Generative Politics and Labour Markets: Unions and Collective Life in a City in Crisis

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Abstract

The COVID-19 pandemic temporarily disrupted the operations of on-demand ride-sourcing digital labour platforms like Uber and Ola, severely impacting gig workers' labour opportunities. In response, the Kolkata Ola-Uber App-Cab Operator and Drivers Union in West Bengal, India, mobilised an alternate socio-technical infrastructure by operating emergency transport and taxi ambulance services. Our ethnographic study explores how this initiative leveraged technologies to structure and coordinate hybrid sites of action and 'generate' a labour market without profit motive to support the public health infrastructure. Our paper highlights the significance of what we call the gig worker union's 'generative politics' in creating resources to support workers and citizens, facilitating political action beyond protest politics, contributing to new counter-hegemonic formations, and shaping collective action centered around regeneration and care for the city and life under capitalism. We contribute to the HCI literature by offering insights to design alternate and participatory socio-technical infrastructures that challenge the hegemony of digital labour platforms.

CCS Concepts

• **Human-centered computing → Collaborative and social computing**.

Keywords

Digital labour, Gig work, Urban HCI, Crisis

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1 Introduction

In 2019, drivers on on-demand ridesourcing digital labour platforms (OR-DLPs)[1] (henceforth, ridesourcing platforms) such as Uber and OLA organised in the form of a traditional trade union, titled as the 'Kolkata Ola-Uber App-Cab Operator and Drivers Union' [1, 127]. Kolkata, the capital city of West Bengal in Eastern India, is one of the country's largest and most prominent urban centres. Ridesourcing platforms entered Kolkata's taxi market in 2014 [103], quickly surpassing the registration numbers of yellow taxi cabs within three years [9]. Although the Kolkata Ola-Uber App-Cab Operator and Drivers Union began to unionise in 2018, their early years saw a modest achievement of 200 members only in their WhatsApp group [36, 127]. However, they gained significant momentum after the outbreak of the COVID-19 pandemic, increasing their WhatsApp-based membership to 2,000 workers, when mainstream platforms' services had stopped completely. In the first wave of COVID-19 pandemic[2], spanning May to December 2020 [95], the Kolkata Ola-Uber App-Cab Operator and Drivers Union took proactive measures to ensure relief mutual aid (e.g. food kits) for its members amid the complete lockdown. When the second wave of the pandemic unfolded between April and July 2021 [95], the union responded to health infrastructure shortages by starting an "app-cab ambulance". The service provided employment to their workers and supported the broader community's health needs.

HCI and CSCW scholarship has focused on civic and state responses to COVID-19 crises [65, 72, 76, 86], showing how citizens organise and coordinate bottom up civic actions to build alternative sociotechnical infrastructures that support community needs [78, 79, 99, 118, 122]. This is especially true where state response

[1] Recent CSCW literature [127] critique the misclassification of profit-driven platforms like Uber and Ola as part of the sharing economy, which implies egalitarian and progressive connotations. Instead, highlighting the labour dimension of primarily full-time taxi drivers offering personal door-to-door services [1] in contexts like South Asia, the term on-demand ridesourcing digital labour platforms is adopted, which we also embrace in our paper.

[2] A COVID-19 wave involves periods of increase and/or decrease in reported SARS-CoV-2 coronavirus cases, with the rise during an upward phase or the decline during a downward phase needing to be substantial and sustained over time [144].

is inadequate. In moments of crisis, a sense of shared responsibility and solidarity drives citizens to collaborate with the state [5]. However, there is substantially less scholarship on how trade unions and worker collectives collaborate with the State or with citizens. While trade unions do contribute to communities beyond their member workers [10, 19, 47], this has not been studied by HCI and CSCW scholarship. In this study we look at how trade unions support social citizenship, broadening the scope of HCI scholars' ongoing efforts to support worker communities through research and design. Specifically, we show how workers responded to failing state infrastructure by generating alternate grassroots platform infrastructures through the use of social media tools such as WhatsApp [4] during the pandemic.

Our paper responds to the following research questions:

(1) How do worker collectives, such as trade unions, implement alternative socio-technical infrastructures that support both workers and the broader community in a city?
(2) How can the design and implementation of these alternative infrastructures support long-term efforts devoted to building spaces that promote interdependence and solidarity, beyond protesting capitalist capture?

We argue that the union's (Kolkata Ola-Uber App-Cab Operator and Drivers Union) remarkable success in growing its own base can be attributed to what we call the "generative politics" that it employed during the pandemic. Drawing on Craig Jeffrey and Jane Dyson [69], Michelle Williams [139], Anna Tsing [129] and the Gens Manifesto [15], we define generative politics as a commitment to sustaining collective life and care under precarious conditions, as a form of political action that resists through regeneration. In this case, workers' generative politics created an alternate labour market built around care, rather than profit motives. The success of this hybrid labour market, characterised by both formal and informal mechanisms, created the basis for regenerating situational trust and respect with the local bureaucracy and citizens, subsequently helping recruit new members, and in the process regenerating the union itself. The app-cab service (one part of their actions) was also counter-hegemonic as it challenged, reimagined and provided taxi service on demand against the norms of private ridesourcing platforms. The paper ends by offering future directions for resisting the platformisation of urban life through tech-mediated action, focusing on alternate designs for "infrastructuring" [74, 102] (the process rather than a form) that could challenge the hegemony of digital labour platforms.

2 Related Work

2.1 Civic and State Responses to the COVID-19 Poly-Crisis

Civic and state responses to crises are multifaceted, and demand collaboration and cooperation from various communities in both offline and online spaces [65, 86]. Past HCI and CSCW studies, particularly those exploring 'crisis informatics', have primarily focused on the role of social media in facilitating information-sharing and seeking practices [109, 140], crisis-coping efforts [106], individual and community resilience [99], as well as self-organising [122] and coordinating informal public responses and relief efforts such as mutual aid through ICTs during crises [27, 78, 118]. In the context of the COVID-19 pandemic, there was an increased reliance on ICTs, along with adoption [116] and appropriation [24] of technology for organising social and community activities, maintaining social relations and networks, and staying informed about health crisis due to disruption of in-person socialisation [60] and restrictions on travel, gatherings, social distancing, and government-enforced lockdowns [73].

Notably, studies highlight that citizens do not passively wait for state interventions but also actively organise and coordinate bottom-up actions and develop infrastructures to address crisis situations [66, 71, 79]. During the COVID-19 pandemic, local communities in the United States established food-sharing infrastructure, such as Community Fridges, to combat food insecurity [72]. Similarly, care-mongering groups emerged on Facebook to support community members' needs, and to appreciate individuals facilitating social interactions in their communities[79].

While the State plays a crucial role in mitigating crises by deploying technologies and developing socio-technical infrastructures as part of the effort, communities also complement and collaborate with [5], as well as develop independent efforts alongside state and local bureaucracies during such situations [76]. During the pandemic, mobile applications were deployed by state and non-state actors for disseminating public health information, contact tracing, enforcing quarantine for affected and symptomatic patients, and monitoring health symptoms [80, 128]. Amid crisis, communities developed their own collective intelligence and and situational awareness [133] by amassing hyperlocal information and coordinating resource requests [134]. Citizens also turn to social media to share images and videos in order to build empathy for those in crises [57]. Some of these efforts aim to fill gaps in state responses to crises and pandemic disasters [71, 78]. In India, community efforts resulted in a Hindi-language informational chatbot in the hope of mitigating citizens' reticency towards COVID-19 vaccines [76]. Often, local administrators are just one of many actors responding to large scale crises [28].

Simultaneously, crisis-times are uncertain epistemic and political windows that could provide an entry point for state actors to rebuild citizens' trust through verified information and coordinated action [5]. While there is substantial documentation of state-citizen cooperation during crises, the relationship between worker collectives, the state (or local bureaucracy), and citizens remains underexplored. This study aims to address this gap.

2.2 Unions as Social Entities

Trade unions have historically played a vital role in workers' lives beyond the workplace to support broader socio-political struggles. Prior scholarship has documented unions' role in women's suffrage [8, 96], their intersection with the civil rights movement [41], and their efforts in organising immigrant workers [91, 92]. Notably, unions representing members of oppressed caste communities have historically linked labour disputes with struggles against landlordism, addressing wider socio-economic conditions of life as manifesting in work conditions [123].

As prior studies note, apart from to reducing wage disparity [16], unions played a key role in promoting equality, mitigating racial

resentment among white workers [47] and supported class-based social movements [61]. They have also extended political representation to marginalised communities [19]. In all these ways, unions have proven to be important entities for sustaining democracy, enhancing political participation [20], and supporting democratic institutions [10].

