Paradoxes, problems and potentialities of online work platforms

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ABSTRACT

Drawing from a critical synthesis of interdisciplinary literatures, this article presents the organisational landscape of online work platforms as embedding problems posed to 'the crowd' while holding clues for paths of resistance. Organisational mechanisms that underpin online work platforms paradoxically both deterritorialise and territorialise online work and encompass new processes of disintermediation and intermediation, producing unprecedented savings for firms while imposing precarity on crowdworkers. Online work platforms nonetheless have become a tool of 'development' in underdeveloped countries for 'bottom-of-pyramid' (BOP) populations, a situation I critically examine regarding unique organisational features. Despite principles of online work platforms that would seem to foster the deterritorialisation of work, close scrutiny reveals spatially differentiated labour markets, which matter because the implications for change and the affordances of the new digital infrastructure differ across contexts.

Introduction

This article extends the critical literature on asymmetrical power relations by relationally considering the organisational principles that drive the labour regime as potential targets for resistance, and further, identifying the paradox of spatially differentiated labour markets in a context of work that is, in principle, deterritorialised. The latter matters because the implications for change differ across contexts. Furthermore, I suggest that hearths of resistance may be *more* likely in underdeveloped regions due to the particular organisational mechanisms that govern online work platforms in bottom-of-pyramid (BOP) populations. Drawing from a critical synthesis of interdisciplinary literatures, I present the organisational landscape of online work platforms – its configuration of power relations and spatial differentiation – as embedding devastating problems posed to 'the crowd' while holding clues for paths of resistance.

By 'crowdwork on online work platforms', I specifically refer to a particular type of digital labour and virtual 'micro' work[1] that is crowdsourced, and represents a specific niche, apart from mobile IT code work[2], crowdsourced innovative work via online contests[3], high-skilled design-related work via online work platforms, and offline crowdsourcing along the lines of Uber and related digital enterprises that localise the customer base in on-the-ground services accessible online[4]. Online work platforms for 'microwork', also known as 'microtasks', include platforms in which firms requiring services – 'requesters' – post tasks that crowdworkers can sign up to complete (e.g. Amazon's subsidiary Mechanical Turk, ClickWorker, CloudFlower, Mobile Works) as well as 'freelance platforms' that list both requesters and workers who are then matched (e.g. Upwork, Freelancer). As I will elaborate, the mediation process disconnects crowdworkers from requesters and thereby negatively affects conditions of work, and it is this issue with which the article is concerned rather than the different processes by which disconnection occurs; hereafter, then, I use the term 'mediator' broadly. By 'organisation', I refer to the configuration of power relations, which has been the main target of critical literature (e.g. Felsteiner, 2011; Aytes, 2013; Bergvall-Kåreborn & Howcroft, 2014; Beerepoot & Lambregts, 2015; Irani, 2015; Ettlinger, 2016; Huws, 2016; Milland, 2016), as well as the way in which the regime of online work platforms has unfolded spatially across the global economy.

I begin below by specifying the basic organisational features of online work platforms that permit deterritorialisation while producing precarious conditions for crowdworkers worldwide, and accordingly I use scare quotes for 'developed' countries throughout to recognise the scalar paradox of precarious conditions within these countries. Paradoxically, the same system that produces precarity has become a tool of 'development', a situation I critically engage in the next section. I discuss unique organisational features of crowdwork in underdeveloped countries, namely *localised* on-the-ground facilities linked to headquarters in 'developed' countries, notably the USA. The following section explains the evolving spatial spread of crowdwork across the global economy to account for and explain different labour markets for crowdwork. The penultimate section directs attention to the affordances of the new digital infrastructure for resistance, which I position in relation to specific oppressive organisational features previously discussed. The article ends with some closing remarks.

The organisation of online work platforms: principles of deterritorialisation

As an emergent, 21st-century labour regime, online work platforms entail work that is routine and repetitive, analogous to traditional assembly-line manufacturing work, with

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1   For critical examinations of wide-ranging types of digital labour and virtual work, see, for example, Huws (2003), Scholz (2013), Sandoval et al. (2014), and Wobbe, Bova & Dragomirescu-Gaina (2016).
2   Xiang (2007) elaborates the case of coders who travel from site to site to perform code work for firms.
3   See Ettlinger (2016) for an examination of different types of online crowdsourcing including online contests and work platforms as well as mobile work in the form of 'body shopping' (Xiang, 2007).
4   Although Uber and other such corporations are digital enterprises by virtue of the way in which customers access services, these firms unload the burden of material inputs such as cars onto underpaid workers – a unique perversion of the digital, so-called 'sharing' economy.

some important differences. The nature of the work is cognitive, requiring at least low-level skill and perceptual judgement. Tasks that require low-level skills include, for example, transcription, data processing/cleaning/verification, and image tagging[5]. At the core of online work platforms is the division of any one job into thousands of microtasks, an extreme expression of Taylorist division-of-labour management that permits tasks to be completed fast, from a few days to a few minutes. The transformation of jobs into microtasks grounds the neoliberal dream of efficiency expressed long ago by Friedrich Hayek (1945). Hayek argued that knowledge is dispersed and that every individual possesses pieces of knowledge that are disconnected from the knowledges of others; the challenge, then, is to access and make use of these decontextualised knowledges. Outsourcing was a late 20th-century response to Hayek's problem but, as explained below, crowdsourcing work via online work platforms in the 21st century has provided a qualitatively and quantitatively different and considerably enhanced response to Hayek's vision.

