

Applying Learning Questions on Informal Economies to Informal Transportation



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1. Introduction

This report by the [Global Partnership for Informal Transportation](#) (GPIT) was commissioned to assist [UNDP's Accelerator Labs](#) with exploring informal transportation.

The first activity of this partnership is to Co-Create an Informal Transportation Policy Framework for the UNDP Accelerator Lab Network Cities. The project aims to blend experiential knowledge from the labs with insights from selected academic research. This work advances the learning questions around informal economic activity and serves to pilot the learning circle process as an [R&D priority](#). The project launched in October 2021 and will conclude in September 2022.

The main outputs of the project will be a Glossary on Informal Transportation and a Policy Note. In the inception period of this project, the consulting team conducted a review of the most recent and trenchant literature on informal transportation, as well as a series of expert interviews focused on sourcing knowledge not readily available by other means.

This inception report presents the preliminary analysis conducted through a desk review and interview with experts to answer the six learning questions on informal economies provided by the UNDP Accelerator Lab team.

For each question, the team consulted a shortlist of 13 publications and 5 key experts. The desk review focused on a diverse selection of publications released within the past five years that conduct comparative research across cities, countries, or regions. These include publications which identify research gaps, focus on informal transport workers, include gender perspectives, and position informal transport within broader studies on sustainable transport and mobility in the Global South.

From November to December 2021, the consulting team spoke with three current experts, along with two representatives of so-called “super apps” — a new generation of integrated mobility-, banking-, and commerce apps blurring the line between “formal” and “informal.” As part of their agreement to participate, the names and affiliations of the latter have been redacted from this public-facing report.

The analysis aims to shape, adapt, and answer UNDP's learning questions in the context of informal transport. Finally, a list of proposed sub questions to raise potential avenues of inquiry for UNDP teams and help refine the research agenda is presented.

2. Learning Question Summary

Learning Topic	Learning Questions on Informal Economies	Informal Transport Proposed Sub Questions
Perception and Motivation	<p>What are the perceptions and motivations in informal sectors?</p> <p>How do informal workers see themselves?</p> <p>Is “informality” the right way to describe this?</p>	<p>How do informal transportation workers see themselves?</p> <p>What are their motivations for doing this work?</p> <p>How do they see their vehicles?</p> <p>How do they perceive the benefits and trade-offs of investing in new tools, tactics, and technologies?</p> <p>How open are they to learning and improving at their trade?</p>
Formalization	<p>What are the risks and incentives of formalizing the sector?</p>	<p>What are the incentives for formalizing the informal transport sector?</p> <p>What are the risks?</p> <p>Do new platforms provide an alternative?</p> <p>What are the barriers to formalization?</p> <p>Who are the beneficiaries?</p> <p>Would formalization be harmful to innovation in the sector, or would it provide certainty?</p>
Digitalization	<p>What does going digital mean for informal economies?</p>	<p>What does digitalization mean for operators?</p> <p>What are the most popular uses (e.g., payments, bookings, etc.)?</p> <p>How do they perceive “super app” integrators such as Gojek and Grab? As threats? As aspirations?</p> <p>What are the alternatives?</p> <p>Are there more operator-friendly models? If not, how might one build one?</p>

<p>Environment and Sustainability</p>	<p>What impact (contribution or otherwise) do informal sectors have on environmental, sustainability and/or circular economies?</p>	<p>How open and receptive are informal transport workers to upgrading the environmental sustainability of their vehicles and practices? What technologies do they prefer? (e.g. electric vs. clean fuels)</p> <p>What are their motivations for doing so? (e.g. lower TCO? Higher fares? Less air pollution?)</p> <p>What programs and incentives have proven most successful in persuading operators to upgrade their vehicles and adopt other, more sustainable practices?</p>
<p>Equity</p>	<p>What impact do informal sectors have on equal opportunities?</p>	<p>What impact does informal transport have on equal opportunities for operators?</p> <p>How can investments in more sustainable vehicles or digitalization be used to increase safety or increase equity?</p>
<p>Policy Models</p>	<p>What would a hybrid model (of formality and informality) look like? Where do we see examples of this?</p>	<p>What would a hybrid model (of formal and informal) look like?</p> <p>What is the appropriate level of regulation with regards to safety, sustainability, etc.?</p> <p>What should the next generation of informal and semi-formal transport services look like?</p> <p>How can they natively include such benefits as demand responsiveness, flexibility, and meeting the needs of urban informal economy/livelihoods?</p>