In response to the decline of unions since the 1970s [51, 62], scholars have advocated for expanding the focus of unions as a strategy for revitalisation [138]. This includes organising workers outside traditional industrial relations and addressing broader issues [137, 138]. Kirsten S. Wever argues that addressing unresolved social issues and market failures can enable unions to expand their membership and strengthen their socio-political influence within societies [137, 138]. While male-dominated unions have been reluctant to broaden their focus beyond economic and workplace issues, women-led unions have a rich history of diversifying their tactics to address broader social issues such as gender equality and domestic violence. For instance, the Union of Women Domestic Employees (UWDE) in Brazil tackles issues such as domestic violence and abortion [89] and Chikodi Taluka Kamgar-Mahasang, a union representing home-based women *bidi* and tobacco workers in Nipani, Karnataka, India, addresses divorce cases, male alcoholism, and dowry-related harassment [94]. Similarly, many migrant worker unions also address social issues and citizenship-related vulnerabilities while advocating for the integration and inclusion of their members in host societies [2]. These efforts can contribute to the stability of industrial relations [70]. Moreover, in organising informal, domestic, and home-based workers, unions have developed initiatives focused on education, leisure, and alternative income-generating projects, such as forming cooperatives and credit networks [7, 17, 89]. Recent scholarship highlights how the service economy labour movement, mostly based out of cities, has focused on building political power through coalitions with community groups, transforming some contemporary unions into "good community citizens" as well [53, 131]. HCI and CSCW literature has yet to explore the contributions of trade unions beyond the workplace.

2.3 Gig Workers and Social Media

Scholarship across HCI, CSCW and other fields has shown how social media platforms provide space for informational and emotional support building for gig workers [142] and how they facilitate algorithmic sensemaking [83]. Social media communities also counter the opacity and atomisation of gig platforms by providing workers with a venue to communicate with each other [3], develop a shared understanding of the daily realities of their work, a collective identity [87] and tactics of micro-resistance [127]. They also provide the space for servicing social relationships in the absence of a physical "water cooler" space [105]. Importantly, social media platforms and communication tools have become central to recent organising efforts by gig workers [54, 141], facilitating "informal unionism" among beautician workers [37], hybrid and networked unionism among ridesourcing platform workers [127], and social movement unionism among food delivery workers [29]. Especially during the pandemic, essential workers, including gig workers used technology-mediated information sources (e.g., social media and traditional media) to stay informed, assess personal risk, and meet job requirements [6]. Building on this work, this paper shows *how the affordances of social media platforms can be extended in service of union organising and doing mutual aid work remotely.*

2.4 Failed Infrastructures?: Gig worker Condition and Responses to COVID-19

Gig workers have emerged, not only as 'essential workers' during the pandemic but also as the key deliverers of what some have called the "infrastructural promise" [114] of corporate gig platforms [4]. Ironically, not only did this *not* increase the social and economic value of gig workers but in fact, as revealed during the pandemic, their so-called "infrastructural" position, pushed them towards riskier unprotected work conditions, demonstrating how workers' lives are considered totally disposable by the platforms they work for.

For instance, there was no sick pay or health insurance for gig workers [43] even as all gig workers faced severe significant income loss [43, 98] and unemployment early in the pandemic, especially since many platforms were not allowed to operate for public health reasons [130]. Once platforms were allowed to reopen, their policies shifted work-related risks onto workers. For example, when food and grocery delivery platforms introduced "contactless" delivery and health protocols, the focus was on surveilling the health and hygiene of gig workers to predominantly appease platform customers, while making no provisions for the safety and recovery of workers infected on the job. Other worker needs that received minimal to no support included personal loan requests, deferring loan repayments, and providing minimal sick pay [45, 119, 132]. What these details confirm is the co-option and devaluation of gig workers as they become "infrastructural" *through* corporate, profit-maximizing platforms. It is against this backdrop that the worker actions we present in the paper, geared towards building socio-technical infrastructures based on a different set of values and communal goals become so potent as examples of real, alternate and emancipatory futures. HCI and CSCSW work has looked at mutual aid efforts [105], worker cooperatives and platform cooperatives [55, 68]. This paper contributes to this growing body of work on how local communities and worker collectives generate ad hoc and long term support in the face of infrastructural breakdown.

2.5 Generative Politics

We situate this paper's analysis along the concept of 'generative politics', one that has been defined and employed expansively across fields.

Geographers Craig Jeffrey and Jane Dyson [69] used the term in their work to describe the civic action of young and underemployed men in North India such as coming together to fix broken water pipes and solve other daily life issues. These men would tell Jeffrey and Dyson that they were engaged in a "type of generative politics…one concerned with making and protecting resources – rather than the self-interested politics of members of the political establishment." What the researchers found particularly "generative" about this form of political action was the focus on creating rather than competing over resources, including assets and jobs but also "ideas…networks and capabilities" [69, 100, 113]. As Jeffrey

and Dyson write, the term 'generative politics' was coined by sociologist Anthony Giddens [49] to refer to efforts by ordinary people to develop relationships of trust with those in political power. Importantly, for Jeffrey and Dyson [69], generative politics emerge, not despite or above one's political and economic context but rather as a contingent product–a set of contextually developed practices, relationships and resources. An example of such generative politics, they describe, is how people manage to negotiate, cooperate and use their energy to create jobs and "produce things for your people."

Michelle Williams, in her work on participatory democracy, goes further to identify generative politics in practice "as a form of political action that is attentive towards creating and shaping new institutions…for mass participation rather than relying solely on protest politics…" Not just this, Williams also emphasises how counter-hegemonic generative politics between groups of working-class members can lead to new frameworks for societal transformation and alternative organisations [139].

Finally, a third notion of generative politics that we find resonant for our analysis refers to re-generation as a social, political and ethical commitment in order to make life viable under capitalism. We take inspiration from Anna Tsing [129] as well as the collective authors of the Gens Manifesto [15] who recenter the relationships and processes involved in "generating" (platform and urban) capitalism. They call upon us to pay attention to the diversity and contradictions inside capitalist projects and thus also remind us that social, economic and political outcomes under capitalism are not foregone conclusions– they are being generated as well.

Our paper is motivated by at least three understandings that emerge from the literature on 'generative politics' discussed above: 1) a "generative" attitude or orientation towards political action that focuses on creating material and immaterial resources, 2) political action beyond protest politics that contributes to organic solidarity and finally, 3) collective action centered around regeneration and care for the city and collective life under capitalism.

3 Background

3.1 Taxi Market

Kolkata's taxi market underwent a significant shift in 2014 with the arrival of ridesourcing platforms [103]. Before that, the city primarily relied on traditional yellow taxi cabs, infamous for their high ride refusal in less profitable areas and reluctance to use standardised metres for fare calculation [125]. Cab drivers in Kolkata include native Bengalis and migrants from central and eastern India [31, 108]. Traditional taxi drivers have often been labelled 'uncivilised' and 'rogue' [30] while ridesourcing platforms' drivers are seen as "more professional," given the enhanced customer experience provided by platforms such as upfront pricing, in-app booking, and the ability to share trip details with family or friends [12]. The taxi industry in West Bengal has long been unionised, with strong links to various political parties [14].

In 2015, as ridesourcing platforms' drivers began to emerge as important players, the West Bengal Online Cab Operators'/Owners Guild (WBOCOG) began organising app-based drivers [36]. In 2018, the Kolkata Ola-Uber App-Cab Operators and Drivers Union (KACODU) was established, and it later grew to become India's largest app-based drivers' union, with a membership of 4,000 [127]. They demonstrated a case for hybrid and networked unionism, where the traditional trade union reinvented its organisational structure by prioritising worker-organisers over external organisers [127]. ICTs, such as WhatsApp, became critical technologies for managing the union's everyday activities [127]. However, despite forming a union, ridesourcing platforms' drivers had not engaged in social and community service before the pandemic. While WBOCOG, with its links to the ruling party, was reluctant to address the drivers' conflicts and issues with the local bureaucracy, the KACODU, connected to an opposition party, actively sought to contest these issues [127]. This context is crucial for evaluating initiatives such as the emergency transport service and app-cab ambulance service undertaken by KACODU during the pandemic, especially in their subsequent efforts to foster situational trust and cooperation with local authorities.

3.2 COVID-19 Outbreak

With the outbreak of COVID-19, West Bengal faced severe impacts, including high death tolls. In late January 2020, the state initiated social distancing, restricted travel, quarantined international returnees, and strictly monitored interstate movement [111]. However, on March 17, 2020, West Bengal reported its first COVID-19 case [117]. The state imposed a lockdown on March 22, preceding the national lockdown on March 25. This led to the total suspension of ridesourcing platforms' services, including Uber and Ola, which had already halted their shared ride options, Uber Pool and Ola Share, due to the rising number of COVID-19 cases [88].