The configuration of online work platforms entails a paradoxical mix of new processes of disintermediation and intermediation. Firms seeking cheap labour for routine cognitive work, 'requesters', post the microtasks on online work platforms to reach workers 'on the street', people not necessarily employed by any firm. In principle, anyone with access to the Internet anywhere in the global economy can find a work platform and complete posted tasks. This organisational innovation permits the deterritorialisation of work while producing for small firms in particular, which represent most of the firms seeking microwork services (Agrawal et al., 2013; Loten, 2012; Massolution, 2012), considerable cost savings, namely the elimination of their search costs, while creating a massive work force on demand. The process is one of disintermediation, enabling firms to bypass independent contractors that in turn employ workers – the route of traditional outsourcing – and instead access individual workers at a click, in principle around the world, thereby also eliminating transaction costs while achieving immediacy. However, disintermediation with independent contractors parallels a new process of intermediation because most firms now outsource crowdsourcing of all types to a new breed of firms that has emerged to mediate relations between requesters and crowdworkers (Ettlinger, 2016). The new corporate mediators construct online work platforms and use algorithms to manage the sorting and evaluation of the crowd (Law & von Ahn, 2011), while requesters pay them a nominal fee to post tasks[6].

The explosion of corporate mediators in the United States and other so-called developed countries, in the hundreds, is significant because it signals the institutionalisation of informal work (Felsteiner, 2011; Prassl & Risak, 2016). Crowdworkers complete tasks online in the absence of a formal relation with requesters; they connect not to the seekers of their work, but rather to the mediators, which connect

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5   Upwork's website (https://www.upwork.com/i/job-categories/) shows the wide-ranging industries that use online work platforms, including web, mobile and software development; IT & networking; data science and analytics; engineering & architecture; design; writing; translation; law; administrative support; customer service; sales & marketing; accounting and consulting.
6   The fee for posting tasks on Mechanical Turk is 10%; for others it may be a flat fee.

their work with requesters. This organisational feature renders workers independent contractors while relieving requesters of their responsibilities as employers. Corporate mediators can assume responsibility towards crowdworkers' rights, but they are not so obligated, and therefore typically do not. Mechanical Turk (https://www.mturk.com/mturk/welcome), considered by many as archetypal of online work platforms, eschews all obligations to workers and, further, requires workers to sign a contract consenting to denial of payment if their work is considered inadequate, without discussion or negotiation, followed by forfeiture of the intellectual property they have produced. Moreover, crowdworkers lack recourse to ensure payment in the case of delays, which can be significant and sometimes indefinite. Why, then, do people self-enrol?

Some scholars have represented crowdwork in the USA as entertaining, if not addictive (Ipeirotis, 2010; Brabham, 2010, 2012), although many if not most crowdworkers self-enrol for the income, albeit small, either to supplement other below-living-wage income or as a primary source of income. One 'Turker' from the USA who regularly earns income from Mechanical Turk exclaimed:

> … *around here even McDonald's and Walmart are NOT hiring. I have a degree in accounting and cannot find a real job, so to keep myself off the street I work 60 hours or more a week here on mTurk just to make $150-$200. That is far below minimum wage, but it makes the difference between making my rent and living in a tent.* (cited in Felsteiner, 2011:166)

The overall precarity that increasingly plagues efforts to earn a living signifies that people across classes constitute the new, heterogeneous 'precariat' (Standing, 2011). The precipitous decline of the middle class in countries such as the USA since the onset of the Reagan-Thatcher era has meant that many jobs provide less than a living wage, prompting many to patch together as many sources of income as possible. As another Turker said, 'How do you make ends meet on a dollar an hour? You don't. All you do is add to what you make with your regular job and hope it is enough to make a difference' (cited in Felsteiner, 2011:166). And whereas crowdwork provides a supplemental income to many crowdworkers in the USA, it is often the only source of income in India and elsewhere (Felsteiner, 2011).

Significantly, payment on most online platforms is by the task not by time unit, although tasks are arranged with an upper limit on time to ensure firms rapidity from time-to-post to time-to-completion. Echoing industrial piecework, microwork has been likened to cognitive piecework in digital sweatshops (Aytes, 2013). And like industrial homework, microwork is conducted in situ – in homes, coffee shops, cyber cafés, on a bus – generating further cost savings to firms by eliminating the costs of renting or owning work space and instead devolving space responsibilities to workers.