3. Defining Informal Transportation

The terms "informal transportation" and "paratransit" are used to describe a variety of transportation services around the world. However, there is no widely accepted definition to describe this type of transportation. Several authors acknowledge that **adopting a strict definition of informal transport is difficult and problematic**, since there is a risk of omitting a service that does not meet the confined definition given the range of services that can be found (Hein Tun et al., 2020). **For this learning track, informal transport refers to all operations with some measure of informality.**



El Alto, La Paz, Bolivia/Stephen Lux, Image Source via Getty Images

1. Preliminary Analysis



Tripoli, Lebanon/Xinhua News Agency via Getty Images

4.1 Learning Question #1: Perceptions and Motivations

Broadly speaking, there are three types of informal transportation workers. The first are often rural-to-urban migrants who take up driving due to its relatively low barriers to entry, lack of other opportunities, and relatively high wages. (In Uganda, for example, *boda boda* drivers frequently out-earn teachers, police, and other civil servants.) They typically rent their vehicles rather than own them. (In India, for example, there are some 12 million drivers for 7 million vehicles.)

The second type tend to be rooted in a more urban context and are more likely to invest their savings in owning a two- or three-wheeled vehicle, seeing it as a productive asset. They may accrue other assets and businesses — such as a shop or plot of land for farming — and exit driving after several years.

Both groups tend to organize through informal driver networks and associations designed to limit competition or fix prices. In Uganda, for instance, *boda bodas* are frequently organized into *stages* with their own identities, defined territories, and pricing, and whose members pay dues and elect their own leaders. (Shekar, 2021)

A third type of worker has emerged with the advent of platform super-apps such as Gojek, Grab, and Ola. **Whereas the platforms began by aggregating existing vehicles and drivers, they are now recruiting their own drivers.** In Jakarta, for example, Gojek is recruiting from a

new pool of un- and under-employed workers drawn from other sectors under economic pressure, such as manufacturing. They drive primarily for the platforms — which represent a form of “semi-formalization” explored later in the report — while only dabbling in informal work outside them.

The advent of a new class of drivers and platform-based business models has created new tensions. One of the primary motivations for informal transportation workers is a sense of entrepreneurial independence and agency — with the tradeoff being financial precarity. One reason to drive for the platforms is the promise of steady, algorithmically-sourced work — at a cost of control.

Not only is there a tension between these attitudes but also the business models underpinning them, as the platforms seek to bypass and steadily erode the competitive dynamics of *boda boda stages* and similar structures. Anyone working to improve the efficiency and structure of informal transport — whether through vehicle electrification, route rationalization, or driving training and safety — **must decide whether to work together or at odds with these networks.** Are there local possibilities to reform these networks to accelerate adoption of best practices? Or opportunities to create new, digital-first communities outside the totalizing platforms of the super-apps?

“One gap is dignity and respect for the drivers themselves,” says Deepa Shekar, former chief operating officer and chief product officer of Kampala-based SafeBoda. “How do you help vocalize what their concerns are and represent their needs at a more formal level? How do you give them more advocacy and power?”

What might driver-first, digital-native driver associations look like? In India, Three Wheels United maintains a bustling online community where drivers share tips and sell- or rent vehicles on a financial platform agnostic as to how they derive their earnings. How else might we promote communities for scaling learning and bolstering driver solidarity? This is a different proposition than the outsized political clout historically wielded by driver associations, which has also come under siege as of late from platforms representing a path to semi- or even full formalization — potentially at drivers’ expense. (Kumar, 2021)



Proposed Sub Questions: Perceptions and Motivations

1. *How do informal transportation workers see themselves?*
2. *What are their motivations for doing this work?*
3. *How do they see their vehicles?*
4. *How do they perceive the benefits and trade-offs of investing in new tools, tactics, and technologies?*
5. *How open are they to learning and improving at their trade?*



Lagos, Nigeria/ Peeterv, iStock via Getty Images

4.2 Learning Question #2: Formalization

The goal should be integration rather than formalization. As the platforms' technological capabilities begin to outstrip those of formal public transportation when it comes to booking and payment, the question is how and where to integrate the two. In October 2020, for example, Gojek launched [GoTransit](#) for seamless multimodal trip planning across its own services and Jakarta MRT. Will super apps seek to fold formal transportation into their platforms? If so, who and how will determine public policy for these hybrid entities?

