



Scalar Devices of a Global Movement of GigWorker Activists: Nonscalability and the Possibilities of Proliferation

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ABSTRACT

Scholarship in CSCW, HCI, and STS has critiqued the moral imperative to scale up and to value scalability. These insights have yet to be applied in the burgeoning research on platform-mediated work and worker resistance. Grounded in two years of in-person and virtual participant observation with gig worker activists, this paper undertakes an “ethnography of scale” to concretely account for how the activists represent and manage a global-scale movement. I argue that although the activists construct their movement as global, it is not *scalable* in the sense of being able to uniformly expand without changing the nature of the project. Rather, the movement’s global scale can be seen as occurring through a process of proliferation, where scale is enacted through mutually transforming engagements. This paper contributes an empirical investigation of gig worker resistance by drawing on the concepts of nonscalability and proliferation.

CCS CONCEPTS

• **Human-centered computing** → **Collaborative and social computing theory, concepts and paradigms; Empirical studies in collaborative and social computing.**

KEYWORDS

Gig economy; transnational activism; labor organizing; resistance; scalar devices; nonscalability

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1 INTRODUCTION

Platform-mediated work (also known as gig work) has received much scholarly attention from the CSCW and HCI communities [1], from early work on virtual crowdwork [13] to more recent work that has focused on location-based sectors such as food delivery [15]. These studies take on a variety of methods to analyze work arrangements, worker perspectives, and sociolegal landscapes that underlie gig work [28, 30]. Although companies across sectors

promise autonomy and freedom from having a boss or restrictive work routine, workers themselves as well as scholars and journalists have documented the exploitative conditions that pervade platform-mediated work [9, 12, e.g.]. Researchers have demonstrated the ways that algorithmic management, information asymmetries, and debt schemes intersect with underlying socioeconomic conditions to restrict workers’ choices [13, 19, 30].

In response to exploitative conditions, workers have engaged in both individual [33, e.g.] and collective [18, e.g.] resistance. Scholars have drawn on concepts such as labor process theory [24, 35] and communications “from below” [8] to explain how and why resistance occurs in certain contexts. In CSCW and HCI research, scholars have also designed and sometimes deployed interventions to improve working conditions for gig workers on both virtual [13, 31] and location-based platforms [39].

This paper builds on prior studies of gig worker resistance by adding a focus on activists’ understandings of scale and scalability in the efforts to create gig worker’s movements at transnational and global scales. Ribes proposes “ethnography of scaling” as a method which focuses on the way that actors represent and manage large-scale endeavors through concrete tools, activities, and techniques, to which he refers to as “scalar devices,” [29]. I take up this approach in analyzing my two-year ethnographic engagement with gig worker activists. I find that gig worker activists enact the scale of their movement via an international congress, coordinated protests actions, and a book collecting gig workers’ testimonies. Drawing on Anna Tsing’s “theory of nonscalability” [36] and Lampinen et al.’s notion of “processes of proliferation” [16], I argue that although the activists construct their movement as global, meaning as an issue that crosses national boundaries and implicates people at the scale of the world, it is not *scalable* in the sense of having “the ability to expand—and expand, and expand—without rethinking basic elements,” [36, p. 505]. Such smooth expansion, Tsing argues, “requires that project elements be oblivious to the indeterminacies of encounter. . . . Thus, too, scalability banishes meaningful diversity, that is, diversity that might change things,” [37, p. 38]. Rather, the movement exists on a global scale through mutually transformative encounters between individuals and organizations, whose investments in scalar devices produce the global scale without the homogenizing force of scalability. These transformative encounters allow activists to spread their influence in a process of proliferation that allows for continued diversity within the movement. This paper contributes to scholarship in CSCW via an empirical investigation of gig worker resistance through the lenses of nonscalability theory and processes of proliferation.



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2 RELATED WORK

2.1 Resistance and gig work

Scholarship has documented the way in which algorithmic control [30, 38, e.g.], social isolation [32], and other exploitative conditions of gig work [19] have led to precarization of workers as the gig economy has spread to more and more sectors. Additionally, workers' emotional labor, the moral economy of tipping, and other ad hoc practices by customers and restaurant workers generate value that enables this mode of work [27, 28]. Singh et al. argue that it is not only algorithmic control but a combination of algorithmic systems and long-standing shop floor management strategies that both motivate workers to continue performing gig work and make it more difficult to resist [34]. Despite this, researchers in CSCW and kindred fields have analyzed how workers resist both individually and collectively. Scholars have used the lenses of temporality [5], calculative rationalities [33], and visibility [23] among others to demonstrate the ways that gig workers individually assert agency and resist algorithmic control and surveillance in their everyday practices.