With the surge in cases during the second wave of COVID-19, the metropolis of Kolkata experienced a disproportionately high impact from the COVID-19 infection and death counts [18]. The city also faced acute shortage of oxygen supply for patients [32]. The lack of transport, including ambulances, in times of need and exorbitant pricing compounded the ongoing public health crisis. These issues, exacerbated by financial constraints and an overburdened public health system, further challenged the state's response [111]. Against this backdrop, the city witnessed the emergence of various civic and worker relief activities, such as community kitchens and volunteers assisting in delivering oxygen cylinders to those in need [35].

4 Data and Methods

This study is part of a broader project exploring the unionisation of gig workers in India. We employed an ethnographic case study approach [48] to examine how the Kolkata Ola-Uber App-Cab Operator and Drivers Union supported its members during the COVID-19 pandemic. Participants included drivers working on ridesourcing platforms who were part of the union, as well as union organisers. All participants in the study provided informed verbal consent prior to their involvement. The researchers explained the study's objectives, potential benefits, risks, and the measures taken to ensure participants' privacy and confidentiality during the study as well as in the dissemination of research findings. These explanations were provided in the participants' local languages, Bengali and Hindi. The consent process was formally witnessed and documented through audio recordings of the interviews by the first and second authors. Although our participants did not accept payments, we later made a contribution to the union, despite their reluctance.

This study was approved by the Research Ethics Board of the host university of the first and fourth authors.

4.1 Data Collection

The second author began data collection in February 2022, focusing on union activities during the pandemic. She was later joined by the first author in July to August 2022 and again from June to August 2024. Data relevant to this paper was primarily gathered from July-August 2022 and August 2024.

We first gained insights into the focus of this paper—the union's activities during the COVID-19 pandemic, including initiatives such as mutual aid and the app-cab ambulance—during a preliminary interview with P1, an external organiser, in July 2022. This interview was facilitated by the second author's positionality as an activist-researcher with longstanding trust within the worker communities. Subsequent participant recruitment was conducted via snowball sampling, with whom neither researcher had any prior connections. Participants were selected based on their direct involvement in the app-cab ambulance initiative, with an effort to diversify our sample, ensuring geographical diversity (e.g., South and North Kolkata) and gender representation, including two women drivers who were critical to the initiative.

The semi-structured interviews (Table 1) lasted 60–90 minutes. The first eight interviews were conducted between July and August 2022. Following the first round of data analysis, a follow-up interview with Participant 1 (P1) was conducted in August 2024 for 60 minutes, along with another external organiser, Participant 9 (P9), who had played a key role in the app-cab ambulance service but whom we could not interview in 2022. These follow-up interviews clarified figures regarding membership growth and mapped the operations of location-based WhatsApp groups in relation to the union's physical camps during the pandemic, informing Figure 1. As external organisers maintained the physical copies of these records, revisiting them in person was essential. Additionally, the August 2024 interviews provided updates on recent organising initiatives and political actions, including efforts to pressure the government to regulate the ridesourcing industry, which was relevant to the broader project.

Through these semi-structured interviews [112], we investigated how ridesourcing drivers experienced and navigated the COVID-19 pandemic. We particularly asked about their work conditions, the challenges they faced when ridesourcing platforms temporarily withdrew their services, alternative arrangements they participated in for finding work and navigating social and political life, how they coped with the crisis, and their expectations from platform companies and the government during such moments of crisis, such as the pandemic and the subsequent nationwide lockdown (see Appendix B for the Interview guide).

4.2 Participant Observation and Triangulation

In line with our research design, we employed multiple triangulation of investigators and data sources [34]. Both the first and second authors, with differing positionalities, were actively involved in field visits and data collection. In addition to conducting interviews, we engaged in participant observation and informal conversations with drivers. The first and second authors also undertook numerous rides using Uber, Ola, and inDrive services in the city to socialise with drivers. These interactions included visits to the union office, union-organised events (e.g., conventions), and social spaces frequented by drivers (e.g., tea stalls, car garages, and union and party offices). During fieldwork, we also observed conversations in union-maintained WhatsApp groups after union leaders, who served as administrators, consented to share their screens with us. This helped enhance our contextual understanding of the discussions we were having with them—for example, by showing us how workers quickly responded to fellow members' concerns in the workplace. However, we did not join these WhatsApp groups, and no data from these conversations—such as texts, photos, videos, or audio—was collected or used for research purposes in this study.

The first and second authors kept separate field notes, which were analysed after interviews or at the end of each field visit day to refine the research process. This iterative approach included adding new questions to the interview guide to probe emerging themes. Access to union offices also provided membership records and union-related materials (e.g., posters and pamphlets). By corroborating interview findings with observational data, this approach enhanced the validity and reliability of our field data [48] and deepened our immersion in the drivers' social contexts, which is central to ethnographic research [42].

4.3 Data Analysis

Interview transcripts and field notes were translated into English to facilitate joint analysis. In January 2023, the first and fourth authors conducted a reflexive thematic analysis [21, 23], a method suited to ethnographic case studies that facilitates the active, iterative generation of themes through systematic engagement with the data [22]. We iteratively developed and refined codes as part of the collaborative coding process, grouping initial codes into broader themes. We were attentive to the multiple meanings inherent in our transcripts [126], and discrepancies in coding were resolved through collaborative discussions between the first and fourth authors. These discussions allowed us to critically reflect on different interpretations, revisit the data, and reach consensus. This iterative process helped resolved conflicts and helped the analysis by incorporating diverse perspectives.

Between May and August 2024, the first, third, and fourth authors analysed the themes developed from the data (see Appendix A), generated new conceptualisations, and structured the outline of this paper. Our focus was narrowed to categories such as the union's mobilisation of resources and union-led initiatives (e.g. mutual aid, essential transportation services, formation of app-cab ambulance), union coordination (e.g. online medium: tech-mediated networked organising, online medium functions) and coordination effect (e.g. creating employment, creating market, enhancing participation in unions, nurturing trust and worker solidarities).

4.4 Ethics and Interpretive Reflexivity

The first and second authors, who participated the fieldwork, sharing an interest in documenting the union's activities during COVID-19, drew from their ethnographic tool kit, what Reyes described as "researchers' own social capital, identities, and backgrounds, among other characteristics" [110]. The first author, a South Asian man

Table 1: In-depth Semi-Structured Interview Participants

ID	Gender	Age	Language	Operation Area	Role in Union
P1	M	30-35	Bengali	Kolkata	External Organiser
P2	M	45-50	Bengali	Kolkata	Worker Organiser
P3	M	40-45	Bengali	Kolkata	Worker Organiser
P4	M	40-45	Bengali	Kolkata	Union Member
P5	F	35-40	Bengali	Kolkata	Worker Organiser
P6	F	30-35	Bengali	Kolkata	Union Member
P7	M	45-50	Bengali	South Kolkata	Worker Organiser
P8	M	30-35	Urdu/Hindi	North Kolkata	Worker Organiser
P9	M	40-45	Bengali	Kolkata	External Organiser

familiar with trade union settings in the country under study, is proficient in English, Malayalam, and Hindi. He had previously explored the role of traditional trade unions in West Bengal, focusing mainly on their involvement in creating alternatives such as cooperatives in an academic context. Therefore, the first author was familiar with the political and ideological debates within the union, which oriented the direction of union's everyday activities and operations. The second author, a South Asian woman and an activist involved in the left trade union movement, had prior connections with the union studied. She had also lived in the city where the study was conducted for three decades and spoke the two languages crucial for our research—her mother tongue Bengali, and Hindi. Notably, the second author, sharing political, cultural and linguistic identity with our participants had access to both tacit and intrinsic knowledge [77] about the union and she maintained deeply personal and meaningful relationships with our participants. Therefore, due to the activist identity of the second author, participants often spoke more candidly than they might have otherwise. As a result, the researchers made decisions to avoid excerpts not directly related to the focus of the inquiry from analysis, such as women drivers' gendered experiences within their households and with their partners. Moreover, before making scholarly claims, in July 2024, we discussed with the union on the nature of union's empirical description to avoid misunderstandings between the union and the researchers. The process reflect how we identified, processed and developed the patterns we deemed as meaningful [84].

5 Findings

5.1 Generating Critical and Social Infrastructures

During the first wave of the pandemic, as India experienced a nationwide lockdown and economic disruptions, the Kolkata Ola-Uber App-Cab Operator and Drivers Union mobilised funds for its members through donation drives via its existing social networks and started providing ration food kits to driver-members and their families. As P1, an external organiser explained, with the sudden onset of COVID-19 in March 2020, people ceased all activities involving external contact, leaving taxi drivers and delivery workers without work, making it difficult to run their households. In this situation, essential supplies from the union such as rice, pulses, and milk for children, were instrumental in their members' survival.

