A Closer Look at Informal (Popular) Transportation:

An Emerging Portrait

UNDP accelerator labs

GlobalNetwork for PopularTransportation

Contributors

Lead Authors

Julia Nebrija, Global Network for Popular Transportation/Agile City Partners
Andrea San Gil Leon, Global Network for Popular Transportation/Agile City Partners
Greg Lindsay, Senior Fellow for Applied Research and Foresight, New Cities Foundation
Nicolas Morales, Consultant, Agile City Partners

UNDP Country Accelerator Labs

Patricia Choque, Head of Experimentation, UNDP Bolivia Accelerator Lab
Beto Saavedra, Head of Exploration, UNDP Bolivia Accelerator Lab
Diego Suárez, Head of Solutions Mapping, UNDP Bolivia Accelerator Lab
Paola Constantino, Head of Solutions Mapping, UNDP Guatemala Accelerator Lab
Muhammad Didi Hardiana, Head of Experimentation, UNDP Indonesia Accelerator Lab
Victor Awuor, Head of Solutions Mapping, UNDP Kenya Accelerator Lab
Vrouyr Joubanian, Head of Experimentation, UNDP Lebanon Accelerator Lab
Elias Mouawad, Head of Exploration, UNDP Lebanon Accelerator Lab
Liliane Abou Zeki, Head of Solutions Mapping, UNDP Lebanon Accelerator Lab
Lazar Pop Ivanov, Head of Experimentation, UNDP North Macedonia Accelerator Lab
Igor Izotov, Head of Exploration, UNDP North Macedonia Accelerator Lab
Ardita Zekiri, Head of Solutions Mapping, UNDP North Macedonia Accelerator Lab
Yawo Agnigbankou, Head of Experimentation, UNDP Togo Accelerator Lab

UNDP Accelerator Labs Global Team

Eduardo Gustale, Monitoring, Experimentation, and Learning Specialist, UNDP Accelerator Labs
Gina Lucarelli, Team Leader, UNDP Accelerator Labs

Design and Layout by 36 estudio

Executive Summary

Overview

It is possible informal transportation moves more people in the world than all formal transportation modes combined and probably employs hundreds of thousands, if not millions, of people across the globe. Yet we know very little about these systems. We find some information in academic papers and institutional reports. But much of the insight remains with the people who use and work in informal transportation–people who may not share their experiences on mainstream platforms.

Building on its priority for Research & Development (R&D) on informality, the Global Network for Popular Transportation (GNPT)[1] and the United Nations Development Programme's (UNDP) Accelerator Lab Network started this research to learn more about informal transportation, but also to learn about how we think about, process and address it.

Here, we share the results of a blended learning journey, one in which we combine various sources. The explicit knowledge gives us referenced, methodical findings within established frameworks. The interviews with industry experts update our knowledge of rapidly changing innovations. The tacit knowledge from the UNDP Accelerator Labs provides us with the everyday lived experience, the intuition and the pulse of the situation. Together, the blended knowledge gives us a more complete picture. In the report, we share some key messages identified through the learning process.

The work does not end here. GNPT will continue to build this dialogue with UNDP and its other partners. The report offers next steps and questions to move the work forward which we hope will be of interest to practitioners, advocates, and governments alike.

---

1 At the time we began this research, we operated under the conceptual framework of 'Informal Transportation,' and the organization was known as the Global Partnership for Informal Transportation. For clarity and to honor the learning questions, we continued using the term informal transportation in this report. However, since 2023, we have officially changed our name because we believe 'Popular Transportation' is a better way to refer to this type of transportation. Learn why

Key Messages

In the Deep Dive section of this report, we review the literature, interviews with industry experts, and practice-based conversations with the Accelerator Labs. Here are some of the main messages we gleaned from this blended knowledge:

1. **As a less visible sector, advancing our knowledge about informal transportation requires new ways to harness learning. Harnessing experiential knowledge plays a crucial role. Accelerator Labs are a key source of experiential knowledge and on-the-ground enablers connecting key players. But organizations usually lack this type of access yet have the ability to scale. With the Accelerator Labs' built capacity, UNDP can achieve both.**