From the platforms' perspective, cities should be focused on outcomes. Rather than argue over regulation or which entity owns the transaction, cities should decide where and how formal-informal integration furthers their larger aims, such as increasing public transit ridership and overall employment, or reducing the need for private vehicle ownership. (Raman, 2021)

Offloading capabilities to private platforms might lead to public sector stasis, but the potential for semi-formalized services to fill gaps in formal networks is potentially worth the risk. Given that 20% of residents in Latin American cities lack access to formal transport within a 10-minute walk from their homes — and that 15% of residents in informal settlements lack any access at all — informal transport can and does play a vital role.

Super app executives argue **public officials should identify gaps in urban transportation networks, create policies and incentives to encourage private sector interest, and effectively let the platforms fill them.** It's worth noting that Uber and Lyft have made similar arguments in Global North cities, selectively publishing data on the number of trips originating from under-served areas. But rather than increase transit ridership through multi-modal trips, the ride-hailing duo has been found [to depress ridership instead](#). (Graehler, Mucci and Erhardt, 2018)

Drawing on her experience with SafeBoda, Deepa Shekar frames the issue differently by centering drivers rather than platforms. **“How do you connect informal workers and customers more effectively? Where can data be obtained to do that?”** In her opinion, the public sector should acknowledge the existence of informality and advocate on behalf of drivers' rights and safety. Rather than formalizing services or platforms, how would outcomes change if the role of drivers was formalized instead? (Shekar, 2021)



Proposed Sub Questions: Formalization

1. *What are the incentives for formalizing the informal transport sector?*
2. *What are the risks?*
3. *Do new platforms provide an alternative?*
4. *What are the barriers to formalization?*
5. *Who are the beneficiaries?*
6. *Would formalization be harmful to innovation in the sector, or would it provide certainty?*



Karachi, Pakistan/Bashir Osman via Getty Images

4.3 Learning Question #3: Digitalization

The speed and impacts of digitalization over the last two-to-five years cannot be overstated. From the perspective of scholars and NGOs, the rise of super apps such as Gojek has been so swift as to be almost entirely absent from the academic literature.

This question is further divided into three sub-themes in order to unpack various aspects of digitalization. The first explores **the structure and operation of platforms**, with special attention paid to the role of digital wallets and to what degree they share characteristics and portability across cultures and geographies. The next examines how the integration of digital booking and payment has become a critical pathway for **building fintech-enabled credit-scoring systems** to ensure and scale new models of financing. Finally, **are there opportunities to create common infrastructure, interfaces, and communities** to ensure interoperability and enable alternatives to existing super apps?

Digitalization has introduced a degree of formality to informal transport. By requiring drivers to submit credentials, wear uniforms, and submit to GPS-based tracking and surveillance, platforms such as Gojek, Grab, and Ola, etc. have clearly instituted some formalization of the sector, but to what extent is up for debate. Aishwarya maintains the platforms represent a third category of worker. From policymakers' perspective, it's important to note that while digitalization has made workers more legible to the platforms themselves, **they remain opaque to regulators and the broader mobility ecosystem**, as each platform struggles to maintain its competitive advantage.

As noted in Question #1, **the platforms have also introduced new trip patterns**. By disrupting hub-based models such as *boda boda* stages with individually dispatched drivers, the platforms have tilted trips away from last-mile legs toward point-to-point trips. (Shekar 2021)

Super apps' killer app is the wallet. What binds platforms such as Gojek, Ola, and Gozem together are the digital wallets alternately linked to banks, telcos (e.g. Safaricom's M-PESA), cash-to-wallet conversions, or earnings stored-and-spent entirely within the app. Wallets such as Gojek's GoPay, for example, provide the glue between the company's mobility offerings (e.g. GoRide, GoCar), meal- and grocery delivery (GoFood, GoMart), and eventually the broader e-commerce capabilities from its 2021 merger with Tokopedia, creating the new holding company GoTo.

Wallets also help these platforms create flywheel effects through horizontal expansion into new categories, and from leveraging customer data and behavior from each vertical to cross-subsidize growth across other offerings. Whereas more specialized services might compete on providing customers with the best experience, super apps tend to focus on expanding the breadth of services and best integration between them.