However, as the pandemic persisted, it became unsustainable for the union to continue providing food or monetary support. The leadership began exploring alternate ways to continue helping its members. It is during this time that P1, who had previously supported a nurses' strike in 2018, was contacted by one of those nurses seeking assistance from the union in arranging transportation from her home to the hospital. Through this arrangement, the nurse was able to find help, and the driver who ferried her was paid a premium given the critical situation.

Following this episode, the union recognised that transporting frontline workers could provide a sustainable means of supporting their member drivers, who were deprived of employment opportunities. They began exploring cross-organisational connections, particularly within the health sector, to create paid opportunities. As they started transporting health and other frontline workers, the union successfully negotiated with the police to obtain "essential worker travel passes" for its member drivers, facilitating emergency transportation within the city. Since the state government and the city administration were also struggling to maintain intercity and local transportation services, they allowed the union to organise and operate emergency transportation services.

The union's ability to provide paid work to its members through the emergency transport service also attracted non-member drivers to join, especially when the State and ridesourcing platforms could not provide subsistence. Union leaders offered work opportunities but also devised a rotation system to ensure trips were fairly distributed among drivers, guaranteeing each member at least one trip. These actions highlights how a traditional union, inspired by an unconventional incident (assisting the nurse), adapted during the pandemic and functioned as both a social and civic entity. By collaborating with administrators and the police, the union aided both workers and citizens in their time of need. The union's prosocial work, agility and support to local communities surprised and softened many of its skeptics (citizens, authorities).

5.2 The App-cab Ambulance Service: Innovation and adaptations in Tech-Mediated Networked Organising

The second significant way in which the union provided critical infrastructure was through an "app-cab ambulance" service, facilitated via the messaging and social media app WhatsApp. During the second wave of COVID-19 in India, which peaked in March

and April 2021, West Bengal was one of the worst-affected states in India [13]. With the surge in demand and the inadequate city health infrastructure, it became increasingly difficult for the general public to access or afford private hospitals and ambulance services. Despite the Supreme Court of India's urging for state intervention [104], ambulance costs remained prohibitive. In response, the union repurposed its members' cars as ambulances at minimal rates, initiating what they called an "app-cab ambulance service."

5.2.1 Expanding Networked Unionism in the Pandemic. Since its inception in 2018, the Kolkata Ola-Uber App-Cab Operator and Drivers Union has relied on WhatsApp groups as essential tools for communication and coordination. Initially limited to a single group of nearly 200 members and a separate mother group containing admins and external organisers, the union expanded its use during the pandemic to provide employment support and alternative public services. This expansion coincided with the suspension of ridesourcing platform operations (e.g. Uber, Ola). Following the successful setup of emergency transport services, the union created and circulated a digital flyer containing the phone numbers of five members, advertising the start of the "app-cab ambulance," which generated significant demand across the city within a few weeks. In response, organisers created 14 additional location-based WhatsApp groups to coordinate demand and supply across different areas of Kolkata. These WhatsApp groups were supported by physical camps near major hospitals, that stored and distributed sanitising and health-related resources, coordinated food from community kitchens, conducted health camps for drivers, and provided spaces where drivers could hang out and socialise. Figure 1 visualises the socio-spatial axis of Kolkata city addressed by union's location-based WhatsApp groups.

Initially, limited to 300 cabs, the union exceeded the permission limit granted by city administration, due to rising demand, and engaged 600 drivers. Thus, the WhatsApp groups far exceeded their original function of facilitating communication (between union leaders and drivers) and ride allocation, becoming veritable sites for issue-based collectivisation. Their popularity further expanded union activity and mutual aid networks.

5.2.2 Creating Grassroots Platform Infrastructures. The most fascinating aspect of this case of hybrid and networked unionism is not just the union's ingenious use of WhatsApp groups for communication and coordinating critical services. In this section, we detail how, using the general-purpose socio-technical affordances of the WhatsApp platform, the organisers replicated key functions of app-based ridesourcing services through human labour and coordination while also infusing their ad hoc ridesourcing platform with their notions of fairness, empathy, and care for the most vulnerable in their communities. These notions are implicit in how they "designed" the management of demand and supply, set appropriate fares, and decided to address worker and client grievances. In the sections below, we elaborate on three important platform functions taken over and retooled by the union's app-cab ambulance service.

Allocating Drivers. The five union members whose phone numbers were listed on the digital flyer were responsible for handling ambulance requests over the phone. These five "central admins" were also co-admins on all the 14 locality-based WhatsApp subgroups. Simultaneously, there was one centralised WhatsApp group for the 'central admins' and 'locality admins' to interact among themselves. Each locality-based WhatsApp group also had drivers available in that area.

People would call to request an ambulance and provide their location, phone number and other necessary information to the 'central admins' to facilitate pickup. This information would be passed down to the relevant locality-based WhatsApp group where the group admin would allocate that ride to a driver based on who was available and closest to the customer. Additionally, the organisers enforced a rotation system to ensure fairness, with most rides allotted the night before and emergencies handled by standby driver. This system ensured that the on-duty drivers got enough rest, and all members got at least some amount of regular paid work through the week.

As is evidenced above, through an intricate yet structured hierarchy of WhatsApp groups, the union created a real-time on-demand ride allocation system. Once the general structure started to function smoothly, the admins improvised quite a bit; instead of calling to relay ride information to local admins, central admins soon started to relay the information via text. Further, the central coordination group expanded beyond ride allocation to discuss drivers' health, operational challenges and local admin requests for sanitisation kits, medication and other driver needs.

Modality for Calculating Fares. The union charged the same base fare as Uber, which was INR 12 per kilometre (USD 0.14) but had no dynamic or surge pricing, thus introducing a level of predictability and trust that customers had lacked in app-based platforms as well as with traditional yellow cabs before the pandemic. Both in-bound and outbound fare estimates were provided to customers at the time of booking with an additional fee of INR 500 (USD 5.95) to cover the cost of PPE (personal protective equipment) kits and for sanitising the vehicle after each ride.

Later, as this initiative gained visibility and praise from civil society and the media, the union began receiving PPE kits and sanitiser donations, thus allowing them to reroute the sanitisation fee to subsidise ambulance trips for underserved customers.

Health Surveillance. One important distinction we note in the union's worker-centric design of this system is how they handled health surveillance in the app-cab ambulance system. During the pandemic, Uber and its rival Ola cabs, as well as food delivery platforms in India, resorted to granular, top-down bio-technological surveillance of gig workers including mandating body temperature checks before every ride or food-order pickup along with generating and providing reports on vehicle and restaurant sanitisation to customers. In that sense, even as drivers were provided with PPE kits, "safety screens", and sanitisation material, platform companies mounted this "theater" of health surveillance to primarily reassure paying customers and to keep drivers healthy in service of the platforms' operations.

The union also understood both the drivers and passengers health concerns while travelling in cabs. Initially drivers were hesitant to ferry COVID-19 patients in their vehicles. This is when two female drivers, inspired by the overall altruistic mission of the union, volunteered to ferry patients, especially as these women had