Despite the cost savings to firms that crowdsource microwork by the elimination of search, transactions, and space costs, wages range from zero per task (for those working to gain eligibility for paid tasks) to sometimes just a few cents per task, well below minimum wage[7]. Wages across online platforms are unstandardised and vary

[7]   See for example the tasks posted on Mechanical Turk (https://www.mturk.com/mturk/findhits?match=false).

considerably, a feature that results in part from lack of regulation and in part from a bidding process that many mediators require and which further depresses wages, awarding jobs to those most willing to accept the lowest wages rather than to those most qualified. Furthermore, similar to the impacts of offshoring Fordist branch plants or managing overseas networks of firms in facilities practicing Fordist or flexible production, lower wages in poor regions depress already below-minimum wages for online markets in wealthier regions, a situation intensified by the bidding process (Tamazashvili, 2012). In addition to all these factors, I suggest that wage depression also results from the new organisation of capital-labour relations that distributes revenue across the value chain to more actors while ensuring that crowdworkers are disproportionately disadvantaged to capture value for themselves. Regulations that would responsibilise both mediators and their clients logically would target them as the source of workers' problems, but this top-down solution is unlikely[8]. In the new labour regime, prospects for workers' rights are constructed in the context of highly asymmetrical power relations and hinge on a voluntary choice among corporate actors whose function pivots on connection, not employment, for profit. In this context, it is difficult to imagine that online work platforms could possibly be cast as a tool of 'development', that is, a productive and profitable means by which to fundamentally change the conditions of living among BOP populations in underdeveloped countries (Prahalad & Hart, 2002).

Organisational paradoxes of online work platforms as a tool of 'development' in underdeveloped contexts

Some mediators do assume some responsibilities regarding workers, notably those that entwine social with economic goals as they target BOP populations that commonly lack any other source of income. Although a development only in its infancy (World Bank Group, 2016) such mediators can range from governments with programmes to train and employ these populations, sometimes in association with NGOs, to social enterprises, which can be for-profit (e.g. DesiCrew, CloudFactory) or non-profit (e.g. Samasaource, Digital Divide Data) and often recruit their labour with the help of government. Social enterprises commonly target BOP populations in some of the poorest countries as well as marginalised niches in 'developed' countries, although to a much lesser extent.

The social goals distinguish socially conscious mediation from the usual corporate mediation, but in addition, the recent entry of mediators into the arena of online work platforms has modified the intermediation process through a process related to crowdsourcing: 'impact sourcing'[9]. Impact sourcing brings online work to marginalised

communities by *localising* the labour market with social mediators providing basic training in computer literacy in on-the-ground facilities. The mission, as explicitly indicated by Samasource, a non-profit social enterprise, is to bring digital microwork to the poorest and least employable (https://www.impactm.org/impact-audits/samasource). Following training, social mediators then connect the local crowd with requesters or their mediators in 'developed' countries seeking cheap cognitive labour for microtasks analogous to governments courting transnational firms to locate branch plants at lowest cost in their countries in previous rounds of global investment; the advantages to firms of crowdsourcing and online work platforms in particular over branch plants or outsourcing to independent contractors are the tremendous cost savings in search, transactions, space, as well as transportation and labour costs. Furthermore, the incentive for actors in developed countries to connect with social mediators in the least developed places is to achieve the lowest cost, because these places are where wages are lowest (Gino & Staats, 2012).

The localisation of the labour market in contexts characterised by extreme poverty presents problems but nonetheless also affords context-specific advantages. One advantage lies with local social networks that operate as informal institutions to provide in-person support as people with some experience offer extended help to newcomers through training and completion of initial tasks (Malik, Nicholson & Heeks, 2017). Relatedly, the training imperative in BOP regions requires a local institutional milieu that can include multiple stakeholders, including crowdworkers, government, social enterprises, and possibly NGOs (Malik et al., 2017), thereby producing a local milieu that offers a departure from the usual alienation of individual crowdworkers. Such milieux, however, may extend no further than a social enterprise-government partnership, considerably short of the 'institutional thickness'[10] often associated with developing or 'developed' regions. Furthermore, context-specific problems in BOP regions abound, ranging from lack of digital and financial infrastructures to lack of government involvement due to political volatility, cultural barriers, and unsustainable capital-labour relations as mediators in 'developed' countries cancel tasks or deny payments (Malik et al., 2017).