Wallet dominance can impede or accelerate mobility offerings. While Gojek, Ola, and Grab succeeded in part because they moved swiftly to fill a vacuum with their own wallets at a time when digital payments were accelerating — Three Wheels United's Cedrick Tandong the share of digital repayments has risen from 10% to 80% (Tandong, 2021) — the presence of a strong incumbent can also pose a significant deterrence to growth. In order to compete against entrenched incumbents such as SafariCom and MTN Mobile Money, new wallets entering the market like the SafeBoda Wallet need to compete on the costs associated with using wallets as well as develop additional services such as eliminating transfer fees, offering interest on savings in the wallet, paying partner vendors via the wallet, and cash withdrawal from agents. (Shekar, 2021)

Hence there is a strategic need for super apps to own their wallets and the associated customer data that comes with it. In addition to telcos and super apps, a new wave of competitors — such as fintech [Wave](#), Africa's first "[unicorn](#)" — are jostling for dominance.

A question raised by the early success of Gozem — an aspiring super app operating in 13 cities across eight Francophone nations in West Africa, and boasts of having delivered 5 million trips to 800,000 users to date — is **whether the super app model is portable beyond South/Southeast Asia**. Both the established literature and several of the experts interviewed (Raman, Tandong, Shekar 2021) insist that lessons learned in organizing or formalizing transport in one cultural/geographic context cannot be successfully transplanted elsewhere.

One question for policymakers is **whether and how to ensure interoperability across markets and between players, or even to foster the development of public infrastructure and interfaces**. For example, India's [Unified Payments Interface](#) (UPI), launched in 2016, has helped facilitate the shift toward digital payments noted by Tandong and Raman.

But in most cases, the evolution of super apps required constructing custom, highly proprietary systems that are not only opaque to regulators, but also possess such an enormous degree of [technical debt](#) that **efforts to develop publicly-available alternatives will never muster sufficient resources**.

This is also due to the low (but increasing) rates of smartphone penetration, data usage, and UX literacy — all of which are taken for granted in the Global North, but **pose significant barriers to both the ambitions of the super apps, and to hopes that platforms represent an (equitable) path to semi-formalization**. (Shekar 2021) For example, Uber's global aspirations were essentially defeated by determined competitors in both China (Didi) and Southeast Asia (Grab), while achieving stalemate at best in India against Ola. And scholars such as Rida Qadri have noted that even platforms such as Gojek are still reliant on [drivers' local knowledge](#) to navigate complex urban landscapes. ([Qadri, 2021](#))

The question remains whether it is possible and worthwhile for governments to partner with private actors and NGOs **to create digital public infrastructure that is both interoperable across platforms and would lower the barriers to entry** for non-profit alternatives to the super apps. For example, how and where does fintech regulation offer opportunities for leverage when it comes to hybrid formalization?

As noted in Question #2, roughly 90% of India's three-wheelers are financed, while only 10% of loans are derived from the formal banking sector. In response, platforms such as Ola, Gojek, and Gozem — as well as Three Wheels United — are **combining the voluminous data points gleaned from drivers' wallets, payments, locations, and trips to build their own *de facto* credit scores**. Ola's [strategic partnership](#) with the fintech startup Avail, for example, aims to offer vehicle leasing, loans, and medical insurance to the 1.5 million drivers on its platform. (Raman, 2021)

Cedrick Tandong frames his challenge as **applying and scaling microfinancing practices to mobility**. Where formal institutions fail, he argues, is in refusing to tailor standard financing products to the hand-to-mouth existence of informal workers. "The loan officer wants to collect payments at the end of the month," he explains, "but the driver has daily earnings, and he doesn't have a savings habit." Rather than asking for relatively large monthly repayments (which lead to higher rates of default), Three Wheels United requires small payments daily. (Tandong, 2021)

On the other hand, Tandong notes, **traditional microfinance is both high-touch and hyper-local**, requiring frequent check-ins by loan officers and thus leading to higher costs. **Digitalization helps solve these issues through:** 1) collecting and correlating finer-grained data than that typically used in formal lending; 2) machine learning to calculate risk; and 3) low-cost tools for communicating with or even automatically deducting daily repayments from lenders. Upon analyzing its loan portfolio, for instance, Three Wheels United surmised only 20% of its borrowers were at significant risk at default. “We started out thinking every driver was a defaulter, which is not the reality — 80% actually do pay on time,” he says. This realization meant that it could focus the majority of its efforts on this narrow slice while using less frequent, lower-communication (e.g. occasional text messages) with the remainder of its portfolio. (Tandong 2021)

These practices — which the platforms internalize and which Three Wheels United has mirrored by partnering with Uber to get number of trips, earnings, and collect cash directly from these platforms — pose both **an opportunity to learn and scale new best practices** for financing, and **raise serious questions about the transparency and equitability** of their models. How are these *de facto* credit scores constructed? How should they be regulated to prevent predatory lending? Given the reach of super apps, how are these scores carried over to other forms of lending? Where are there opportunities to institute standards and best practices across the industry?