In terms of collective resistance, scholars have documented the importance of social media and virtual communication spaces, where airing grievances in otherwise isolating work can build a common cause [4, 7, 8, 40]. Scholars have applied labor process theory in various contexts to understand conditions that galvanize or inhibit collective action among gig workers. In comparing delivery workers in Chile and Peru, Muñoz and Martinez discuss the common labor processes that led to similar patterns of collective action and the differing institutional support for response to backlash from the companies [24]. Tassinari and Maccarrone deploy labor process theory to focus on the contradictions in the work arrangements of delivery workers in Italy and the UK that might lead to collective action [35]. To explain the divergence in collective actions such as protests among delivery workers of different modalities in China, Lei proposes the concept of "platform architecture," which differentiates "technological, legal, and organizational aspects of control and management in the labor process and the variable relationships between them," [18, p. 279]. The act of leaving mainstream platforms in food delivery in favor of "indie" platforms where stakeholders felt there was greater agency and respect could be an individual or collective means to resist platform exploitation [6].

Researchers in CSCW and HCI have also designed and deployed interventions to address the needs of gig workers and improve their working conditions. In one example, Turkopticon was developed to support crowdworkers in sharing information to avoid unjust practices by job posters on the platform Amazon Mechanical Turk [13]. In another case addressing crowdworkers, Dynamo was designed to support Mechanical Turk workers in collective action by lowering barriers to forming publics and overcoming stalling and unproductive conflict [31]. Recently, codesign with rideshare drivers revealed perspectives of workers themselves in imagining more worker-centered algorithmic management [39].

This study builds on prior work on the nature of gig work and theorizations of both individual and collective resistance to this kind of digitally mediated, informalized work. I contribute a perspective that focuses on the global scale of gig worker resistance.

2.2 A theory of nonscalability

Anna Tsing has argued that scalability is one of the values of modernity, defined specifically as the ability of a project to continually expand without changing its nature [36]. She highlights the way scalability inhibits transformative relationships and diversity:

Scalability is possible only if project elements do not form transformative relationships that might change the project as elements are added. But transformative relationships are the medium for the emergence of diversity. Scalability projects banish meaningful diversity, which is to say, diversity that might change things. [36, p. 507]

She uses the example of sugar plantations to illustrate how scalability operates: by conquest and genocide of indigenous populations, and by destroying the ecosystems that existed in lands colonized, the sugar plantations can expand on what has been made *terra nullius*, and isolated crops can grow under tightly controlled conditions, tended to by the labor of enslaved workers. Ecosystems and relationships between people and land are destroyed, and controlled expansion is put in its place. While scalability is not good for diversity, it is capable of garnering massive profits for those who control the land.

Tsing seeks to denaturalize the positive value assigned to scalability and advances a theory of nonscalability. She advocates for a renewed ability to see and value diversity, in an effort to reconceptualize and rebuild the world away from the image of the colonial plantation. While nonscalable methods of production or relating are not automatically less exploitative than scalable ones, they leave more possibilities for diversity.

2.3 Critiques of scalability in HCI

Scale and scalability have long been concerns for CSCW researchers. For example, Brown et al. highlight the research challenges for HCI that come with designing for massive and continually scalable sociotechnical systems such as social media and big data [3]. Among scholars concerned with values-based organizations and social impact, scaling up has been one approach that is advocated, with a role for HCI to play in enabling greater impact for sustainability initiatives [2].

Recently, scholars have critiqued the normative force of scalability and scaling up as values for computing and social-justice oriented interventions, drawing on Tsing's theory of nonscalability. Hanna and Park argue against the overvaluation of scalability as a "morally good trait", which they refer to as "scale thinking" [10]. Tracing the logics of scale thinking in computing, they note that such logics need to be resisted in order to address social inequities in a structural manner. Larsen-Ledet et al. seek to challenge the association of large-scale and goodness, asking the HCI community to "challenge the bigness metaphor in both thought and action," and to search for alternate metaphors [17, p. 77]. Karusala et al. deploy speculative design as a means to preemptively explore the effects of upscaling of a WhatsApp health chat service. By centering workers' perspectives, they document the possibilities for growing the impact of the system without alienating workers or erasing diversity [14].