Social enterprises that are for-profit typically aim to deliver income-earning opportunities to BOP populations, but the for-profit dimension of their business speaks to their motive to capture value for themselves and commonly results in low wages for local crowdworkers (even if these wages are higher than for other local jobs) or no more than the minimum. Indeed, for-profit social enterprises actually spread value across more actors in the value chain, representing fourth parties that connect workers to third-party corporate mediators, leaving even less capital for workers. The for-profit node in the intermediation process helps explain the slim investment in people and moreover the limitation of goals that seek delivery of wages within, the parameters of poverty, thereby reproducing existing hierarchies. CloudFactory, a for-profit social enterprise located in Kathmandu, Nepal, with headquarters in the USA, exemplifies the problems. CloudFactory tries to ensure some degree of regularity in earnings (Lehdonvirta, 2016), although 'regularity in earnings'

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10   Amin and Thrift (1995) argued that 'institutional thickness', referring to the density of interactions among government institutions, firms, and other organisations in a locality, fosters local development. See, however, critical reactions demonstrating that institutional thickness is not necessarily inclusive (e.g. Raco, 1998).

guarantees neither a living nor even a minimum wage. CloudFactory workers in Nepal earn wages that are 30% lower than those in India, and can earn a *maximum* of 4,000 rupees (60 US dollars) a week (Knight, 2016). This social enterprise appears progressive insofar as it oversees communication among workers on the-ground and in virtual groups to offer payment at least in networking and identity building (Lehdonvirta, 2016), clearly surpassing the affordances of the Mechanical Turk and other such firms. However, on close examination, CloudFactory's groups are already formed through Facebook, and actually job applications require an application from an already established Facebook group (Knight, 2016). CloudFactory capitalises on social media to reduce its search and management costs while earning profits and paying perhaps more in identity than cash. As a tool of so-called 'development', for-profit crowdsourcing via online work platforms is challenged in the first instance by the profit motive that overshadows social goals, as well as by its organisation whereby 'the crowd' remains dependent on corporate mediators and, in cases such as CloudFactory, on social media, both of which are anchored in the USA and are driven by the profit motive in a deregulated global environment.

Non-profit social enterprises, on the contrary, often aim to deliver living, as opposed to minimum, wages, as exemplified by Samasource. Its goal is to lift BOP populations out of poverty by providing them with a living, as opposed to a minimum, wage. Yet although Samasource impacts large numbers of people with the aim of alleviating poverty and increasing their earnings – 10,506 workers, students, and patients in 2016 – only 11% were actually lifted out of poverty (see data on impact scorecards in https:// www.samasource.org/reports). Similarly, many crowdworkers have difficulty moving out of poverty in other contexts (Malik et al., 2017). Furthermore, the non-profit dimension of Samasource, while crucial for the *goal* of delivering a living wage, nonetheless constrains it, as noted in critical reviews by Samasource's employees (https://www. glassdoor.com/Reviews/Samasource-Reviews-E483520.htm). First, Samasource pays its employees low wages to compete with for-profit social enterprises for business from corporate mediators. Second, and relatedly, Samasource is plagued by problems of high turnover of its employees who train crowdworkers, often resulting in shifting priorities. Third, also relatedly, Samasource suffers from too many initiatives and a loss of focus because of the breadth of its general mission to solve problems of poverty.

Samasource's problems and those of other social enterprises and government programmes suggest that lifting the extremely poor out of poverty is not easily scalable, which is a serious issue because crowdsourcing itself is a scalable proposition. Simply stated, 'development' as a qualitative change in conditions of living requires time and care, both of which are counter to the imperatives of crowdsourcing and its specific manifestation in online work platforms as a neoliberal tool of efficiency that provides huge cost savings to requesters while corporate mediators and their clients in 'developed' countries profit. The mode of organisation thus challenges the socially conscious mission.

Evolving spatial differentiation of labour markets for online work platforms

The power relations that underscore online work platforms mirror previous international divisions of labour overall insofar as the new labour regime is

orchestrated from 'developed' countries where requesters as well as mainstream mediators are located (Graham, 2014). In principle, 'the crowd' is global, constituted by workers from 'developed' as well as underdeveloped countries, because crowdsourcing in general signals the spatial dispersion of work, which logically connects organisationally with the extreme form of Taylorism whereby jobs are divided into decontextualised microwork spread across thousands of crowdworkers, managed by algorithms – the ultimate neoliberal efficiency. This mode of organisation suggests a deterritorialised system of work that affords firms a global labour market. However, close scrutiny reveals a bias among some firms for workers in the 'developed' world.

At its inception and through to the present, the microwork market of some corporate mediators has been a matter of *concentrated deterritorialisation*: crowdwork is dispersed within, but spatially concentrated in, 'developed' countries. Firms such as Amazon's Mechanical Turk sort potential crowdworkers by desirability along the lines of past performance as well as geographical location (Irani, 2015) and regarding the latter, discriminate on this basis (Kingsley, Gray & Suri, 2014). This regional exclusiveness reflects ethnocentric assumptions that cast labour markets in underdeveloped countries as unsuited for cognitive piecework, which is routine but nonetheless requires skills, even if at a relatively low level. Such spatial discrimination echoes the socio-spatial dynamics of the post–World War II and earlier colonial international spatial divisions of labour whereby the so-called third world and former colonial territories respectively were conceptualised as a vast reservoir of cheap, unskilled labour, and high-skilled labour was presumed to be geographically fixed in the so-called first world. The evolution of Mechanical Turk's labour market resuscitates this earlier round of prejudice. Mechanical Turk, launched in 2005, began by reaching crowdworkers only in the USA and India[11], then spread to western Europe; eventually Mechanical Turk developed labour markets in every continent, although the USA, India, and now Europe represent its largest labour markets (Ipeirotis, 2010; Pavlick, Post, Kachaev & Callison-Burch, 2014:2). Upwork, another dominant online work platform, formed through a merger of two large corporate mediators, Elance and oDesk, similarly targets labour markets in the 'developed' world (http://elance-odesk.com/online-work-report-global).