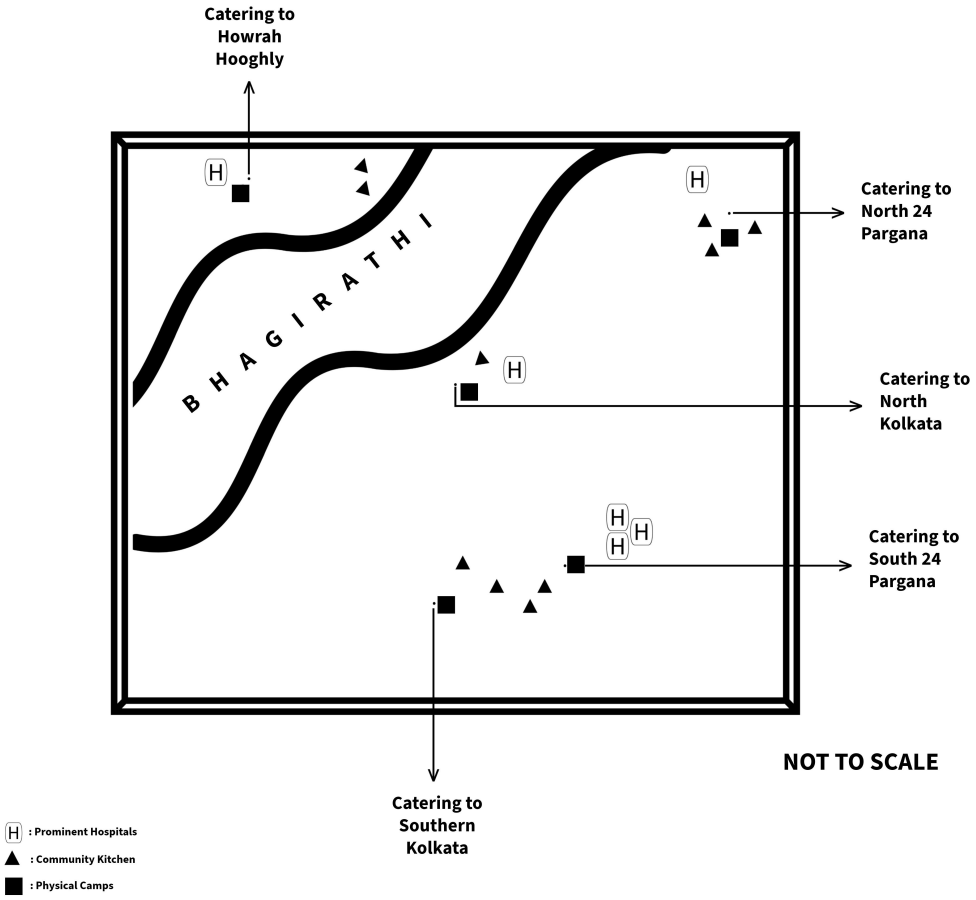

Figure 1: The socio-spatial axis addressed by location-based WhatsApp groups

already contracted and recovered from the disease. Their demonstration of leadership and initiative not only encouraged other drivers to participate but it also reinforced the collapsed member-leader hierarchy during this exceptional time, thus instilling an increased sense of ownership and the ability of members to shape the union's actions. Importantly, it is not that the union did not care about the customers but it is the fact that their design and provisions of PPE kits, handwashing and sanitisation protocols and ensuring better ventilation were all measures that made no distinction between the lives and health of drivers and customers.

Resolving Grievances and Challenges. Finally, as is true of any paid service, the union had to develop accountability and grievance redressal mechanisms for the app-cab ambulance. In this case, the significant challenges and grievances were from the drivers running the ambulance. Especially as driver membership increased and the app-cab, not the ridesourcing platforms, became the major source of paid work, drivers initially complained about the growing queue for taking on more than one ride a day. This challenge was resolved due to the existing kinship and fraternal bonds between the drivers as union members whereby some would give up their opportunities to support others who needed the supplemental rides and income more.

As our participant P6 explained:

> "Like for carrying the COVID patients, to and from a hospital, the journey fare was paid by Abhoy Da [anonymised, union organiser]. I said to Abhoy da that since I got passengers, all other trips should be given to someone else. I was getting 10 duties a month. It would suffice. Rather give the duties to those who are unable to sustain themselves."

Again, it is not that each driver did not want to prioritise their own well-being but compared to the atomisation that platforms like Uber and Ola create where solidarity is discouraged by design, the networked union was able to leverage the existing kinship of their underlying social organisation [90] in order to reach a care-based resolution that served all their member-drivers in the long run.

This section detailed how the union leaders and their driver-members leveraged the affordances of WhatsApp groups not only for communication but also to replicate functions like ride allocation handled by algorithmic systems in platforms like Ola and Uber. Additionally, we also describe how fares were determined for the app-cab ambulance and how the organisers conducted health surveillance for community benefit.

In designing this alternate platform, the union did not sacrifice the value of 'flexibility' that capitalist gig platforms often claim to offer. Instead, they reimagined flexibility in ride times, demand and supply of rides and expanded their functionality to supplying other essential resources as well. Similarly, when deciding fares, even though the app-cab ambulance was a paid service, since the union's aim was not to maximise profit but rather ensure livelihoods for workers while also being fair to customers, including those with limited means, their decision to keep fares predictable (rather than dynamic) and their decision to subsidise select rides with their surplus funds contributed to a larger shift in taxi drivers' reputation (from being seen as "crooks and rogue actors" [31] to being seen as reliable and fair).

5.3 Regenerating the Community and the City

5.3.1 Generating Organic Solidarity for Public Action. Even as volunteering to drive the app-cab ambulances involved significant health risks for drivers; nonetheless, participation remained substantial. Critically, volunteering was more than just finding paid work; it was an important expression of solidarity rooted in a shared position within the division of labour.

As P5 explains;

> "If everyone stays at home, there would be no one for the service. Who else is there for people like us? I joined the service with the belief that if I didn't help people in their bad times, no one would come to help in my bad time."

For working class communities, state apathy is not new, and survival depends on fostering interdependence and social cohesion. Despite it being their right, in the absence of state support and welfare, these communities do not wait indefinitely but instead take it upon themselves to fix, repair and regenerate the infrastructures essential to their own survival.

Furthermore, these workers are also inspired by the generative role played by other working communities in supporting social citizenship. For participants like P4, involvement in app-cab ambulances was inspired by observing other worker and youth initiatives, such as the Red Volunteers, who were providing oxygen cylinders to those in need and facilitating the cremation of COVID-19 patients, motivating him to serve society in his own way.

Another informant, P7 risked ferrying 57 COVID-affected patients to the hospital. Like all our participants, he said he did not want to passively witness his city collapsing amid the crisis and wanted to attend to those overlooked by the state. Despite being unrelated to each other and being constrained by their own financial conditions, they were determined to contribute via their only and biggest resources- their labour.

5.3.2 Regenerating Employment and Labour Market. By the union's estimate, the combination of various initiatives generated approximately 200 jobs everyday and INR 800,000 (USD 9531) revenue in total. Notably, the scale of business generated by the union was particularly high during the first phase of COVID-19, when Uber and Ola, were completely shut down due to pandemic regulations. At this time, the emergency transportation service was especially valuable and lucrative as the only source of outstation rides and long distance trips to and from Kolkata. In contrast, the app-cab ambulance became a valuable source of paid work and employment for drivers operating locally in Kolkata.

After restrictions were lifted and commercial platforms restarted, the union realised that it was no longer the exclusive provider and decided to divert all driver resources to the app-cab ambulance service. As a testament to its popularity, even though the union had permission to operate only 300 cabs, they were actually operating up to 600 cabs daily. Recognising the popularity and criticality of the service, local authorities did not crack down on drivers without permits.

5.3.3 Regenerating Situational Trust. By regenerating situational trust, we mean that despite being politically aligned with the opposition party in Kolkata, given the union's pandemic-based social service, it was able to garner the trust and support of representatives from a different party, local bureaucrats, as well as apolitical health workers.

As P1 explained;

> "...we worked solely for the the public...the government officials like police, hospital workers, other government staff members – helped us. They (police) did not block our cars because they know that we were working for the larger good. Services like PPE kits and other equipment were purchased with public donations. The union didn't have sufficient funds for large expenses. We posted our needs on Facebook, and people donated."

As the union crossed ideological lines and focused its efforts on supporting ordinary citizens by providing services instead of say, organising protests and demonstrations to visibilise the failure of the state government, it received support and collaboration from traditionally antagonistic actors such as the police but also civil society groups and individuals who, while refraining from political action, were happy to contribute through monetary and assistive health resources (PPE kits, sanitisers). This situational trust created during a crisis also created precedents in terms of relationships and communication channels that have changed how the union is perceived as a socially trustworthy and helpful entity within the city since then.

5.3.4 Regenerating Unions. The union's activities during the COVID-19 pandemic, such as the app-cab ambulance service, not only (re)generated the labour market and situational trust with various actors but also within itself, generating conditions that fostered the emergence of worker-organisers. This occurred through: a) the union mediating worker-experiences of gaining recognition from local society and bureaucracy, b) attracting new members from previously reluctant communities and individuals.

First, as workers began receiving respect and recognition from local bureaucracy and society, they started valuing the union and their roles within it more seriously. As P2 viewed, "The police started being a little respectful to us. The Union Sticker and the Red Volunteer Sticker, both were like badges of honour." Similarly, P7 noted that even high-ranking police officers now refer to a worker-organiser respectfully as "babu." [3] When the police respected the union stickers on cabs, it recognised both the union's associational bargaining power and its role in saving the city from collapse amid a crisis. Particularly for a union lacking support from the ruling party, transitioning workers from fear of police harassment to confronting them and even gaining their respect represents a significant achievement, strengthening the associational power of the workers. Furthermore, the app-cab ambulance initiative also sparked broader interest in the union from the general public. Many union organisers were featured in the media, enhancing their organisational visibility. Through their own social media, the union showcased their service efforts and testimonies from ordinary citizens to remind the city residents of the workers' indispensable role in supporting the community. Our participants contended that the union's efforts to regenerate the city rather than protesting had led to this image rehabilitation from "rogue actors" to "heroes".

