts of not only data, but also hardware and skilled labour. The capacity to create, tune, and deploy an AI system typically lies in the hands of a few AI providers – companies like Amazon, Google, and Microsoft (not to mention Alibaba and Tencent in Asia). These companies are also heavily involved in the world of cloud computing as the basic infrastructure for AI provision. While cloud computing receives some journalistic and critical scholarly attention (as when journalists periodically come to realise how difficult it is to escape Amazon Web Services),[3] cloud AI continues to go virtually unnoticed. This is important because, if AI is going to become a widespread economy-transforming technology (and the jury is still out on whether or not the hype will be borne out), then the owners of that technology are in an immensely powerful strategic position. The organisation of contemporary artificial intelligence requires that all but a handful of companies and users rent access to AI services rather than owning these themselves. This leads to an immense concentration of capital in the hands of a few planetary-scale companies, and a relationship of dependency by all other AI-using firms. At the moment, too little attention is being given to the ways in which AI provision, as opposed to AI use, are changing the economy.

That being said, the issues around concentration and specifically Big Tech have received a vast amount of attention in recent years. Whereas not long ago antitrust issues were deemed irrelevant for a world where services are provided for free to consumers (a relic of the Robert Bork school of antitrust thinking, where consumer welfare in the form of prices is the only valid indicator of a monopoly), today it has become common sense to recognise that the leading tech companies are monopolies. The meaning of that term may still be disputed, and the mechanisms

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3. Vincent Mosco, To the Cloud: Big Data in a Turbulent World (Boulder: Paradigm, 2014); Kashmir Hill, "I Tried to Live Without the Tech Giants. It Was Impossible.," The New York Times, 31 July 2020. https://www.nytimes.com/2020/07/31/technology/blocking-the-tech-giants.html.

which are driving the monopolisation of these firms is still being debated, but the very fact of their existence is now accepted by nearly everyone outside of industry lobbyists. This scholarly discussion is increasingly reflected in the policy world as well, with Europe leading the way in pro-competition policies and with parties like the Democrats in America appearing to shift towards similar ideas. There are still uninterrogated assumptions about the links between the problems of Big Tech and the size of Big Tech (e.g. will privacy or fake news concerns be reduced by proliferating platforms?),[4] but the pro-competition side is an increasingly significant body of research.

However, there are still gaps in this literature, particularly on the theoretical side of things. We do not have a very well-defined idea of the relevant markets for any given firm, for instance. Take Amazon: is its relevant market 'online retail in the US?', 'retail in the US?', 'online retail in the world' or something else? Depending on how one defines the market, Amazon can occupy anywhere from 1% of the market to 40% in some countries. Similar issues hold with a company like Facebook. Are they competing with Tik Tok, or do their competitors extend to LinkedIn? Netflix? YouTube? The inability to theoretically pin down a relevant market has led these companies to routinely argue that they in fact occupy only a small portion of the market and that they face threatening competition everywhere. We could use more work on this issue.

Similarly, we do not yet have a well-articulated theory of Big Tech's merger and acquisition activity. We have numerous descriptions of who these companies are buying and we have a growing number of exposés about how these companies are going about the acquisition of smaller companies. But we broadly lack a systemic idea of why Amazon or Google, for instance, are purchasing the companies that they are. On top of this, all of the largest tech companies are increasingly involved in corporate venture capital and other investments into start-ups. These can sometimes be openly contradictory – for example, SoftBank funding both Uber and its rivals – but there are any number of other tensions within the investments of these firms. Tracing out the networks of investments that these companies are making will give us a better insight into the patterns of growth. But we also need theory about capitalist strategy in the twenty-first century. If vertical growth was once the goal of the early twentieth century giants, what is the goal today?