Other corporate mediators, however, have sought out labour markets aggressively and indiscriminately to reach the lowest priced skilled labour, consistent with the mentality reflected in the actions of some firms in the previous era of investment. By the late 1980s, agents in high-tech manufacturing as well as services firms interested in decentralising back-office work began to realise that the geography of intelligence diverges from geographies of formal training and that extending labour markets globally promised skilled labour at the lowest prices (Shaiken, 1994; Metters & Verma, 2008) – boundless opportunities for exploitation in sectors previously geographically fixed and therefore constrained. In the digital era of online work platforms, the story of Australia-based Freelancer's beginning as told by its founder and CEO, Matt Barrie,

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11   The World Bank has changed its classification of India from a 'developing' to a 'lower middle-income country'. India also is known as the 'software capital of the world' – a reflection of its advanced IT sector (amid rapidly increasing inequality.)

illustrates the lure of the Internet as a means to reach a cheap global labour force on demand as well as the rapid growth of such companies. Confronted with a problem in 2008, Barrie explained,

> *…I basically needed a spreadsheet filled out with a list of companies and contact information … I was stunned that I couldn't find someone to do it!*

> *In frustration I went to the internet and found a website called GetAFreelancer. I posted a job and three hours later had 74 e-mails in my inbox from people around the world wanting the job, with quotes significantly cheaper than I expected. A few days later and the job was done perfectly by a team in Vietnam … As an entrepreneur, this was my dream resource; I could hire someone with any skill set I wanted, quickly, inexpensively and on demand. There was no ongoing 'employment obligation' beyond the mutually-agreed assignment … I ended up raising some money to buy the original site GetAFreelancer in May 2008. Over the next four years I ended up buying most of the ones I spoke to as our revenue grew … Companies we acquired included: GetAFreelancer (Sweden), RentACoder/ VWorker (USA), LimeExchange (USA), Scriptlance (Canada), Freelancer Booking Center (Germany) and Freelancer UK (United Kingdom) as well as a number of smaller companies.* (From interview conducted by, and cited in, Foster & Plunkett, 2013)

Barrie's story of Freelancer's beginnings and rapid growth reveals not only exploitative practices regarding low wages with no promise of ongoing or future employment but also the pre-eminent value of using lowest cost labour among many corporate actors and the value of securing work immediately. Freelancer and other such corporate mediators have produced the delocalised pattern of work that logically defines online work platforms and accounts for its global spread, in contrast to those whose biases have figured in differentiating labour markets relative to world-regional hierarchies, concentrating online work platforms in 'developed' countries.

Still another type of labour market has emerged with the entry of socially conscious mediators into the arena of online work platforms. Governments and for- and non-profit social enterprises target specifically BOP populations in untapped labour markets in underdeveloped regions to reach what the CEO of Samasource has called 'the talent surplus' in Africa, Asia, Latin America, and Eastern Europe (Janah, 2009). The spatially delimited nature of these labour markets connects with their distinguishing feature: localisation of the labour market, which counters the organisational logic of crowdsourcing. Development-minded organisations serve as fourth-party mediators that link with mainstream mediators to connect their crowdworkers with a steady supply of tasks emanating from countries like the USA. Firms in these countries with social responsibility programs are especially likely to work with development organisations, although decidedly socially *un*conscious corporate mediators such as Amazon (via its platform Mechanical Turk), as well as firms such as Google, Facebook, and LinkedIn, also work with them to complement other operations. The for-profit social enterprise CloudFactory in Kathmandu illustrates the organisational conundrum as it uses Facebook as both a recruitment and an organisational tool. Contrary to the

organisational veneer of disintermediation, intermediation increases the number of actors in global value chains and, ironically, expands in underdeveloped contexts, signifying increased dispersion of revenue in the context of asymmetrical power relations and an uneven capacity to capture value.

In sum, online work platforms appear to have fulfilled the neoliberal fantasy of a dispersed, decontextualised, deterritorialised, and Taylorised global labour market, but ethnocentric values and the remoteness of BOP labour markets have intervened to produce spatially differentiated labour markets. There exists, then, a regionally exclusive regime targeted principally, although not exclusively, at workers in 'developed' countries, underpinned by assumptions among firm agents about an exclusive geography of talent that can be accessed at low, below-minimum wages; a deterritorialised regime operated by the firms that cull talent worldwide at the lowest prices; and localised regimes targeted specifically at the lowest paid workers in underdeveloped regions, intermediated by governments and for- and non-profit social enterprises that connect them with corporate mediators in 'developed' countries. The case of regionally exclusive microwork markets in 'developed' countries diverges somewhat from the deterritorialised logic of crowdsourcing, but not entirely, because microwork is diffused throughout these exclusive regions, in contrast to the localised labour markets created by for- and non-profit enterprises.