Secondly and importantly, many new members including younger men and women, especially those with no prior experience or interest in political action or organised labour movements were attracted to join, especially as they witnessed the functions of the ambulance service. As our participant P3 recalled:

> "I did not want to join the union earlier. I do not want any political connection. I just wanted to do my job and take care of my family. But later i saw the union was doing good for the society. I then wanted to help in my small ways."

Many women who joined later used to think of the union as a predominantly masculine space, run and organised by men. But the ability to volunteer for social and public service activities made them feel familiar and capable of participating without having much political or ideological background. Once they joined, they realised that they were now embedded in a community of care and protection. P5, who is now a key worker organiser, explains her change in perspective:

> "I joined the party [union] to be part of the Red Volunteers Car Line [app-cab ambulance service]. Yes, there are benefits to joining the union that you can't receive if you are on your own. My sister used to worry about me...now she is relieved, as even if I am outside having some issues, tens and hundreds will come to aid me (from the union). Even when there is an issue with the car, they assist me—whether it's providing physical help or guiding me over the phone."

In that sense, for many new members, since the union was not functioning in a traditional way, it created space and opportunity for them to not only join but also to re-generate the union as their space. For instance, P5 now also runs a separate WhatsApp group for women drivers and maintains a liaison between a dozen women drivers—some of whom have not yet joined the union—and the union's activities. Many other women drivers similarly shared a journey from being apprehensive and doubtful about joining the union to becoming worker-organisers.

If the union had solely focused on agitation and collective bargaining, it likely would not have won the support of many drivers. Through initiatives such as the app-cab ambulance service, the union was able to harness these workers' compassion for humanity and utilise their skills and labour as part of a larger collective movement. This approach created conditions that fostered the development and growth of more members and worker-organisers. Crucially, the app-cab ambulance initiative transformed drivers from passive participants in the union's WhatsApp groups into active contributors with a generative role in sustaining the city.

6 Discussion

During the COVID-19 pandemic, when ridesourcing platforms paused operations in Kolkata, given the workers' legal status of "independent partners", platforms had no obligation to care for or support them. After public pressure, some platforms eventually provided support, but only to the workers that remained active and operational [121]. While this moment revealed that platforms were only interested in workers as long as they remained functional "cogs" in their profit-machine, it also became evident that platform companies had no obligations towards citizens unless they were paying consumers. In the absence of support from platforms, workers have histories of creating the collaborative infrastructure they need for themselves [52]. In our case, the union cared for both the workers and the city in crisis, and rebuilt the broken transportation infrastructure, by generating tech-mediated sites of action and a new labour market, but with values different from those of private ridesourcing platforms.

6.1 Union's Care: Designs for Alternative Socio-technical Infrastructure

Previous literature highlights that trade unions play a vital role in workers' lives beyond the workplace [10, 19, 47, 61]. They care not only for the workers but also for the communities and shared societal spaces in which they operate. In our case, the Kolkata Ola-Uber App-Cab Operator and Drivers Union, through generative efforts, created a counter-hegemonic socio-technical infrastructure, coordinated through applications such as WhatsApp.

Before the pandemic, WhatsApp groups were used for everyday communication and coordination. Their use naturally expanded during the pandemic to include multiple locality groups and a broader range of union activities such as emergency transport service of front-line workers. However, during the second phase of COVID-19, the union leveraged WhatsApp's socio-technical affordances to coordinate ride pickups for the app-cab ambulance service, define drivers' territorial limits, manage the labour force, monitor workflows, and facilitate coordination and relationship-building among workers. Notably, the union's geo-fencing of the operations of location-based WhatsApp groups ensured drivers stayed within their local areas, which helped build relationships with local customers. However, the limitations of relying on WhatsApp also

[3] An honorific originally reserved for the *nouveau riche* and later for elite Bengalis benefiting from British colonial modernity, and largely forming the white-collar class in the city.

became apparent: face-to-face interactions at physical camps was crucial for trust building, breaking the monotony of pandemic, and delivery of resources critical for app-cab ambulance's service. Furthermore, while location-based WhatsApp groups facilitated decentralised operations, a central group comprising the admins of these groups—identified by the union as worker organisers—monitored, evaluated, and adapted the socio-technical system to ensure smooth functioning and a better experience for both customers and drivers. These admins also facilitated real-time check-ins on workers' health and status, ensuring a humane and empathetic approach to health surveillance and workflow.

The key lesson for the HCI and CSCW communities is that challenging the hegemony of platforms does not necessarily require high-end technology and massive capital investments or rather, alternative design does not always mean building another platform on the same scale with the same amount of technical infrastructure. Importantly, it suggests reconfiguring the balance of the social and the technical while reimagining 'socio-technical' systems while working through what Tandon et al. [124] have called "hostile ecologies" to community-led innovation. As in this case, innovating on the social front (reimagining a union's function, engaging antagonistic actors etc.) while using relatively low and general purpose tools like WhatsApp, proved to be an incredibly effective alternate socio-technical arrangement. Through collaborative practices and fostering solidarity, workers can design alternative workflows and reimagine flexibility in their workspace.

6.1.1 Regenerating a Labour Market 'With Care'. The socio-technical infrastructure of the app-cab ambulance service illustrates an example of how a labour market can be generated without a profit motive in the face of a crisis. Emerging as a response to the inadequacies of the public and private health infrastructure, it was shaped by the collective agency of drivers who were organised by the union. With the market prices of formal ambulance services soaring due to increased demand, the union fixed prices at a socially acceptable rate, attempting to balancing affordability for consumers with fair compensation for workers.

Prior literature on markets has distinguished between those regulated by formal (rule-based) institutions and those regulated by informal, social relations [25, 26, 75]. The app-cab ambulance service represented an example of a hybrid labour market characterised by both formal and informal mechanisms. While the union played a central role in defining rules for the market, existing networks served as mechanisms for implementing these rules. Operating in the midst of a crisis, the union provided both external and internal institutional validity to the market. Externally, it helped the market gain legitimacy and respect from local bureaucracies, while internally, drivers trusted it to allocate work equitably, ensure health and safety, and provide financial support when needed. Furthermore, informal, socially embedded networks provide the adaptive capacity that was crucial to operating during a crisis. These networks facilitated quick mobilisation of resources, such as PPE kits and sanitising equipment, and spread awareness about the service through word-of-mouth and digital platforms like WhatsApp. This model of hybrid governance, drawing on both formal rules and informal social networks, allowed the market to function in a way that was flexible, responsive to local needs, and resilient in the face of crisis.

It is important to analyse why such a locally adapted solution was generated only during a moment of crisis. In non-crisis times, formal regulatory forces and market competition tend to prevent informal, socially embedded solutions from gaining traction and being able to sustain themselves. However, during a crisis like the pandemic, institutional voids emerge as existing markets and formal institutions fail to meet the urgent needs of the public, creating a space for community-based, socially embedded services to emerge. This also relates to how the disruption of everyday life brings to fore collective sentiments and solidarity [11, 44]. These heightened collective sentiments allow for new forms of organisation and governance to emerge, based on mutual support and solidarity rather than profit.

As HCI and CSCW research explores alternate conceptualisations of labour markets and seek models that allow workers to collectively participate in decision-making processes, such as platform cooperativism [46, 64, 82, 97, 101, 124], this case provides two useful takeaways. First, hybrid governance models can allow for both operational legitimacy and flexibility. This further highlights the role that traditional trade unions can play in supporting new forms of collective action. Second, crises might be necessary conditions for the emergence of such hybrid markets, which might be harder to realise in moments of stability. However, it is in these moments of crisis, that we see resistance through creation - or generative politics - that help communities build resilient alternatives while challenging the shortcomings of existing systems.

6.1.2 Political Values Embedded in the Infrastructure. In contrast to private ridesourcing platforms, workers infused their political ethics into the design of their grassroots platform infrastructure. The app-cab ambulance differed from private ridesourcing platforms by eliminating surge pricing, subsidising rides for the poor, ensuring equitable work distribution among members, and proactively taking responsibility for workers' health by providing drivers with essential safety supplies such as PPE kits, sanitisation kits, and free health checkups. These efforts reflect the union's commitment to fairness and community care. Notably, here the notion of fairness and care is not a value recognition, rather it is embodied in workers' actions for class-oriented justice and collective prosperity. While different classes and social groups have varying understandings of fairness and care [135], the design of the app-cab ambulance was primarily focused on supporting and serving people like the workers themselves, who had been subjected to state apathy during the crisis. Furthermore, unlike ridesourcing platforms that allowed citywide pickups, the union's geo-fenced, location-based WhatsApp groups restricted customer pickups to drivers' nearby localities. This nurtured relationships with local customers, building social capital crucial for the union to challenge the monopoly of private ridesourcing platforms' algorithmic customer matching when necessary. In doing so, the union embedded the seeds for future resistance against private ridesourcing platforms. Therefore, the design of the grassroots platform infrastructure was counter-hegemonic, challenging the structures, neoliberal market expectations, and norms that underpin private ridesourcing platforms.