Capitalism

One answer here is the expanding search for ever more data. Companies are to some extent buying up others simply in an effort to harvest new sources of data from across society. The role of data in contemporary capitalism has been very well covered – with the idea that 'data is the new oil' being perhaps the dominant image of the digital economy's novelty. Even before the rise of deep learning, 'big data' was already a well-established object of research, with many scholars outlining how and why companies were making use of their novel access to millions, billions, and

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4. Nick Srnicek, "The Only Way to Rein in Big Tech Is to Treat Them as a Public Service," The Guardian, 23 April 2019. https://www.theguardian.com/commentisfree/2019/apr/23/big-tech-google-facebook-unions-public-ownership.

even trillions of data points. However, the question of 'value' still remains largely indeterminate even when it comes to data. Pinpointing the value of data remains difficult, not only because of uncertainties about its use value for companies, but also because its value is heavily dependent on context. Issues like this are particularly important when considering policies around data sharing and open data, but also nascent ideas around personal data markets (e.g. how to determine the value of one's data?).

More broadly, value in the digital economy is a topic which remains contentious. Some critical theorists have argued for the notion of 'free labour': that our unpaid online activities (e.g. socialising with friends, watching a streaming service, sharing memes, and so on) are in fact value-producing activities within a (modified) Marxist framework. According to this approach, value creation is pervasive within the digital economy, with billions of users doing unpaid work to create the value and subsequently skyrocketing stock valuations of the biggest tech companies. More mainstream accounts have instead focused on ideas of value that go uncounted in GDP figures. Here, concepts like 'consumer surplus' suggest that the major tech companies often create value for consumers that, because of the services' free nature, goes unmeasured by the official national accounts. Users get benefits from Google Maps, WhatsApp, and other services, despite not paying money for them – and this, according to some mainstream accounts, is a vast source of value for the economy. Others have argued for the importance of intangible capital as a value which is increasingly important but poorly measured by existing macroeconomic metrics.[5] Still others (myself included), however, have argued that these ideas of value creation obscure a more fundamental value capture by the platform giants. Rather than being engines of growth, they instead function more as rentiers that siphon off value from the rest of the productive economy. As we've seen in the case of AI, for example, the concentrated ownership of the digital means of production entails the ability to charge fees for access – without ever relinquishing control or ownership. The issues around monopolisation, provision of AI, and value end up tied together into a system of circulation increasingly dominated by a few companies.

This leads us to another area of relatively little scholarly attention: the globe-spanning nature of these firms is leading to a transformation of existing international hierarchies and the creation of new forms of digital colonialism. While there are a number of notable exceptions,[6] most of the relevant work on these issues has gone under the more neutral heading of digital trade. In these discussions – undertaken in the academic world but also heatedly in international negotiations within bodies like the World Trade Organization – issues around who owns data, who gets access, and what digital sovereignty entails are all routinely

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5. Jonathan Haskel and Stian Westlake, Capitalism Without Capital: The Rise of the Intangible Economy (Princeton: Princeton University Press, 2017).
6. Parminder Jeet Singh, "Digital Industrialisation in Developing Countries: A Review of the Business and Policy Landscape" (The Commonwealth, 2018); Michael Kwet, "Digital Colonialism: US Empire and the New Imperialism in the Global South," Race & Class 60, no. 4 (2019): 3–26; Nick Couldry and Ulises Mejias, The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism (Stanford: Stanford University Press, 2019); UNCTAD, "Digital Economy Report 2019: Value Creation and Capture - Implications for Developing Countries" (Geneva, 2019). https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2466.

debated. Too often, the debate is presented simply as the virtuous 'free flow of data' versus the reactionary data nationalists, but this neglects the myriad ways in which the unfettered flow of data in fact consolidates the power of the US and China as data inexorably flows towards the platform giants located there. There is very little existing research, in other words, about the ways in which control and power are being built up through these global platforms, and even less on how major tech companies are writing the rules of the global system in their favour. More attention needs to be given to the mechanisms of power and the implications of control here.