Other questions for UNDP to consider:

- **How to create new forms of driver communities.** While the platforms seek to control their relationship with drivers, informal digital communities — often mirroring boda boda stages and their offline counterparts — have flourished in group chats on tools such as WhatsApp. As Tandong noted, Three Wheels United has developed a flourishing online community in which drivers trade advice and tactics along with an informal marketplace for renting and/or selling vehicles. Are there opportunities to create larger, semi-formalized communities independent from the platforms? (Tandong, 2021)

- **Usability guidelines for apps.** All five experts interviewed touched upon the importance of both simplifying and contextualizing app UX design to better accommodate drivers’ dearth of digital literacy. Are there opportunities to create cross-industry usability guidelines to both assist drivers with navigating the technology and reducing barriers to new entrants?

- **Communicating the consequences of financing.** As part of its financing program, Three Wheels United has streamlined how it communicates with borrowers, emphasizing the practical consequences of delayed- or non-payments versus abstract finances. For example, a missed payment might add X number of days in paying off the loan. Is there an opportunity to standardize and scale this language to assist with similar efforts?

- **Platform Cooperatives.** Although the technical barriers may be steep, are there opportunities for driver-owned platform cooperatives using digital payments and wallets? Is there a minimum viable level of publicly-available digital infrastructure necessary to realize one? If not, which pieces are missing and how might they be built?



Proposed Sub Questions: Digitalization

1. *What does digitization mean for operators?*
2. *What are the most popular uses (e.g. payments, bookings, etc.)?*
3. *How do they perceive “super app” integrators such as Gojek and Grab?
As threats? As aspirations?*
4. *What are the alternatives?*
5. *Are there more operator-friendly models? If not, how might one build one?*



Bogor, Indonesia/Holgs, iStock via Getty Images

4.4 Learning Question #4: Environment and Sustainability

In its latest annual [Electric Vehicle Outlook](#) published last June, **BloombergNEF added projections for two- and three-wheeled vehicles for the first time**, noting “some 44% of global two- and three-wheeler sales and 25% of the existing fleet are already electric.” China represents the vast bulk of this market, however, and once it is saturated, the consultancy projects in its status quo scenario, “EVs take longer to spread in India, Southeast Asia, and our Rest of World countries, where policy support is limited and stripped down, and low-cost internal combustion vehicles are hard to beat on price.” (BloombergNEF, 2021)

Accelerating the conversion of two- and three-wheeled transportation to cleaner fuels or electric vehicles — whether private or for-hail, formal or informal — is widely perceived as a massive opportunity to curtail both greenhouse gas emissions and air pollution, which now kills more people prematurely in Africa, for example, than malnutrition and unsafe sanitation combined. ([OECD 2016](#)). Not only is there an opportunity to use the relatively low costs and proven economics of two- and three-wheeled EVs as leverage, but a large body of literature has documented how the age and disrepair of informal vehicles leads to disproportionately higher GHG emissions. (Cassius, 2021)

“You’re right that two- and three-wheelers will spearhead India’s electric mobility revolution,” says Ola Mobility Institute director and head of research Aishwarya Raman, who notes that 12.8% of Indian households possess two- or three-wheelers, compared to 2.3% owning four-wheeled vehicles. (Raman, 2021). In June, the Indian government reauthorized

its **FAME II** (Faster Adoption and Manufacturing of Hybrid and EV) subsidy scheme until 2024, while also increasing the ceiling for two-wheeler credit by 50%.

That said, there are immediate gaps in the literature that must be filled before mounting any large-scale campaign to turn over informal fleets in favor of EVs — such as reliable tallies of the number of vehicles operating in most cities; their age; their fuel consumption; and a reliable measure of GHG and air pollution. (Kumar, 2021)

Three Wheels United Cedrick Tandong pegs the size of India's three-wheeled fleet at roughly 7 million, of which roughly 500,000 are replaced each year, meaning that if EV alternatives were widely available and at a cost parity with current petrol models, it would still take until 2036 to turn over. **How can we accelerate similar adoption rates? What are the most effective tactics, tools, and messaging to encourage driver/owners to switch?** To make more affordable EV models available? And to provide financing? Because as Tandong notes, while 90% of India's three-wheelers are financed, only 10% of financing stems from traditional institutions. (Tandong, 2021)

All of our experts agreed direct appeals to drivers on behalf of environmental sustainability are doomed in the face of precarity. **"They only care if it increases revenues or decreases costs,** and that's a blanket rule for everything," says Shekar. (Shekar, 2021)

Fortunately, the latest generation of **EVs boast half the operating costs and triple the total cost of ownership (TCO)** of their fossil fuel counterparts, helped in part by high post-pandemic oil prices.