Wherever online work platforms touch down, in whichever spatialised regime, microwork remains dependent on clients in 'developed' contexts who are motivated by cost minimisation, as well as on mediators that disengage client firms from employer responsibilities while organisationally connecting but not formally managing labour markets. Although the development discourse, echoing previous rounds of investment, professes the delivery of income-earning opportunity to those who otherwise would have none, the highly asymmetrical power relations ensure disproportionate value capture among firms seeking cheap, cognitive labour and for-profit third- and fourth-party mediators, leaving crowdworkers without space for discussion, negotiation, or decent wages. The organisational mode of microwork in all contexts renders labour informalised, without bargaining power or the monetary means to break out of poverty. Wages from microwork vary across and within the 'developed' and underdeveloped world regions due to the lack of regulation and standardisation of wages, the bidding process, as well as organisational variation relative to degrees of intermediation. In all contexts, microwork offers firms cheapest and sometimes even free labour. Digital sweatshops, like their on-the-ground counterparts, capitalise on desperation, although providing pictures of at least some workers happy with wages they may not otherwise have earned, further fuelling the growth of firms and the new corporate mediators in the USA and other 'developed' countries, and rendering life precarious among crowdworkers worldwide while spatially siloing them in *in situ* home/work places.

Yet it is not the digital infrastructure – the digital means by which firms hire workers and workers find work – that is exploitative, but rather, the way it is governed and organised. Although organisational features of online work platforms produce devastating effects across differentiated microwork markets, below I suggest that at least some of these features possibly can be subverted, and moreover, localised labour

markets in underdeveloped contexts in particular may be conducive to, although certainly not determinant of, alternative trajectories.

Potentialities of the new digital infrastructure

Countering extreme Taylorism and resulting alienation

The organisational feature at the heart of online work platforms – the division of any one job into thousands of microtasks performed in isolation – is a technique that dramatically minimises firms' costs while preordaining a lack of communication among workers, thereby precluding grassroots organisation among workers. Yet there exists an online platform, Turker Nation, that includes a forum for discussion among Turkers, along with other forums for requesters and journalists (http://www.turkernation.com/; see also Milland, 2016). Research-activists in the USA at Stanford and University of California – San Diego (UC San Diego) have constructed two other online forums for Turkers, Turkopticon and Dynamo, each of which provides a critical voice for Turkers in different ways[12]. Turkoptican turned the panoptical gaze of Mechanical Turk on end, in its first version, by enabling Turkers to evaluate requesters (Irani & Silberman, 2013), and, in a later version, by targeting critique at the microtasks posted by requesters (see https://turkopticon.info/). Dynamo offers Turkers a collective voice for action by enabling Turkers to vote Reddit-style on suggestions for collective action (see http://www.wearedynamo.org/). Examples of collective action among Turkers enabled by Dynamo include developing labour guidelines for graduate students in 'developed' countries who turn to Mechanical Turk at-a-click to unload their survey research onto Turkers for pennies, as well as a collective letter to Jeff Bezos, Amazon. com's CEO, to clarify the diversity of Turkers and to humanise them in his eyes. These forums thwart the on-the-ground alienation wrought by extreme Taylorism by enabling the development of virtual communities, and in the case of Dynamo, collective action.

To date, however, the effectiveness of these remarkable developments remains unexplored. Conceivably, Turkers might organise a boycott of firms that have been identified as especially offensive regarding, for example, denial or delay of payments, although to date such action has yet to transpire. Facilitating crowdworkers' agency may succeed in developing a sense of self-empowerment in the context of highly asymmetrical power relations, but positive changes in crowdworkers' conditions as a result of collective action have yet to materialise. One potential problem with Turker resistance orchestrated through online forums is that to date the developers/administrators of these forums *mostly*[13] are not Turkers[14], an observation and certainly not a criticism. Alternatively, ground-up resistance that is developed and sustained in-house has the advantage of internal commitment if not fervour.

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12 Lilly Irani and Six Silberman at the University of California – San Diego developed Turkopticon; Niloufar Salehi and Michael Bernstein at Stanford and Lilly Irani at UC San Diego developed Dynamo.
13 Kristy Milland is an exception.
14 Note, however, that the developers/administrators of Turkopticon are making efforts towards decentralising control (https://turkopticon.ucsd.edu/2016survey/).