Lastly, research on the digital economy has also raised the issue of what the alternative to a world of tech monopolists might look like. For most policymakers, the answer is often smaller companies who will presumably have less power and act more responsibly. The pro-competition policies of the EU are the leading example of this approach. Others have made more transformative efforts to outline what worker-owned platform cooperatives might look like. Ranging from theoretical proposals to actually existing alternatives, this movement towards platform cooperativism offers a striking difference from the monopolistic digital economy form. However, other alternatives to the platform giants tend to have gone underdiscussed. We might imagine here government-supported and/or publicly-owned platforms for care services, for instance.[7] Yet there is relatively little work that has been done on the potentials – and the immense challenges – that would face such an option. We also lack many detailed studies of individual technologies and their potential to be repurposed within a post-capitalist world. Can there be such a thing as a communist AI, for example? Or does contemporary AI's reliance on mass amounts of data render the technology intrinsically a surveillance tool? What role could cloud computing play in a post-capitalist world? It is worth remembering that in the early ages of the mainframe computer, the emancipatory vision was of a world where people could rely on computing as a public utility. Too often, when we discuss the politics of technology, we fall into binaries of good or bad, when in reality technologies offer a variety of affordances that resist easy categorisation. If we are to build a better world, we need to not only have critiques of this one, but also visions of a better one.

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7. Luke Richards, "Automation and Healthcare: An Interview with Helen Hester" (London: Autonomy, 2017). http://autonomy.work/wp-content/uploads/2018/08/Helen-Hester-Interview-02.pdf.

Letter to a Digital Worker

McKenzie Wark

Dear fellow digital worker,

I hope this message finds you swell. Oh, fuck that. Let me start over. Greetings! We don't know each other, but it seems like we do the same job. Do you find yourself staring into a screen and clicking around a lot? Me too! Sometimes I talk to other people who also look at screens and click around.

The apps and programs we stare at are probably very different and I likely have no clue as to what expertise you bring to your clickery. And yet it is also likely that we have similar computers, connected to the same digital infrastructure if you trace it all down far enough. Who knows? Maybe our 'work product' is sitting next to each other on the same servers, nanometres apart, somewhere in the world, even as we speak.

If we met at a party, maybe we would not get along. Maybe we have different styles of presenting ourselves, different tastes, different interests. Maybe you think the digital work I do is useless. Maybe I think the kind you do is evil. Or vice-versa. We may be quite different sorts of people culturally or politically or in terms of educational background. That makes it hard to get at our common experiences.

Like me, you probably have to interact with other people who are digital workers, who do things that neither of us really understand. If you go to the doctor, they will probably look at a screen more than at you. Same with your accountant and many other professionals you might see. Order a drink in a bar and your server will enter it on a touch screen. About all that really changes across these jobs is how rare the skills are to do the clicking and hence how replaceable you are.

I'd also venture that you worry about the same things I do. About whether you'll ever get a secure job, or if you have one, how long you'll keep it. About becoming obsolete and replaced by someone more up to date. About whether you fit into the social dynamic with your co-workers and how much effort that takes. About whether your boss may or may not be an idiot and that you'll go down when they do. About whether any particular thing you do, or even your whole line of work, really has any meaning or value in the grand scheme of things. About all the other far more interesting things you could do with your time if there weren't bills to pay.

Much of your leisure time, like mine, is probably also mediated by screens, whether it's a streaming service, social media or a game. Digital labour has, as its double, digital leisure. You might even be doing your digital labour and digital leisure on the same computer, through the same screen, maybe even in the same room. Games sometimes feel much the same as my job, except that in games, when I fuck it up, I get do-overs.

What do you do to get away from the screen? It's good to get away from it. There's a whole raft of services that offer a compensatory feeling of being in touch with the world. I like to go to the gym and push hunks of metal up and down. Feels good to use the muscles of my body. Although, to be honest, this is also digital leisure in that I'll have my headphones on, listening to podcasts or techno mixes.