2. **Informal modes are not just a backup, but often the primary and sometimes the only means of transportation, valued for their responsiveness, flexibility and versatility, including cargo transport. They often stimulate innovation and are sometimes the only public transport option. Although we do not have exact figures, the blended knowledge suggests that informality in transport exists everywhere there is an unmet need. And the scale of unmet need is huge. The significance of informality extends to other sectors like food and waste collection, where such businesses offer essential services to those otherwise left unserved.**

3. **Despite calling this kind of transport informal, these systems function within an organized ecosystem of actors whose operations are powered by small and medium-sized businesses. These systems challenge the pervasive western approach to how transport should be organized and can bring a lot of learning on how we should understand, analyze and build our transport systems.**

4. **Drivers want to find passengers and passengers want a convenient, safe, affordable service. Digital technologies have a role to play in addressing these concerns, but while it is a noticeable trend, our work on the ground shows it is a trend that is not a priority, particularly for low-tech, cash-based systems.**

5. **Negative environmental impacts and social issues problematize the narrative around informal transportation. But, considering its size and organization, informal systems should be viewed as a means to create sustainable impact.**

6. **Informal mobility and work provide better access to opportunities for many, but still, people are left behind. Marginalized groups, such as women, migrants, trans or non-binary people, still face issues like passenger safety and workplace discrimination.**

7. **Informality and formality are not fixed nor binary endpoints. Most services fluctuate within a hybrid state and there are many pathways between formality and informality.**

8. **We should change the way we think about informality in the transport sector: flip the script to consider it as an opportunity to address unmet mobility needs with dynamism and creativity. We should explore hybrid models where formalization is not the only way forward and support policy makers to realize the potential of the innovation and entrepreneurship ecosystem in developing countries.**


DENTAL
Bar cosol
TOYOTA
NISSAN

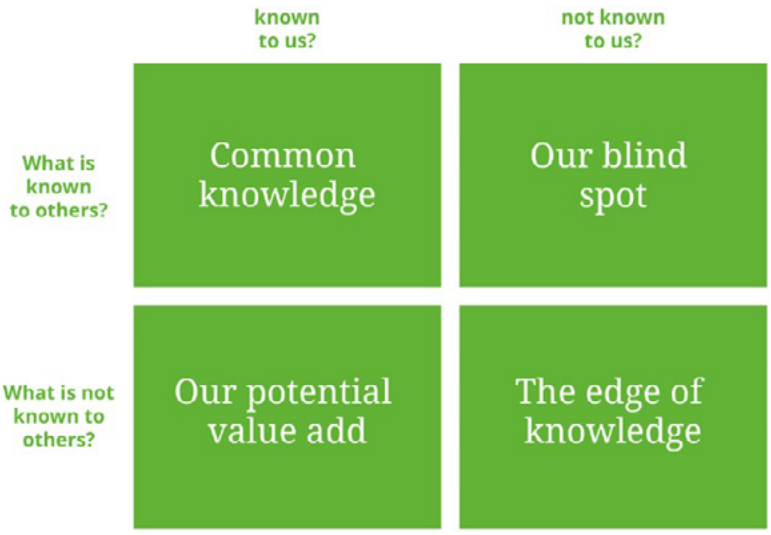
Blending Knowledge

Building on UNDP's R&D priority: informality

As a learning network, the UNDP Accelerator Labs have been testing a model to transform centrally driven knowledge management and R&D into a distributed model that acknowledges diversity and continuous change across multiple local contexts.

The Network of 91 UNDP Accelerator Labs are sharing actionable learning on a daily basis. They benefit from each other in real-time, creating powerful collective learning effects. This creates the opportunity to surface ideas that are on the horizon but not yet part of mainstream development and allows for new approaches to unfold across many different contexts in a low-risk way.