With a focus on social and solidarity economies, platform-mediated cooperatives, and non-profit sharing initiatives, scholars in CSCW have argued for attention to “processes of proliferation” as opposed to scalability [16]. Scalability, following Tsing’s theorization and understood as “a monocultural way to capture an ever-growing number of participants,” is profitable to those who own platforms, and is pursued relentlessly by venture-backed startups and companies [16, p. 1]. However, the values that underlie scalability in for-profit platforms also push these platforms to ignore the needs of marginal stakeholders, homogenize users, and take agency away from local actors. Advocates of social economies and social innovation have promoted replication via franchising and networked confederations of initiatives, which allows for greater impact without necessarily promoting the consolidation of a single platform or project [21]. Another counter to the over-valuing of scalability is the acknowledgement that some projects or initiatives have served their purpose and can end while still providing insights for future kindred initiatives [25]. Light and Miskelly consider how co-located sharing initiatives might engage in meshing rather than scaling, promoting a diverse ecology of initiatives that can share infrastructure without attempting to expand or capture ever-more users into their own platform [20].

This study builds on CSCW scholars’ critiques of scalability and scaling up as default values that ought to be universal aspirations for sociotechnical systems and organizations. I bring insights from this literature in conversation with gig worker resistance.

3 FIELD SITE

Empirically, this paper draws on two years of ethnographic engagement with gig worker activists, primarily those who organize with the de-facto gig workers union *Frente de los Trabajadores de los Plataformas Digitales del Ecuador* (FRENAPP) and members of organizations who are allied with FRENAPP. The union’s name translates to Front of the Digital Platform Workers of Ecuador. Although billed as a cross-sector gig workers’ movement, FRENAPP and allied organizations with which I conducted my ethnography were dominated by in-person forms of platform work, with a majority working in food delivery. However, rideshare drivers and crowdworkers also participated in the organizations, and materials published by the core organizations in my study were inclusive of different modalities of gig work. FRENAPP, as a national-scale union, engages in many activities that are focused on local issues. In this paper, my analysis focuses on the way that FRENAPP participated in transnational alliances of gig worker organizations and otherwise portrayed their cause as global in scale.

From 2022-2024, I worked closely with members of the FRENAPP organization, conducting participant observation. I spent five months in-person in Ecuador, often working out of FRENAPP’s office alongside activists, observing and supporting tasks such as applying for grants, keeping up with social media, and hosting virtual meetings. I also accompanied members of FRENAPP on activities such as making payments at the bank, reporting threats at the police station, and attending protests in support of allied causes. After leaving Ecuador, I have continued to conduct virtual ethnography via WhatsApp groups and Zoom meetings, as well as asynchronous participation and observation of writing tasks

including a collaborative book writing project and the creation of newsletters. Participant observation was complemented by analysis of documents produced by FRENAPP, news articles about gig work, and policy documents. By being involved in the day-to-day work of organizing, I was able to both contribute usefully to the cause and gain an embodied understanding of the material and discursive everyday of organizing. As feminist scholars have argued, all knowledge is situated. My ethnographic account comes from a standpoint that is sympathetic with the cause of gig workers seeking decent work conditions, and this research stages the matter of gig work and labor organizing from a perspective of care for the workers [11, 26].

4 ETHNOGRAPHY OF SCALING

Based on his engagement with large-scale cyber infrastructure projects involving geographically dispersed scientists, Ribes proposes “ethnography of scaling” as a method for studying sociotechnical systems and organizations that span borders and are large in size [29]. “Ethnography of scaling” is a complement to methods such as multisited ethnography, which seeks to ethnographically study global-scale phenomena by following an ethnographic object across time and space [22]. It also is a complement to what Ribes refers to as “scaling up ethnography,” or ethnography carried out by teams of ethnographers working on a common project but in distinct contexts. The core of the method described by the ethnography of scaling is to observe and analyze actors who are trying to understand and manage a large-scale sociotechnical system or organization. Ribes notes:

Rather than seeking to investigate the large-scale thing itself, the ethnographer asks of the actors: how do you know your enterprise? *The key insight in this method is the recognition that anytime there is a “large” endeavor you will find actors tasked with managing the problems associated with its scale.* [29, p. 158, italics original]

Ribes introduces the notion of “scalar devices” to refer to “practical activities, techniques, and tools” that are observable to an ethnographer, which actors use for “representing and coping with the size of their endeavor,” [29, p. 158].