While previous studies largely overlook the engagements of organised political formations, like traditional trade unions, with digital technologies, digital activism, and socio-technical designs, and instead focus on spontaneous, informal and new forms of organising [33, 127], our study demonstrates that traditional trade unions leverage technology to respond to workplace issues and crises, such as the COVID-19 pandemic, by innovating beyond legal and institutional means like collective bargaining or asserting associational power through protests and strikes. The next section will discuss value of this generative politics to the worker movement and cities.

6.2 Generative Politics

We define generative politics as a commitment to sustaining collective life and care under precarious conditions–a form of political action that resists through regeneration. In this study, we see that generative politics manifested as a form of collective, contextually embedded political action that focused on creating and generating material and immaterial resources (e.g., services, jobs, networks, health infrastructures, etc.) to address urgent community needs. It went beyond protest politics to proactively shape alternatives institutions for mutual aid and public service delivery, countering state apathy and market-driven exclusion. This resistance was not just a rejection of the status quo but also the generation of an alternative and counter-hegemonic work vision.

6.2.1 Generative Politics and Worker Movement. In response to the precarity in digital labour economies, HCI and CSCW scholarship has increasingly looked for ways to support trade unions and other forms of collective action [40, 58, 142, 143]. The trade union movement, itself, has identified protest politics and collective bargaining as key mechanisms through which unions achieve their desired interests and outcomes [56, 67, 85]. Our study demonstrates that apart from protest politics trade union also engage in generative politics to attend workers interests and needs. Much of the social movement literature views effective political actions as primarily contentious, oppositional, and protest-based, viewing that the creation of new participatory avenues and institutions is the role of political parties [139] or the state. There is also, perhaps a somewhat unproductive analytical dichotomy where 'resistance' is viewed as mutually exclusive and antithetical to forms of cooperation with those in power. Such theorisations, even when looking at gig work, tend to take a narrow view of only two stakeholders– workers and corporations. In contrast, Soriano et al. [120] have emphasised, notions of cooperation and competition (among workers) are common in order to ensure survival for the wider community of workers. Our study adds further nuance by showing how generative politics can lead to forms of resistance that are not reactive but rather proactive and aimed at making things happen– creating jobs, services, and networks to meet community needs. A key aspect of being able to see diverse forms of resistance is also mapping the entire political economy within which gig workers and unions operate in the city, as our study shows. In the process they support unions by helping increase membership and strengthening its associational power.

Trade unions view membership expansion as crucial to building worker power and enhancing their associational bargaining power for collective bargaining and enforcing strike actions [50, 59, 115]. Our study indicates that the generative politics undertaken by the union can play a key role in increasing union membership—the rise from 200 to 2,000 members by the end of the pandemic reflects this impact. Moreover, these efforts open avenues for previously marginalised or hesitant groups, such as women and workers without political affiliations or those with different partisan allegiances, to join the union. Generative politics highlights that workers are not just simply unitary economic actors working for money or political actors driven solely by invitations to protest. The desire to serve, support and contribute to society is also deeply embedded in worker culture and history. By engaging in generative politics, collectives such as unions offer workers an alternative conceptualisation of resistance. Particularly in the gig economy, where collective bargaining has been difficult due to legal frameworks that fail to challenge platforms' labour misclassification, generative politics can reinforces worker's belief in the power of collective action and strengthens the internal cohesion of unions. When workers see and experience the benefits of being part of a union, it plays a crucial role in building their loyalty to unions.

Generative politics further help strengthen the associational power of unions and consequent protest politics. While there was a rise in union membership, the local bureaucracy had also experienced the generosity and warmth of worker unions' generative politics. This helped deepen situational trust between workers and local bureaucracy/police, which already existed to a certain degree in the everyday social life of the city. Therefore, the local bureaucracy at least temporarily respected not only the strength of the union's membership, but also the union's generative role in sustaining and rebuilding the city during a crisis. However, it is important to note that while the deepening of situational trust was effective against the local bureaucracy and the state, it had little effect on the ridesourcing platforms, which were strategically (dis)embedded from the societal dynamics in which they operate. For gig workers in the majority world, where there are axes of contention against actors beyond platforms in shaping their work relations, generative politics offers a new frontier for strategising resistance. Our study highlight that unions can take advantage of porous openings in city life where power can be negotiated through multitudinous ways such as the situational trust forged with diverse actors (e.g. with police, health Workers).

6.2.2 Generative Politics and the City. We also demonstrate that generative politics of the union offers a critique to the platformisation of work and urban life, as well as the political economy of neoliberal development and its cultural subjects. It also highlights responses to the breakdown of public infrastructure in urban cities through collaborative means rather than protest actions.

For instance, working-class communities in Kolkata, including cab drivers, have a strong tradition of responding to crises, such as major disasters and emergencies. Recent disaster events have shown that these communities and local economies are often the first to provide essential relief aid, join rescue operations and and engage in collective care [107]. In times of such crisis, we have seen local textile shops donating clothing, local restaurants offering food, grocery stores offering essential supplies, and cab drivers assisting with rescue efforts. However, though many platforms are crucial for essential services, past studies indicate that the "infrastructural

promise of private gig platforms" has failed to take off [4]. We haven't witnessed platforms like Ola, Uber or Amazon joining hands with local communities to survive crisis situations.

We argue that this issue arises not just from the profit-making logic of these companies, but fundamentally from the design and workflow of platforms, which inherently disembodies labour from social ensembles and relationships. Since the spatial relations of workplace is crucial to the generation of dynamics of workers social life and social relationships, when platformss transforms spatial order by imposing their techno-political and spatial logics, including the promotion of spatial non-fixity and algorithmic dispersion of workers, it makes conditions of collective action difficult [38, 136]. Previous studies demonstrate that algorithmic management of platforms has destabilised the spatial fixity of workplaces and businesses [127], turning workers into neoliberal subjects whose work rationality focuses on optimising performance for the platform's requirements. Nonetheless, as our work demonstrates, through generative politics, gig workers and their unions, contest this arrangement, and regenerate and reembodies the social role of worker in the in city, where technology provides a crucial affordance for worker action. Moreover, workers also often viewed their identity as extending beyond workplace issues, anchoring themselves as part of the social and community ensemble. Hence, when the union transcended from merely representing workplace issues to facilitating public action for societal good, it enlarged its playing field [138] and unbolted itself from being viewed as 'particular' to the 'universal', as crucial actors to sustain rhythm of city life without breakage.

Furthermore, the generative politics of the union, through initiatives such as the app cab ambulance service, were part of the broader worker resistance in the city that politically questioned the apathy of the state and development deficits while not waiting for the provincial government to make their city more liveable. On the one hand, this generative politics brought visibility to the wretchedness of the public health infrastructures in the city, through the labour that fixed the shortage in ambulance resources, and on the other hand, their humanitarian labour and social commitment confronted the narrowness of the city's growing neoliberal consciousness centred around self-interest and individualism, to which most corporate platforms also contribute. Therefore, through their efforts, the union evolved from representing workplace interests to critiquing the political economy of neoliberal development and its cultural subjects (consumers rather than citizens) in West Bengal. It also demonstrates that generative politics not only assembles social solidarity, facilitating public action to improve the lives of others, other than their worker community, but also generates social citizenship in cities.

7 Limitations

The concept of generative politics, as explored in this article through an ethnographic case study of the Kolkata Ola-Uber App-Cab Operator and Drivers Union, must be understood within the context of a union responding to crisis situations, such as the COVID-19 pandemic, and deeply embedded in the unique socio-political landscape of Kolkata. Notably, the long-term sustainability of such grassroots platform infrastructures was constrained, as the union eventually shifted back to mainstream ridesourcing platforms in the post-pandemic era.

While generative politics offers trade unions an opportunity to expand their scope and gain leverage among workers by addressing unresolved social issues and market failures [138], it does not diminish or replace the importance of traditional trade union actions focused within workplace settings. Much of the progress in contemporary labour rights and benefits has been shaped by industrial relations systems, which are based on the tripartite relationship between unions, employers, and governments [63, 81]. Moreover, challenges to union survival are sometimes exacerbated by external forces beyond their control [39, 93], and generative politics may not always suffice to ensure their endurance. Nevertheless, this study aims to highlight the potential of unions to foster creative initiatives that complement traditional strategies [63].

