Platform Workers as Infrastructures of Global Technologies

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Mobility platforms entered Jakarta at a moment when algorithmic matching was heralded as a revolution for how we moved in the city. Digital platforms would free residents from the inefficiencies and frictions of the city and free the city from the chaos of the informal motorbike taxis that dominated urban transport. Platforms would seamlessly link customers to drivers; drivers would create dynamic networks around key hot spots of demand, converging and dispersing as demand patterns changed. Just as drivers circulated in Boston, London, and New York, so they would in Jakarta: hyperoptimized bodies responding to customer need. Yet soon the assumptions underlying Jakarta's mobility platforms, borrowed directly from Silicon Valley, began crumbling. Crushing traffic and inaccurate GPS constrained the efficiencies of algorithmic matching. Tensions on the roads with incumbent actors in the city's mobility market prevented drivers from circulating freely. Navigating an unfamiliar system in unfamiliar areas, drivers did what they knew best: They turned to one another to resolve the frictions of the app. They filled in the blanks and managed the ineffectiveness of contextually inappropriate platform-design assumptions. The drivers made possible

the functioning of the platform—on the backs of their motorcycles, their relationships, and their knowledge.

Through this piece, I offer a framing of drivers as infrastructures for the mobility platform, borrowing from planning scholarship and critical geography. These bodies of scholarship have focused on how urban interventions and material infrastructures are always supported by social relationships, whether it's shared tacit knowledge that allows for maintenance, informal credit systems for consumption, community-organized security systems, or something else. It is these underlying relationships that "make the modern city the machine that it is, however efficient" [1]. Planning scholars like Abdou Maliq Simone, Colin McFarlane, and Jonathan Silver go even further, calling the *people* the infrastructure of the city itself, sustaining the life of the city [2].

Through this lens, Jakarta's *ojol* (mobility-platform drivers) communities become the hidden scaffolding of the platform. They allow workers to continue doing their jobs, providing drivers space to resolve frictions of the platform, and through their invisible architectures of support, allow the platform to continue functioning. As with other forms of digital labor

Insights

- Drivers are the essential infrastructure of mobility platforms; their local knowledge, mental maps, and relationships sustain the platforms.
- Digital platforms often dismiss local market institutions, to their own detriment.
- We need to reconsider taking the disruptive power of technology for granted, as informal practices show resilience even in the face of technological disruption.

that underpin technological innovation, the very efficiency of the mobility platform relies on this army of drivers (see the work of Mary L. Gray, Lilly Irani, and Niloufar Salehi, among others). Their culture, their technologies, and their mental maps thus become the infrastructure without which mobility platforms like Gojek and Grab would not have been successful in Jakarta's market.

PEOPLE AS INFRASTRUCTURE

During my fieldwork with mobility-platform drivers in Jakarta, it became evident how making the global technology of platforms function at their local scale required deep knowledge and thick relationships of social embeddedness. For one thing, a range of “algorithmic absurdities” [3]

are produced as the mobility platform, designed for well-mapped cities with formal, unchanging architectures and less-chaotic traffic jams, is transplanted into the Jakartan context. Drivers in Jakarta report facing myriad problems, from unmapped spaces in Google Maps to inaccurate GPS readings. At the same time, as these platforms entered Jakarta, they were disrupting very powerful incumbents—the existing motorbike taxi drivers—leading to tensions on the road. Drivers, as the face of this disruption, were not only facing blockades to their work but also threats to their personal safety. In Jakarta, it befell the drivers to navigate these unfamiliar technological systems, reduce the frictions they encountered, and manage the ineffectiveness of contextually inappropriate platform-design assumptions.

To explain how drivers formed relationships around the platform, drivers point to Jakarta's culture of turning to one another for help. And indeed, as explained in the works of Simone, survival for the urban poor in cities of the Global South is often tied to networks and reciprocal relationships. Self-organized provision of resources and aid is necessary for gaining access to shelter, health, and financial systems for those excluded from formal systems. These cities “compel interactions and cooperation” [2]. In Jakarta, mobility-platform drivers consider themselves “children of the street”—a part of the precariat for whom formal systems don't work. The refrain of the drivers is “If we don't help us, then who will?” Drivers thus built relationships around the platforms that have carried forward forms of association from existing practices of communal help [4], turning them into a space not just to aid the workers but also, I argue, to sustain the platform. The social thus becomes a core broker of technological work.