Many barriers to adoption remain, including a widespread lack of charging infrastructure, drivers' deep uncertainty about the potential resale market for second-hand electric two-wheelers — a deal-breaker for households prepared to invest much of their net worth in a single vehicle — and dispelling fears and misinformation.

But the biggest barrier is financing, given both drivers' high rates of default and institutional lenders' reluctance to offer loans on friendlier terms. Three Wheels United has addressed this by building its own proprietary credit risk scoring systems to offer financing directly. (The technical contours of this system will be described in the next section.) Our experts suggested several other areas, approaches, and potential partnerships to accelerate the financing of vehicles and infrastructure:

- **Increased government subsidies and financing.** When India launched the original \$1.3 billion FAME subsidy in April 2019, for example, its goals included electrifying 500,000 three-wheelers and a million two-wheelers. In two years, it achieved only a fraction of each. Now the government is pushing ahead with a new initiative to put a million EVs on the roads, this

time by offering to work through intermediaries such as Three Wheels United and provide 60% of the financing. Cedrick Tandong notes this will cut his interest rates from 16% to 6% and lower vehicle costs by 20%. (Tandong, 2021)

- **Partner with the platform apps to make their ESG commitments a reality.** Uber, Gojek and other platforms have made ambitious commitments to sustainability, with Gojek pledging to become a “carbon-neutral” company by 2030, with a 100% EV fleet. This pledge is complicated, of course, by the fact that they do not own their fleets — drivers do. Gojek’s response [was to partner with Gogoro](#) in November to build-and-operate 5,000 e-scooters and charging stations the company rents to drivers on its platform, and to partner with Indonesia’s TBS Energi Utama in December on [a new a joint venture](#) to manufacture electric two-wheelers, battery packaging, and battery swap stations, along with financing.

Gojek and its partners are following in the footsteps of Ola, which announced its own electric scooter designs — the S1 and S1 pro — in August and [began delivering them](#) to customers in December.

There may be opportunities for UNDP, development banks, and other NGOs to provide advantageous financing to the platform companies in order to speed the rollout of both their vertical integration efforts and deployment of both vehicles and public charging infrastructure. Another suggestion is to fund buyback guarantees for drivers reticent to invest in EVs.

- **Coordinate public-, private-, and NGO players to align incentives.** Tandong seconds the importance of buybacks, noting he is already in talks with the Asian Development Bank (one of his investors) and World Bank’s International Finance Corporation arm to create similar programs. As part of that effort, the IFC is departing from its standard (if unwritten) practice of large block grants (\$10+ million) in favor of smaller equity funds that can be deployed more quickly through organizations such as Three Wheels United. (Tandong, 2021)

Finally, Tandong notes that **UNDP and other organizations have a role to play in capacity building and coordinating with government agencies** struggling to implement headline statistics. (“The guy who is supposed to award the permit doesn’t know which permit to give. He hasn’t even heard about the process, just the minister’s announcement.”)

One advantage electrification has over digitization (more on which in the next section) is that informal transportation associations such as Uganda’s stages are not at odds with electrification as they are with the platforms, and can be recruited to assist with accelerating EV adoption. (Shekar, 2021)

While the rhetoric of sustainability isn't enough to sway drivers to make the switch, its health effects and prestige are not negligible, either. **Conversations around air pollution, drivers' health, lower risks of hospitalization, and the total cost of driver downtime** may also provide potential levers of persuasion. (Tandong, 2021)

Electrification alone cannot make informal transport more sustainable. The literature argues that route rationalization and optimization — through competitive tendering and other mechanisms — will be necessary to solve the massive redundancy and competition on over-served popular routes. (Behrens, 2021)

Combined with the questions above and those in the previous section, **how can UNDP help square the massive investments needed in financing, vehicle production, and infrastructure with drivers' desires for agency and autonomy?** Are they fundamentally irreconcilable, or are there opportunities to align them?