The feasibility of unions replicating grassroots platform infrastructures as an alternative to conventional models of platforms depends on several factors, including the local socio-political context, the availability of cross-organisational resources to the union, and the degree of cooperation from local bureaucracies and the state. Furthermore, this study does not incorporate the perspectives of customers who availed themselves of services such as emergency transportation and the app-cab ambulance service, as our focus was primarily on capturing the labour and organiser perspectives. Similarly, we did not examine whether there was a differential experience for first-generation migrant workers within the union during the pandemic initiatives.

8 Conclusion

In this paper, we reported on long-term ethnographic work with gig workers from a union in Kolkata to draw attention to what we call 'generative politics' encompassing a set of technically, socially, and politically innovative practices developed by the union, primarily in service of helping citizens and member-drivers in need and preventing urban health infrastructures from collapsing during the pandemic, especially when corporate platforms completely stopped functioning. We argue that alternative imaginations and designs of socio-technical infrastructures need not always be complex or technically or monetarily intensive. Rather, as this case demonstrates, relatively lean technical infrastructure can be combined with innovative forms of social cooperation and kinship networks to regenerate essential infrastructures. Our study also diverges from tight and orthodox articulations of unions to show how their roles and capabilities can and often do extend beyond protests and strikes to also engage in the work of rebuilding the wider communities where they exist. Attending to and expanding the study of technology, design, and political action to include social contexts of life and work can offer us future directions for enacting generative politics across digital labour landscapes.

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A Themes generated from open coding

The themes, sub-themes, and open codes from data analysis are below:

1. Pandemic crisis

- 1.1 Health crisis
  - 1.1.1 Fear of contagion
  - 1.1.2 Physical isolation
- 1.2 Livelihood crisis
  - 1.2.1 Reduced demand for rides
  - 1.2.2 Platforms shut down
  - 1.2.3 Unemployment
  - 1.2.4 Difficulties to find alternative jobs
  - 1.2.5 Lockdown and mobility restrictions
  - 1.2.6 Difficulties accessing personal savings
  - 1.2.7 Difficulty obtaining food and rations
  - 1.2.8 Lack of government support

2. Union Alternatives

- 2.1 Union's Mobilisation of Resources
  - 2.1.1 Mutual Aid
    - 2.1.1.1 Financial
    - 2.1.1.2 Food
    - 2.1.1.3 Grocery
    - 2.1.1.4 Free pickup
  - 2.1.2 Community support
    - 2.1.2.1 Medical Aid
    - 2.1.2.2 Donation of health kits
    - 2.1.2.3 Red volunteers
- 2.2 Union's Collaboration
  - 2.2.1 Need based collaboration
  - 2.2.2 Strategic collaboration
- 2.3 Union-led Initiative
  - 2.3.1 Door to door delivery
  - 2.3.2 Essential transportation services
  - 2.3.3 Non-COVID-related transport
  - 2.3.4 App-cab ambulance
    - 2.3.4.1 demand for app-cab ambulance
    - 2.3.4.2 Supply of app-cab ambulance
    - 2.3.4.3 logistics behind app-cab ambulance
      - fare calculation
      - driver allocation
      - health surveillance
    - 2.3.4.4 challenges
    - 2.3.4.5 worker grievances redressal

3. Union Coordination

- 3.1 Online Medium: tech-mediated networked organising
  - 3.1.1 Call desk
  - 3.1.2 Mother group
  - 3.1.3 Location-based WhatsApp groups
  - 3.1.4 Facebook page
- 3.2 Online Medium functions
  - 3.2.1 App-cab pickup information
  - 3.2.2 App-cab audio visual circulation
  - 3.2.3 App-cab poster sharing
  - 3.2.4 App-cab news sharing
  - 3.2.5 App-cab service updates
- 3.3 Offline Medium
  - 3.3.1 Union office
  - 3.2.2 Physical camps
  - 3.1.3 Spatial zoning of communication
- 3.4 Offline Medium functions
  - 3.4.1 Resource storage
  - 3.4.2 Assembling people
  - 3.4.3 Assembling resources
  - 3.4.4 Health check-up
  - 3.4.5 Resting
  - 3.4.6 Union briefing
  - 3.4.7 Red volunteer coordination: food
  - 3.4.8 Red volunteer coordination: oxygen cylinder
- 3.5 Coordination effect
  - 3.5.1 Creating employment
  - 3.5.2 Creating market
  - 3.5.3 Enhancing participation in unions.
    - 3.5.3.1 General membership increase
    - 3.5.3.2 Women membership
    - 3.5.3.3 Group Cohesion
    - 3.5.3.4 Risk-taking members
    - 3.5.3.5 Worker Empathy
  - 3.5.3 Nurturing trust
    - 3.5.1 Enhanced Union-police relations
    - 3.5.2 Enhanced Union-customer relations
    - 3.5.3 Enhanced Union-party relations
    - 3.5.4 Positive media coverage
    - 3.5.5 Civil Society recognition
  - 3.5.4 Worker solidarities

B Interview Question Bank

(1) When did you start working in this industry?
(2) Which platforms have you been associated with, and which one are you currently working with?
(3) What kind of work did you do before joining the platform? Why did you leave that work?
(4) Have you ever been part of any unions before? If yes; Which union? How was your experience?
(5) When did you join the Kolkata Ola-Uber App-Cab Operator and Drivers Union?
   - How did you learn about the union?
   - Why did you join the union? Who assisted you in this process?
   - How is your experience here?
   - What is the process for granting membership? Do you also participate in the union's membership drive and in recruiting new members?
   - What are the major activities of the union?

- Which activities have you participated in? What are your favourite activities within the union?
- What do you think are the biggest achievements the union could accomplish?

B.1 Pandemic context:

(6) What was the work scenario like during the pandemic?
(7) How did your family manage to survive during COVID? How many members of your family had jobs at the time?
(8) What was the work scenario like during the pandemic, and what challenges did you face? How did union help you?
(9) How did you become involved in the union's initiative for Emergency Service/ App Cab Ambulance ?
(10) How did you learn about the initiative? Were you already a member of the union, or did you join it during the initiative?
(11) What was the difference between the Emergency Service and the App Cab Ambulance? Which one worked best for you, and why?
(12) If you were already a member of the union, were you part of any WhatsApp groups? Were there any new groups or social media platforms that you were asked to join during the COVID services? Why was it important to join those groups?
(13) If you joined the union during the pandemic, where were you added on WhatsApp? What other groups or social media platforms did you start subscribing to for updates and participation?
(14) Why was it important to join those groups? What activities were being conducted in those new groups? Can you provide some insight into them?

B.2 App-cab ambulance initiative

(15) What was the process for getting recruited for a job? Can you walk us through the steps, from receiving the first "job call" to finally being allotted the position?
- Was the process similar for emergency services or frontline workers? What was the key difference between these initiatives in terms of how the job was allocated?
- What is the usual waiting time to receive your first job in app-cab ambulance? How long did it take to get your second job?
- Were you allowed to volunteer or pitch for a job/task yourself?
- Were you able to request more jobs, or did you do so? How did the union respond to such requests?

(16) How much did you earn per week? Was it satisfactory for you? How did you earn before the pandemic, and what was your situation during the initial days of the pandemic when you didn't have a job?
(17) What about the physical camps? Were you assigned to any of them? What activities were conducted at the camp?
(18) How often did you go to the physical camps? What was the reason for your visits?
(19) During the pandemic, did your family fear COVID infection? How did you manage that situation?
(20) What happens if someone exhibits COVID-like symptoms while using the app-cab service? Who all provided assistance in such cases?
(21) What do you think the union could have done better to support your health during the pandemic?

B.3 Additional Questions for women driver?

(22) How did your family react when they learned about the task assigned to you by the union during COVID?
(23) Did you take any special precautions or care for them during the pandemic? What kind of support did you receive during that time? Who all helped?
(24) How was your work experience as a woman during the pandemic?
- Did you face any new challenges, or was there a new support system in place for you?
- How did the customers react? Do you think their response was different from usual?

B.4 Questions for external organisers/worker-organisers?

(25) How did the idea of the app-cab ambulance come to the union's attention? Were you aware of similar efforts elsewhere? What was the process and reasoning behind taking up such initiatives?
(26) What kind of resources were required to run this initiative?
(27) How did you obtain permits and handle other legal obligations? What was the challenges?
(28) Did you face challenges from other unions or local political parties? How did you manage such situations?
(29) How did you manage customer and driver expectations? How did you resolve tensions between them?
(30) Since some workers would also came to the union primarily to find jobs during the pandemic, was there any specific criterion for recruiting new members?
(31) How were the physical camps decided upon? Was there any specific rationale behind setting them up?
(32) How did this initiative influence your post-pandemic union activities? What were the losses and gains?
(33) In terms of membership and union participation, what was the difference before, during, and after the pandemic?
(34) If the union were to run this initiative again, what changes would you suggest based on your experience?