This paper follows Ribes’s recommendation to focus analysis on how actors are representing and managing their large-scale endeavor. In particular, ethnographers are advised to focus on how a scalar device is developed and deployed, how it is received, and how it is taken up by an organization or sociotechnical system. In the sections that follow, I highlight the scalar devices that were prominently used by the gig worker activists with whom I engaged: the First International Gig Workers’ Congress, coordinated protest actions, and a book of gig worker testimonies.

5 FINDINGS: SCALAR DEVICES OF GIG WORKER ACTIVISTS

5.1 First International Gig Workers’ Congress

5.1.1 Development and deployment. The first scalar device I will describe in this paper is the First International Gig Workers’ Congress, which was hosted by an alliance of gig worker unions, collectives,

and other organizations from the Americas, Europe, and Asia. This event holds certain parallels with the All Hands meeting described by Ribes as a scalar device that enabled scientists to manage a large-scale collaboration [29]. It was a meeting which required many meetings to plan, where members of a geographically dispersed project could gather in-person to render the scale of the project available to human observation. Visas were applied for, plane tickets bought, hotel rooms booked, and agendas were made so that the event could run smoothly. Simultaneous translation was facilitated with headphones and a multitrack translation device, accommodating the “largeness” in terms of language diversity of the meeting.

5.1.2 Reception. Much like Ribes describes scientists taking turns presenting about their contexts to bring everyone onto the “same page” [29], the Congress featured presentations from representatives of many of the members of the alliance, summarizing organizing efforts that had occurred to date in each context. Each day of the Congress also featured in-person protests. These in-person experiences solidified social relations and allowed activists to enact the global scale to each other and to the targets of the protests.

5.1.3 Uptake. The meeting as a scalar device was taken up subsequently to continue to assert the global scale of the movement. Reports about the meeting circulated back among the members of represented organizations who were not able to attend in person. The name of the Congress also replaced the earlier name of the alliance that had hosted the meeting. The logos, flags, signs, and banners that had been created in support of the meeting and protests, which showed the individual logos of participating organizations and their flags in a circle surrounding a central icon, also continued to be circulated.

5.2 Coordinated protest actions

5.2.1 Development and deployment. Periodically, activists who participate in common WhatsApp groups circulate calls for signatories on open letters and ask for short videos of support to be posted to social media. These requests and the artifacts they produce serve as ad-hoc ways in which the scale of the movement is enacted. Open letters may ask for feedback from members or just provide options to sign on or not. Similarly, requests for videos may be accompanied by a suggested script or be more open-ended in nature. Generally, these ad-hoc requests took far less effort to fulfill than the work that went into planning the Congress. They were able to occur more frequently and on short notice, in response to external events. The scalar devices of open letters and messages of support allowed activists to represent and activate the global scale of their movement.

Coordinated protest actions were sometimes more involved than a signature or message of support. Protests, rallies, social media campaigns, and mutual aid events could also be coordinated at the behest of a member of the alliance. In one example, a large strike being held by the Brazilian collective *Ja Basta* was supported with mutual aid events, car caravans, and social media campaigns by allies in different countries.

5.2.2 Reception. Those who requested support have responded with appreciation for the expressions of global solidarity that are

made concrete via open letter signatures, messages of support, and other coordinated protest actions such as strikes, rallies, and mutual aid events. Without having to gather in the same place, actions coordinated in time enacted the global scale of the movement for activists.

5.2.3 Uptake. The coordinated protest actions continue to enact the global scale of the movement after their moment of release. They are referenced and reshared in subsequent documents produced by members of the alliance, such as in newsletters and social media posts. When shared again later, they provide a concrete means of demonstrating the solidarity that has been shared among the different members of the movement.