Over the last few years, before Covid, I went back to rave culture, which at first seemed ridiculous at my age, but on the dance floor nobody cares and after a few hours of pounding beats into my body I can feel like it's really there again. But then if I look over at the DJ what I see is no longer turntables, but digital input and mixing devices. My leisure turns out still to be digital—and to be someone else's digital labour.

Sometimes I really want to get away from it all, so my partner and I will pack up the car and go to the countryside—'upstate' as New Yorkers call it. There we can really get away from both digital labour and leisure. Or so we imagine, but then we end up putting bucolic pictures on Instagram. In any case, to pick the day to go we need the weather app, and to find the route we need the map app. The digital seems to insinuate itself into our desires for its opposite.

Then there's what I'd call digital non-work. It isn't work in that I don't get paid for it. It isn't exactly leisure in that it is not in itself an activity I choose to enjoy. For instance, just walking around, with my cell phone in my handbag, I'm generating data for various companies about my movements. It's being fed into various algorithms; in the short run, to figure out how to sell me stuff; in the long run, to model all that humans do—so that machines can do some of it instead.

We live in a world that seems to bifurcate sharply between work that is digital and work that is, for want of a better word, analogue. I see an extreme version of this among those of my friends who happen to be people like me: trans women. There's been an acceleration in the number of trans women who have been able to carve out successful careers in information science and related fields. They are conspicuous in the trans community as having money and security of an order that most trans women can't even dream.

On the other hand, I know a lot of trans women who do sex work. It is often the only work sisters can get. You could see it as the opposite path: making a living by emphasising the analogue pleasures of touch, or even really of just good company, emotional release and the entertaining of a client's fantasies. A lot of their clients, my sex worker friends tell me, stare at screens and yammer at phones all day.

There's a psychic and somatic cost to digital labour. It makes our bodies feel like sacks of shit. It makes our heads swim and throb. It makes us emotional trash fires. That in turn generates whole industries which at least pretend to make us feel better. Go to the spa and have a massage. Go to the climbing wall and conquer a simulated mountain. Go unload on your psychotherapist. Or, hire a sex worker. The efficiencies extracted from digital labour seem to require ever more elaborate compensations to restore the analogue world of sense and touch.

And yet here again the digital insinuates itself into the analogue. Trans women who are escorts need a digital presence to find clients. Those who don't physically meet their clients need not only a platform to advertise and to perform but also a way to do financial transactions. Since their labour is in many places not legal, their livelihood is at the whims of service providers. They experience in an acute form what many of us do: that underneath digital labour and leisure, and also under analogue pursuits that depend on some level of digital mediation—are the big platforms that host and track all these activities—and collect the rent.

It's not just that your digital labour, or mine, ends up being monetised by giant companies that happen to own the interfaces and servers and connecting vectors of the information economy. Some of those same companies seem even more interested in owning our information. They own not just the data produced by our labour, non-labour and leisure, but data extracted and extruded out of everything around us, living and non-living.

Control of the world through the control of data seems to be the way that power works these days. Both governments and corporations are moving in that direction. The actual making of a product or the delivery of a service seems to be a low value activity compared to controlling the information about activities, both actual and potential. The contemporary form of governance is to own as few actual things as necessary, but to extract a maximum amount of data out of every activity within sight, so they can predict all possible futures—and own them.

It wouldn't be the first time that a ruling class emerged out of grabbing hold of something that was not theirs and making it their property. That's the history of colonialism and capitalism. Grab the land, grab the resources. Grab the labour and force work out of it without giving enough in return to sustain that labour. Then go turn some other people into workers by taking their land out from under them. The new wrinkle is that this process now includes grabbing information from all of us and making that their property as well.

The theft of information leads to the wielding of its ownership over and against us. That's bad for all kinds of workers, including digital workers. Our autonomy over our work is being confined by its reduction to observable and measurable actions. You could call this proletarianisation. What industrial organisation did to craft workers, informational organisation is doing to us. The skills we have are stripped down to their component gestures. Those that can be quantified are assigned to machines.