Although resistance strategies thus far are anchored regionally at the source of corporate control in the 'developed' countries, contextual factors in the most-marginalised places may possibly offer advantages for effective collective action on the horizon. By 'marginalised places', I refer broadly to underdeveloped countries where governments and social enterprises target BOP populations in particular, but I also include marginalised places in 'developed' countries targeted by some social enterprises, recognising that the central thrust of social enterprises has been in underdeveloped countries; this view of underdevelopment is topological in light of increasingly similar work conditions in the so-called global north and south (Aytes, 2013; Beck, 2000). I suggest that the presence of social enterprises coupled with specifically *localised* labour markets may be conducive to positive change for two reasons. First, the localisation of labour markets affords the possibility of complementing face-to-face with virtual communication among crowdworkers who might become engaged in a politics of accountability[15]. Face-to-face communication can be laced with uneven power relations and fraught with as much difficulty as virtual communication, but they nonetheless offer the advantage of synergistic communication strategies in contexts where labour markets are localised, a unique if not ironic affordance of digital labour markets in most-marginalised places. Second, for-profit social enterprises explicitly aim for social goals, even if ineffectively, and are likely to be more responsive than third-party corporate mediators to pressure 'from below', if it were to develop, to deliver living wages to BOP populations.

Yet in the absence of research-activists at internationally-acclaimed universities to construct online forums, as in the USA, how might ordinary people without exclusive technical and legal knowledges develop a digital infrastructure of resistance – a digital means by which workers can resist the exploitative features of digital governance – in marginalised places? Just as the social enterprise CloudFactory leverages Facebook towards its own ends, so too might ordinary people. Social media more generally have by now become well known worldwide as a tool for developing virtual counterpublics (e.g. Milan, 2015; Papacharissi, 2015; Sobré-Denton, 2015). Harnessing social media as a technique of resistance could enable siloed crowdworkers to render their problems visible using mechanisms such as profiles, while other mechanisms such as 'likes' can function as votes to push virtual discussions in particular directions (Milan, 2015), somewhat analogous to Reddit-style voting on Dynamo. However, although social media are known to be effective in mobilising activism, alone they can be limiting because social media firms differentially target messages relative to groups (by race/ethnicity, gender and the like), ultimately dividing rather than solidifying the internally heterogenous counterpublics they help to create (Lynch, Freelon & Aday, 2016[16]).

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15   See Ettlinger (2017a:35–40) for a critical review and discussion of the tensions within and between face-to-face and virtual communication and the value of complementary usage.

16   Lynch et al. (2016) examined the dynamics of social media following the revolution in Egypt and found that the solidarity underpinning initial activism proved unsustainable as social media messaging differentiated social groups; see Papacharissi (2015) for an examination of the solidarity via social media that facilitated the revolution. On the homophilic tendencies of the Internet, see also Mcllwain (2016), Merz (2016), Widmer (2016), and Turfekci (2017).

Forums for communication and strategising are possible and moreover, ironically, particularly promising in places of extreme poverty, but ultimately sustained resistance would require a complementary strategy that targets the problems along the value chain precipitated by the mode of organisation.

Targeting the intermediation that disconnects workers and requesters

Although online forums can counter the siloed nature of digital life, they cannot ensure the responsiveness of requesters. Still in basic research and in the phase of experimentation, Daemo, produced by a research collective at Stanford University, is an independent online work platform that eliminates corporate mediators by drawing crowdworkers and requesters into an open governance structure that they govern together to ensure communication between requesters and workers, fairness for workers, and reliable work for requesters (Stanford Crowd Research Collective, 2015). Daemo's developers have injected a feedback loop so that the two parties can discuss, evaluate, and revise the construction of a task. Requesters and workers vote on decisions, and conflict resolution is overseen by a board consisting of equal numbers of workers, requesters, and developers, but, crucially, Daemo overcomes the 'outsider' problem insofar as only workers and requesters, the insiders of the system, govern all other aspects of platform dynamics.

Daemo arguably targets the central nerve of the mainstream organisational landscape by removing the pivotal node in the new intermediation: the new corporate mediators that capture a disproportionate share of value generated along the value chain. From the developers' vantage point, Daemo offers requesters the opportunity to work with, rather than dictate terms of production to, workers, thereby affording an opportunity to develop a productive relationship laced with trust, reciprocity, perhaps even loyalty. However, although Daemo is a remarkable model, it nonetheless is unclear whether requesters will forgo the ease of outsourcing online work platforms at lowest cost to corporate mediators.

Precedents for the gist of the model – to develop capital-labour relations that result in both fairness and productivity – do exist in the corporate world, although on a sporadic as opposed to systemic basis, and specifically in the relatively small corner of the corporate world engaged in corporate social responsibility (CSR) programmes. Daemo is likely to be effective in targeting requesters with CSR programs, but it should be noted that the main driver of crowdsourcing in the arena of non-innovative tasks has been small to medium-sized firms (Esposti et al., 2012; Loten, 2012; Massolution, 2012; Agrawal et al., 2013), which typically lack the scale economies to internalise CSR programs. Large firms also crowdsource, but they have more internal resources to handle low-level tasks; their main route in crowdsourcing has been in the realm of innovation (Roth, Pétavy & Céré, 2015), which they, and increasingly the US government[17], crowdsource via online contests, a different approach altogether from

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17   The America COMPETES Act of 2011 authorised all departments in the US government to crowdsource innovations through online contests (E Pluribus Unum, 2014).

online work platforms[18]. Daemo, then, and other platforms like it that may be constructed in the future, will likely require search strategies to identify and court the sliver of the corporate world amenable to the type of capital-labour relations it embraces.