Proposed Sub Questions: Environment and Sustainability

1. *How open and receptive are informal transport workers to upgrading the environmental sustainability of their vehicles and practices?*
2. *What technologies do they prefer? (e.g. electric vs. clean fuels)*
3. *What are their motivations for doing so? (e.g. lower TCO? Higher fares? Less air pollution?)*
4. *What programs and incentives have proven most successful in persuading operators to upgrade their vehicles and adopt other, more sustainable practices?*



Metro Manila, Philippines/Nikada, iStock via Getty Images

4.5 Learning Question #5: Equity

Informal transportation modes place disproportionate risk on vulnerable populations for drivers and customers alike. Women are in constant danger of sexual harassment, abuse, and assault; drivers face threats of robbery, assault, and extortion as well as air pollution and other health risks; disabled passengers have difficulty accessing informal modes successfully, and nearly all users of informal transportation grapple with a lack of more accessible and more legible transportation options.

Women are most at-risk in using informal transport. They are clearly more concerned about personal safety than men — both during using such services, and while waiting to access them in public space. Although sexual harassment and violence is also a present risk in many forms of public transport, the anonymity and lack of regulation in informal modes increases the risk that such violence will go unpunished. (Morales-Miranda, 2021)

Drivers face clear and present dangers to their health and safety. Passengers are not alone in bearing the threat of violence. In Central America, for example, there are cases of operators shutting down after repeated violence against drivers made regular service impossible. In some instances, drivers were subject to an extortionate “war tax” imposed by drug gangs for transiting through their territories. (Morales-Miranda, 2021)

Drivers are also subject to elevated personal health risks from increased exposure to air pollution. One study of *danfo* minibuses in Nigeria found that, in a sample of drivers working an average of 20 hours per day, 22% suffered from partial blindness, and 99% from hypertension. (Behrens, 2021). Although insufficient to convince drivers to purchase an

electric vehicle, promises of better local air quality and overall improvements in health can be persuasive. (Tandong, 2021)

Informal transport is often inaccessible and illegible to disabled passengers in particular and riders in general. As well documented by the *Digital Matatus* project in Nairobi and in research from Latin America, informal transportation systems are often incomprehensible to users beyond familiar routes. (Tun, 2020)

Digitization promises to address informal transportation's lack of safety through surveillance. A selling point for super apps has been their pervasive, ambient surveillance of drivers and riders alike, offering an implicit degree of safety. Methods can range from simple “selfie authentication” — requiring drivers to take regular snapshots of themselves as proof of identity — to more sophisticated combinations of GPS-based track and machine learning to flag drivers' route deviations or unscheduled stops. (Raman, 2021)

Are the surveillance versus safety tradeoffs worth it? While platform executives attest to the safety benefits of persistent driver surveillance, researchers have documented how drivers struggle against opaque, algorithmically-driver monitoring systems. Broadly speaking, there are two questions worth exploring in subsequent interviews and research with drivers and passengers alike: **is this unprecedented level of surveillance acceptable from a policy- and regulatory perspective?** And **is it effective?**

For comparison, similar systems have not protected Uber drivers and riders from [thousands of sexual assaults](#) in 2017 and 2018, the details of which it has failed to hand over to regulators, [despite the threat of fines](#). **How is location surveillance of drivers and their vehicles being aggregated, stored, and shared?** How does it conform to local privacy regulations? What rights do passengers have and should drivers have when it comes to the mass collection of this data? More research in this area is urgently needed.

Platform work arrangements are more conducive to participation by vulnerable groups. Aishwarya Raman references Ola Mobility Institute's studies on women in the platform economy when she argues that gig work has expanded the number of opportunities available to women, the disabled, and other vulnerable groups unable or unwilling to safely work longer hours. While this statement deserves further scrutiny, she proposes public sector investment and partnerships with NGOs to 1) increase gender inclusivity training for tollbooth attendants and other ecosystem participants to lay the groundwork for increased labor participation, and 2) investment in public washrooms and other infrastructure to assist underrepresented groups in informal labor. (Raman, 2021)

Data sharing has the potential to increase road safety, decrease congestion, and accelerate digitization. Deepa Shekar makes the case for (aggregated, anonymized) data sharing

between platforms and drivers as key to improving road safety at a systemic level. Armed with this data, regulators might identify the deadliest intersections, riskiest waiting areas, and other dangers borne by all participants. (Shekar, 2021)

In Mexico, Jetty is an example of a platform company willing to share information on ridership and revenue with informal operators in hopes it will encourage them to embrace digitization. **The creation of a shared data ecosystem is potentially the first step** toward a semi-formalized mobility-as-a-service system. (Moscoso, 2019)



Proposed Sub Questions: Equity

1. *What impact does informal transport have on equal opportunities for operators?*
2. *How can investments in more sustainable vehicles or digitalization be used to increase safety or increase equity?*