If it's bad for us, it's even worse for a lot of analogue workers. Here I'm thinking not so much of my sex worker friends as of workers who are driving trucks and cars, filling orders in warehouses, assembling products on assembly lines, or serving people in shops. It can all be monitored and measured ever more closely. A pause of a few seconds in the life of a warehouse worker can generate an 'inactivity report.'

Its entirely possible that it's your job as a digital worker to make the work of analogue workers even worse. Or it might be your job to make people feel that making things worse for analogue workers is 'innovation' or something. Or maybe your work is to offer solace or compensation for all that we have lost. I sometimes think that's all that the books I write achieve. There's digital work that does the thing, and then there's digital work that explains and justifies or even critiques the doing of the thing. Regardless: we don't always have much choice about the work we do. Like analogue workers, we're at work because we don't own the means of production.

But unlike analogue workers, our work can be less about performing an action over and over within a defined labour process. Sometimes our job is to design that labour process itself. Or design it out of existence. Or make it sound and feel like a good thing that it went away. The problem being of course that our own jobs can also be designed out of existence or made routine. So we're caught up as both subject and object of the process of proletarianisation.

The decision we have to make, as digital workers, is where our interests lie. It's the mission of governments and corporations to make us as inessential and replaceable as analogue workers are. Our bargaining power is only as good as the uniqueness of our talents. The transformation of labour processes into modular, repeatable, measurable tasks is eating away at our workplaces, not to mention our souls. It's time to get organised.

There's a couple of steps to this. The first is recognising that we have common interests. Digital labour is often presented as a matter of an individual career. We're trained to think of ourselves as on some unique path. We view our immediate peers as rivals. In some ways we have to. We are pitted against each other—and in ways that are increasingly subject to 'metrics' of one sort or another. The first step is to try to find common interest with those who are closest to us in the kind of work we do.

The second step is to think of this commonality more broadly, as extending to all digital workers. Here we might be less instinctively inclined to think of others as rivals. The problem is more to stop thinking of others as doing something less important, or incomprehensible, or just not anything like what we do. And yet: don't you and I both stare at screens? Use our training and experience to click around? Don't we both worry about the same sorts of things?

Could we even think about a shared class interest among digital workers? Twenty years ago, I proposed thinking of us as a 'hacker class.' It isn't the best term. People tended to think I just meant computer people. Nowadays the media have reduced the word hacker to criminality. So that word won't do. Let's just call ourselves digital workers. We do very different things, and don't share a common culture. But all of our work is becoming quantifiable and interchangeable within a political economy that runs as much on digital labour power as it does on analogue labour power.

The next level of solidarity is to think of ourselves simply as workers. It's a useful exercise to look critically at what one is obliged to do as labour, no matter what it is. In the seventies, Italian feminists proposed 'wages for housework,' as a slogan that drew attention to the unpaid labour of women. Work that didn't make the commodity in the factory, but which made the worker who would.

The artist Laurel Ptak took the 'wages for housework' literature and turned it into an art project that accidentally became a social movement: 'wages for Facebook.' It's a critique of what I'm calling here digital non-labour. All that stuff we do for free for the giant companies that ingest all the information we give them and turn it into business strategies against us.

So maybe labour is a much broader category these days. The image of the worker from labour movement kitsch—picture a big-chinned Man with Hammer—just won't do anymore. Particularly as it tends to lock us into a dated image of the real worker as a white man whose work is factory work.

There might still be subtle differences between what I'm calling digital workers— us—and what I'm calling analogue workers. It's a crude distinction, and no work is ever just one thing or the other. The difference though is between those things that involve the clicking and those that don't. The work of selection on a screen, as different to work that involves pushing one's body through a series of variable movements to change on object's position, directly in the world.

This sounds a bit like the older terms manual and intellectual labour, or even skilled and unskilled labour. But I think there might be different possibilities to thinking about digital and analogue labour. It isn't always the case that digital labour is a better thing to be doing. I know some very successful sex workers, including some who prefer that work to more controlled and constrained digital labour. It also seems somewhat judgy to call someone else's work manual or unskilled.