5.3 A book of gig worker testimonials

5.3.1 Development and deployment. The final scalar device I will describe in this paper is a book which collected gig worker testimonials from thirteen countries [12]. The process of developing the book shows how the global scale of a gig worker movement was made concrete in mundane activities that culminated in the more unusual event of the launching of a book.

One important mundane scalar device that contributed to the more notable scalar device of the book was a spreadsheet of contacts, kept and updated by leaders of FRENAPP. The most important information on the spreadsheet was the WhatsApp phone numbers of people who represented or belonged to other groups of gig worker activists. The global scale of the alliance was made more digestible as the spreadsheet was organized by continent and then alphabetically by country, so that various Argentine gig worker organizations could be found in adjacent rows on the sheet. Many of the organizations were small and grassroots, and did not have websites, but Facebook pages and Instagram accounts were linked whenever they were found. Another column of information was the languages spoken by contacts, which was generally not filled out for the South American continent as most people were expected to speak Spanish, but was more diligently noted for European countries.

The development of the scalar device of the book also involved applying for and winning grant funding from a foundation to support the work of writing the book, messaging the many contacts in the spreadsheet and arranging for interviews, as well as writing, translating, editing, and researching the material that went into the book. These activities supporting the production of the book allowed activists to enact the global scale of the movement.

5.3.2 Reception. A book launch event was held in Ecuador and online, featuring presentations from academics, lawyers, and activists. The talks celebrated the work done by gig work activists thus far and emphasized the need for continued mobilization with government and corporate targets, as a lack of regulation continued to contribute to the exploitation faced by workers. The book continues to be freely available as a PDF on FRENAPP’s website, making the transnational scale of the movement concrete.

5.3.3 Uptake. The book has served as a central point for various social media campaigns by FRENAPP. Posts often contain emoji flags of the countries represented in the book, further symbolizing internationalism. The book is referenced as a concrete artifact that

symbolizes the global nature of the gig workers' movement, where the parallels between gig workers' testimonies can be seen together in one place.

6 DISCUSSION: NONSCALABILITY AND GLOBAL GIG WORKER RESISTANCE

The analysis of scalar devices of gig worker activists shows how gig worker activists enact a global movement through concrete activities, tools, and techniques. Scalar devices I observed often referenced one another. Open letters from past meetings were reprinted as a part of the book. The book also featured a report on the Congress. Personal connections developed at the Congress fed activists' willingness to participate in further coordinated protests. Yet the movement's aspiration to be truly global in scale bumped up against border regimes and limited time and resources. International border regimes constrained who was able to attend the Congress in-person. Predictably, those with passports from the Global North, those of middle class and higher status could attend while those living under irregular migration status were rendered immobile. Despite limitations, through layered scalar devices, activists were able to understand, represent, and enact their movement as global.

Drawing on Tsing's theory of nonscalability, I argue that the scalar devices I observed among gig worker activists were able to enact the global scale of the movement while leaving room for diversity [36]. Multilingual translation welcomed conference attendees to speak in heterogeneous languages. Coordinated actions did not require each participating group to take the same action. This approach took into account that safety and other conditions might constrain certain groups from doing public protest. Collected testimonies in the book allowed both parallels and incommensurabilities to be shared without requiring the same structure or trajectory for each group's story.

Within CSCW, scholars have developed the notion of "processes of proliferation" to analyze how values-driven organizations can increase their influence without necessarily being drawn into the imperative to scale up or to become scalable [16]. Continued advocacy among gig workers will require not scalability or scaling up, but rather processes of proliferation that can spread the influence of the activists without requiring a monocultural capture of participants. Future work should consider how scholars and technologists can support "meshing" that increases impact without requiring monocultural scalability [20].

7 CONCLUSION

This study has highlighted three scalar devices observed in the global-scale organizing efforts of gig worker activists: the First International Gig Workers' Congress, coordinated protest actions, and a book of gig worker testimonies. By detailing the development and deployment, recruitment, and uptake of these scalar devices, I show how activists left room for diversity and mutual transformation while enacting the global scale. As the "uberization" of industries continues and increases the number of precarious workers, it becomes ever more crucial for gig workers to fight back against exploitative conditions at a global scale. This paper argues that making and maintaining a global gig workers' movement should

not focus on scalability or scaling up, but rather continue to proliferate a diverse ecology of initiatives that can contest monocultural platform capitalism.

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