Another possible approach to disintermediation with the aim of eliminating corporate mediators, to date unexplored, might be something analogous to 'direct trade', a subset of fair trade in select industries such as food, that reduces the number of nodes in the value chain to permit higher wages at the source of production while downstream traders self-consciously absorb more costs and earn lower profits than others in their position[19]. Conceivably, social enterprises, in particular, could seek out requesters with CSR programs and connect them directly with BOP populations, bypassing corporate mediators. Marginalised places where socially conscious mediators are present may offer further advantages due to the multiple stakeholders and possibilities of targeted training as well as both domestic and overseas networks through NGOs and governments. One goal, as yet unarticulated, might be the development of a localised institutional milieu that would cultivate linkages with *local* requesters to replace dependence on firms in 'developed' countries to generate a 'thicker' institutional milieu while social goals would set an inclusive agenda to localise sustainable jobs and upskilling programs. The main agenda in this latter case is to challenge the dominant power relations and develop an alternative approach to production (Sandoval & Fuchs, 2010) by unchaining people in underdeveloped contexts from dependence on corporate mediators and their clients in 'developed' contexts, thereby reconfiguring the longstanding organisational landscape that is newly expressed in terms of the global digital economy. Dynamics within underdeveloped contexts certainly can be fraught with power relations as asymmetrical as those between 'developed' and underdeveloped countries, precisely the reason why the presence of socially conscious mediators in 'developing' contexts potentially has a pivotal role in digital paths of resistance. Furthermore, socially conscious mediators conceivably have the capacity to function as *un*ordinary agents with technological and legal knowledges towards serving publics turned counterpublics in a new kind of intermediation that would construct and manage online marketplaces for work and connect BOP populations with socially conscious requestors.

18   Online contests are managed not by algorithms, but rather by people, sometimes internally and sometimes by corporate mediators (see Ettlinger, 2017b). Evaluation in particular, in the arena of mid-level innovation such as design, is performed by the crowd (e.g. Threadless, a tee shirt company that crowdsources both designs placed on tee shirts and evaluation).
19   Direct trade also avoids requirements like certification that often is plagued with problems of ineffective, decontextualised auditing, which constrains more than helps the target population of producers. Auditors often are independent contractors (yet another node in the value chain), and they commonly work with a checklist, checked not with workers but rather with landowners or supervisors. Furthermore, criteria for certification include prohibition of child labour – generally a good idea that can, however, preclude assistance to small, impoverished villages where there are no schools and children need to be with adults when picking coffee beans, for example, in the absence of adults who can supervise children at home.

Conclusion

The new digital infrastructure has afforded mainstream firms a labour regime that permits a reconfiguration of pre-digital era capital-labour relations to institutionalise informal work while eliminating conventional search, transactions, and space costs. As in exploitative systems of previous rounds of investment, workers freely self-enrol in the absence of alternatives towards earning a living, a precarious condition that is likely to deepen as socio-economic polarisation intensifies in 'developed' and underdeveloped countries alike. The informalisation of work makes it unamenable to traditional forms of protest, and the oppressive nature of the new regime appears relentless because the mode of organisation underpinning online work platforms ensures highly asymmetrical power relations.

However, resistance in the digital era can be conceptualised by making use of and manipulating some of the organisational features of online work platforms. Already precedents exist, specifically in the USA, for the construction of virtual counterpublics to thwart the alienation wrought of the extreme expression of Taylorism integral to online work platforms. An independent work platform, also constructed in the USA but still in the experimental stage, holds prospects for reconfiguring the organisational landscape by eliminating the node in the value chain on which oppressive capital-labour relations pivot. More generally, platform cooperatives across many types of platforms beyond online work have begun to challenge platform capitalism (e.g. Scholz, 2016, 2017; Scholz & Schneider, 2017; https://2017.open.coop/). Resistance is nonetheless difficult, especially to sustain. Virtual counterpublics may be unstable and may not necessarily affect the conditions of work that stimulated their creation. Furthermore, changes to the organisational landscape may pertain more to niche markets than a systemic phenomenon. Emergent challenges are, however, only in their infancy suggest new trajectories.

Despite the apparent deterritorialised nature of online work platforms, marginalised contexts where socially conscious mediators localise labour markets may be especially conducive to positive change. Unique circumstances in BOP regions have the potential to provide fertile ground for the longstanding affordance of face-to-face communication as a complement to virtual relations. Moreover, socially conscious mediators in BOP regions may be especially receptive to demands for living wages and possibly the development of localised webs of crowdsourcing activity to sustain dignified livelihoods based on an inclusive digital infrastructure. Although such trajectories of resistance have yet to be realised in the relative infancy of online work platforms, crowdsourcing and digital life more generally, deconstructing organisational dynamics opens apparently bleak circumstances to hopeful possibilities.
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