So let's think then about digital and analogue labour, as all being labour but a bit different in the work done is subsumed into commodity production. One difference is that with most analogue jobs, the labour ends when the working day ends. With a lot of digital labour, it's not so clear when it ends. Ever quit work, with some long list of tasks undone, and have them all stewing away in your brain, the whole rest of the evening?

On the other hand, we'd all have to admit that not all our time on the job is 'productive.' Sometimes I just sit at my desk and fool about with my Twitter friends. It's hard to get good quality work out of us all the time. Its even harder the more our jobs are qualitative to begin with. Commodity economies are just not very good at things that can't really be directly measured. Which is why today's ruling class has a mania for measurements, no matter how arbitrary.

When we do come up with something of quality, some configuring of the information on our screens, it is easily copied. It's very, very cheap to copy the output of digital labour. It's basically the cheapest way ever invented to make something once and copy it indefinitely. To do digital labour is to be caught in this bind. On the one hand, it is necessary to commodity production as that which makes new things. Nothing is easier to move around and permutate than information. On the other hand, its necessary to commodity production because it's so easy to copy. One instance can be replicated over and over, by machines, eliminating the need for a good many workers, digital or analogue.

The plain truth is that digital workers are often working on making life harder for analogue workers. Our interests don't always align. Digital workers are also making life hard for each other. And so: either we keep making things harder and harder for others, and each other, or we think in terms of our solidarity with all workers. That's the choice, really.

Solidarity is hard. It means both attending to, and setting aside, our differences, all at once. Attending to them because there are a lot of ways all the other cleavages in the social world pass through labour and can't be ignored. The working life of women, of people of colour, of queer and trans people, of disabled people, all have specific kinds of tensions added to them. It's not helpful to just pretend that can all be swept under the rug.

On the other hand, solidarity does mean that there's a point where our difference matter less than the fact that we all have to sell our labour time to get paid to pay the rent and buy food and so on. The thing we have in common is not as concrete and immediate as our differences, but it is very real. It takes a bit of a leap to see how we're all in the same boat.

It's best to imagine the prospect of solidarity from the point of view of the most marginal workers, even if that is not you, or me. The points of view of the workers who have to deal not only with the exploitation of their labour, but also with oppression and discrimination because they are not white, not men, not cis, are not more particular, they are more universal.

The pandemic has magnified a lot of the problems we experience as digital workers, and shown how dependent the digital labour that goes on in our cities is dependent on analogue labour. The lockdown compounded the problem of the fuzzy border between labour and leisure time, of the lack of separation between home and workplace. Not to mention the problem of which of us have also to do the care work for children or the elderly, or the housework.

It exposed in graphic terms how dependent we all are on essential workers we rarely think about, who often do the most analogue labour, such as farm workers, food process workers, delivery people and so on. Many of whom are people of colour, and who in many cases have died of Coronavirus at higher rates.

We all want a vaccine. Its success depends on both digital and analogue workers. It is digital workers in medical research who will make it. It is analogue workers in the pharmaceutical factories and supply chains who will manufacture it. But we know that those who make it will not own it. The information about it will be some company's property. And we all know that if it works, its distribution will be skewed toward those with the power to jump the queue, not to essential workers most in need.

I'm hoping, though, that I'm not alone with some of these thought and feelings, dear fellow digital worker. I'm hoping you share some of this too. It doesn't matter whether we agree on everything. It's more interesting when we don't, isn't it? What are we to do then? Wish I knew. Politics and policy are not my thing. Maybe they are yours, though. Or maybe you know people who have the gift for sizing up a situation and picking an effective course of action. Let's talk to them. Or find those capacities in ourselves. We have a world to win.

Yours sincerely—no, that won't do.

Yours in solidarity,

McKenzie Wark

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