Delhi, India/MIXA Co. Ltd. via Getty Images

4.6 Learning Question #6: Policy Models

How to formalize informal transport is a thoroughly explored question, but one that needs updating for the platform era. The literature considers various options in detail, noting that a common (failed) approach is to internalize informal operators by making them first/last mile feeders of a formal network (e.g. BRT routes). Such tendering typically ends in tears, with “successful” bidders unable to meet their financial obligations despite raising fares and receiving subsidies, while unsuccessful one rail against public officials at the ballot box. (Tun, 2020)

Other examples include attempts to nominally formalize operators while turning a blind eye to day-to-day business practices. Chile and Colombia, for example, require operators must be affiliated with a company legally permitted to operate, while in Mexico, governments grant individual concessions while negotiating with organized operator associations to define routes, territories, etc. (Tun, 2020)

In sub-Saharan Africa — particularly Nigeria, South Africa, and Tanzania — hybrid approaches to regulation tend to focus on the trunk-and-feeder arrangements described above, in an attempt to leverage the lower fare and operating costs of informal modes to extend network coverage. Such schemes then try to regulate a perceived oversupply of operators by awarding route licenses and imposing a capped number of area-based licenses, franchises, and concessions. (Behrens, 2021)

All of these approaches need serious reconsideration in light of the platforms' technological capabilities and disruptive business models. As noted in the section above, the question posed by platform super apps isn't how to formalize informal modes, but whether and how public transport will be "de-formalized" by the proprietary booking-and-payment systems of the super apps. Barring clear and close cooperation and regulation, this a potentially worrisome development, creating the potential for both regulatory capture and the creation of a new class of too-big-to-fail private institutions.

Are there open source, publicly-available alternatives to the platforms? Just as India created the UPI for payments and created new legal classifications for gig- and platform workers (more on which below), are there opportunities to create new legal- and technical infrastructure to create inter-operable alternatives to super apps? Just as Berlin has built its [own "mobility-as-a-service" app](#) and infrastructure as an alternative to Uber, et al., what might an informal MaaS framework look like?

A nascent example mentioned by Raman is the Kochi Metropolitan Transit Authority's [Open Kochi](#) initiative. Inaugurated on November 1, 2020, the KMTA is India's (and arguably the world's) first digitally-native MTA, tasked with integrating, planning, and regulating different modes in the capital of southwest India's Kerala state. Open Kochi is creating an "open mobility network" powered in turn by a set of open, interoperable protocols named [Beckn](#). (Raman, 2021)

In this vision, the need for building a digital superstructure is obviated by decentralized protocols that vastly increase flexibility while lowering development costs. But the platforms' investments in time and resources have also created both customer expectations and a competitive moat public alternatives are unlikely to overcome.

Either way, Raman notes that a number of Indian cities have approached Ola Mobility Institute to help create regulatory sandboxes where new approaches to regulation and provisioning can be tested. "There is a role civil society has to play here," she says. (Raman 2021)

Another approach to formality is to focus on the worker, not the service. Raman vehemently argues that current definitions of "formal" and "informal" uselessly strive to regulate services, rather than centering the rights and protections of the workers themselves. She points to India's [new labor codes of 2019-2020](#), which enshrined the legal status of gig workers and extended social security benefits such maternity leave, disability insurance, gratuity, and health insurance regardless of employment status. While these reforms still await implementation, they hold the potential to transform labor's relationship with the government and platforms alike. (Raman, 2021)

For example, **what is the future of operator associations in a post-platform environment?** What role can they play in brokering between government and industry while also working to uphold safety standards? The literature review notes gaps in understanding the role of such associations and how they operate; how can they be a resource in guaranteeing the rights of platform workers?

Finally, **where are areas of opportunity to semi-formalize the public infrastructure** used by drivers and customers alike for pick-ups and drop-offs, etc.? For example, drivers, platforms, and government alike have a shared interest in streamlining the streetscape in high-trafficked areas such as Jakarta MRT stations. What kind of partnerships might be forged to redesign the public realm to be more conducive to the needs of drivers?



Proposed Sub Questions: Policy Models

1. *What would a hybrid model (of formal and informal) look like?*
2. *What is the appropriate level of regulation with regards to safety, sustainability, etc.?*
3. *What should the next generation of informal and semi-formal transport services look like? How can they natively include such benefits as demand responsiveness, flexibility, and meeting the needs of urban informal economy/livelihoods?*

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