For instance, when drivers needed “IT support,” communities started organizing *IT Jalanan*, or “IT of the street,” to help fellow drivers with their tech concerns. In person and online, information networks constantly shared strategies of work, explanations of opaque system changes, and tips on how to earn more. Locally anchored communities, through what are known as base camps (DIY shelters where drivers could comfortably wait and hang out), allowed responses to emergencies and accidents [4] to be quickly

posted. Informal mobile workshops roam the city, a phone call away, to provide speedy vehicular repairs. It is through these communities that drivers know which malls are “unfriendly” (i.e., those with a lack of parking or difficult access) and it is through these communities they develop strategies to overcome the hurdles thrown up by inappropriate or absurd algorithmic assumptions. Local drivers or relationships with security guards can help secure mall parking in an “unfriendly” area. A “mall expert” can help navigate the city's mammoth malls. The scale of these relationships also had to be magnified across the city to respond to the changing spatialities of the work. The neighborhood was no longer the anchor point for organizing the mobility market, as it had been in the informal motorbike taxi market. Mobility-

platform drivers, as they circulated in new, unfamiliar areas, could thus need help anywhere. Connecting the individual communities via associations allowed scale to be achieved whereby the city could be covered in a scaffold of mutual aid and connectivity.

These practices are examples of how new technological innovations are sustained only by the local practices in which they are deployed. For instance, in their research on technology consumption in the Global South, Priyank Chandra, Syed Ishtiaque Ahmed, and Joyojeet Pal showcase how it is the local practices of repair and reuse that allowed a thriving market for cellphones to develop in Bangladesh. However, a particular “politics of categorization” results in technological mediation being cast as innovative and universally efficient, while any other form of knowledge becomes “old-fashioned” or “inefficient” (for more on how informal systems are viewed, see the work of Julia Elyachar and Asher Ghertner). As Lilly Irani [5] argues, we must “question how we know innovation: what counts as innovation

as such, who designates it and how, and how these processes are embedded in relations of power and political economy.” A similar theme is observed in urban informality literature, comparing what Ananya Roy calls the informality of the rich, which is tolerated and called urban development, with the informality of the poor, which is destroyed or regarded as a nuisance. Thus, while the platform is considered a technological innovation, the relationships and infrastructures of the drivers are invisibilized and devalued.

Unsurprisingly, mobility platforms like Gojek and Grab did not take the relationships of the drivers seriously in their first few years of operation. It is rather ironic, then, that it was these very relationships that allowed the platforms to capture Jakarta's mobility market initially. As tensions mounted with traditional motorbike taxi drivers at the entry of the disrupters, Jakarta's ojol communities began forming detailed agreements with their offline motorbike taxi predecessors, the *opang*. Red zones were marked around the city that prohibited online drivers from picking up or dropping off customers. It is only “new” drivers who unknowingly violate these agreements who get stuck with fines from the *opang*, I am told. Drivers who service the neighborhood know exactly where the red

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zones are and often let newcomers know. If there is need for mediation, the local *korlop* (the leader of the nearest ojol community) steps in to negotiate. Here, local knowledge and relationships allow the mobility platforms to function, with the risk shifted completely onto the drivers.

Eventually, in Jakarta, after five years of disrupting the offline bike taxi market, Grab and Gojek began embracing the “traditional” practice of offline queuing, mimicking the systems they had purported to replace. As it happened, the existing informal relationships were the ones to reach out through the moments of technological chaos and conflict brought on by the platforms to shape Jakarta’s form of digital mobility work. Contrary to expectations, instead of drivers cruising looking for rides, spontaneous stations started erupting across the city with dozens of motorbike taxi drivers congregating on the sides of roads in groups, waiting for the platform to match them to an order. This practice was a direct continuation of the spatial modes of organizing present in the city’s pre-digitization motorbike taxi market. Eventually, drivers started building their own base camps, due to which drivers then developed sticky spatial preferences, preferring to hang out in shelters and groups rather than to cruise around looking for orders. The existence of these groups forced the mobility platforms to change their business model into a uniquely Jakartan model: spatially anchored shelters with offline matching. This has been, in some ways, a tacit acknowledgement by the platforms of the relationships drivers formed throughout the city.

LOCAL FUTURES, GLOBAL DREAMS

While the platform is considered a global technological artifact, to be launched in the same form everywhere, its instantiation is necessarily local. Even though I center Jakarta in this article, this story of local relationships and worker practices brokering the platform is not unique. In German cities where labor regulations are strong, platform companies subcontract with private chauffeur companies [6]. In Pakistan, where stark class divisions separate those who can own a car from those willing to drive it for others, the platform encourages “fleets”: Individual owners can sign up as Uber partners and hire drivers for monthly wages, mimicking the domestic help market [7]. In the Philippines, the longstanding tradition of seeking employment through middlemen has not only made digital labor platforms excessively popular but also introduced new forms of re-brokerage, such as workers who coach other workers on skills and create outsourcing agencies [8]. These models all represent a departure from the relationship between platform and driver that we have come to expect in the U.S. They are examples of how technologies are domesticated to produce forms of work, relationships, and resistances that are intimately contextual. We must thus investigate digital work’s commonalities across and incommensurability within cultures [2], without taking the power of platforms for granted. By showcasing these varied results of technological interactions across contexts, we can destabilize the neat boundaries of social/technological, south/north, and disruption/continuity within the platform literature.

Vanessa Watson [9] could have been writing about digital platforms when she cautioned urban planners for not being

situated in their context’s “very particular and distinct socio-spatial, economic, and environmental characteristics.” Platforms, too, ignore these contextual traits to the detriment of their own functioning, dismissing the resilience and importance of the local institutions they seek to disrupt. In fact, the sharp boundaries imagined between pre-automation “socially embedded work” and “technologically mediated rationalized work” often do not exist (for more on these boundaries, see the work of Julia Ticona, Mary L. Gray, Noopur Raval, and Lilly Irani). The ojol of Jakarta remind us that we need to be more careful in taking the power of technological systems for granted. Instead, we must understand the interactions between globalizing platforms and what Cheryll Ruth Soriano describes as the brokerage mechanisms of local labor relationships [8]. As platforms circulate the globe, holding within them logics of capital and specific cultures of Silicon Valley, local drivers embed their own relationships in the platform.

The aim of my research, and this article, is to help shift the focus of conversations on disruption from the technology to the streets where disruption is lived. By centering the local forms of relations that persist within the technological, we can instead see that people are not “disrupted” but rather domesticate and shape technology in heterogeneous ways. This shift will help make visible the varied infrastructures—human, relational, social—that underlie promises of disruption.

ENDNOTES

1. Amin, A.. Lively Infrastructure. *Theory, Culture & Society* 31, 7–8 (Dec. 2014), 137–161; <https://doi.org/10.1177/0263276414548490>
2. Simone, A.M. People as infrastructure: Intersecting fragments in Johannesburg. *Public Culture* 16, 3 (2004), 407–429.
3. Alkhatib, A. To live in their utopia: Why algorithmic systems create absurd outcomes. *Proc. of the CHI Conference on Human Factors in Computing Systems*. ACM, New York, 2021; <https://doi.org/10.1145/3411764.3445740>
4. Qadri, R. Algorithmized but not Atomized? How digital platforms engender new forms of worker solidarity in Jakarta. *Proc. of the AAAI/ACM Conference on AI, Ethics, and Society*, ACM, New York, 2020, 144–144; <https://doi.org/10.1145/3375627.3375816>
5. Irani, L. *Chasing Innovation: Making Entrepreneurial Citizens in Modern India*. Princeton Univ. Press, Princeton, NJ; Oxford, U.K., 2019.
6. Moore, M. Uber has a wild new plan for global ride-hailing domination. *WIRED UK*. Jan. 25, 2021; <https://www.wired.co.uk/article/uber-ride-hailing-future>
7. Jafri, J. Uber in Pakistan: A lesson in the flaws of the sharing economy. *The Conversation*. Oct. 31, 2016; <https://theconversation.com/uber-in-pakistan-a-lesson-in-the-flaws-of-the-sharing-economy-67359>
8. Soriano, C.R.R. Digital labour in the Philippines: Emerging forms of brokerage. *Media International Australia* 179, 1 (2021); <https://doi.org/10.1177/1329878X21993114>
9. Watson, V. ‘The planned city sweeps the poor away...’: Urban planning and 21st century urbanisation. *Progress in Planning* 72, 3 (Oct. 2009), 151–193; <https://doi.org/10.1016/j.progress.2009.06.002>

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