During the learning journey of the Accelerator Labs, a common learning theme and focus throughout the Network has been informality and the informal sector. One of the conclusions is the need for a better understanding of what constitutes informality and innovation in the usual policy prescription (formalize the informal.) The Accelerator Lab Network has experimented with ways to capture existing patterns within the Network and blend experience with research to produce new knowledge about emergent development problems and opportunity spaces. The UNDP Accelerator Lab Network is seeking to **better understand how different informal systems work, what hybrid models look like, and relative risks and benefits to a strategy that commonly puts formalization at the core. The Accelerator Labs developed learning questions based on a collective understanding of what unknown territory is.**



Adapted Johari Window.

To test out this prototype, the UNDP Accelerator Labs have partnered with the Global Network For Popular Transportation to build out learning, policy and practice in the area of informal transportation.

Informal transportation—ojeks, tuktuks, jeepneys, matatus, colectivos, etc.— are a core part of urban mobility systems in the rapidly growing metropolitan regions of the Global South. These regionwide, privately provided transport modes emerge to meet the demand for cheap, flexible mobility. They move millions, employ hundreds of thousands, and support the sizable informal sector in urban economies. Despite this near ubiquity, informal transportation is often seen as a local problem.

The sector suffers from haphazard, discriminatory policies and regulations and is often overlooked in urban and transportation planning. Ignoring the potential of these services negatively impacts millions of users, many of them from the most vulnerable groups in society. An emerging community of practice within the transportation sector is focusing on informal transportation, however, these efforts largely focus on how to formalize informal systems.

From the moment we name it, informal transportation is defined and understood from the viewpoint of what it is not (not formal), rather than what it actually is. Therefore, in this exercise, we draw from tacit and explicit knowledge sources to expand commonly understood framings on informal transportation.

This research is guided by prompts developed as part of UNDP's network learning prototype. These prompts aim to gather systemic insights on:

- How informal transport operators and workers perceive themselves;
- How formalization efforts from authorities might incentivize or affect these actors;
- What digital technologies mean to the sector;
- The informal transport sector's link to environment and sustainability;
- How informal transport impacts equal opportunities; and
- Experiences when it comes to integrating these types of informal services to transportation systems and planning.

These prompts are explored in the six chapters of the Deep Dive Section.

Literature reviews can't keep up with the pace of change

Widely available, documented sources of knowledge on informal transportation exist largely within academia and institutions. Indeed our first pass at answering the questions on informality was to review trenchant literature on the subject. While we were only able to include a short list of publications, we find that institutions and academia provide a limited perspective on this vast, diverse subject.

Each reference published through an academic journal or institution has its own process, framework, and timeline. Yet, communities and cities change rapidly. The way people move in them does, too. There are global commonalities among informal transportation systems, but a wide spectrum of contexts. The field warrants an approach in which recurring, bottom-up feedback can rise to mainstream access.

Looking beyond the literature

Initially, we spoke to several industry experts to supplement the literature review. From November to December 2021, we interviewed 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." This opened new lines of questioning, which are summarized in our literature review report.

We then partnered with UNDP Accelerator Labs to enrich our understanding of informal transportation. Through a series of loosely structured conversations, called Learning Circles, we learned from the personal experiences and field research of UNDP Accelerator Lab teams in Bolivia, Guatemala, Indonesia, Kenya, Lebanon, North Macedonia, and Togo.

The Accelerator Labs interview people on the ground, talk to their contacts in other organizations, and pull stories from local outlets. They also bring their own experiential knowledge to the table. Using these combined sources, the Labs are able to tell us about user and worker experiences and how different systems work.

Speaking directly to industry experts, we are able to draw out knowledge that may otherwise remain isolated to a certain context or circle. The Ola Mobility Institute publishes much of its research, but speaking directly with Aishwarya Raman, Director and Head of Research at Ola Mobility Institute helped us quickly narrow-in on relevant findings. Three Wheels

United, a global tech-enhanced financier for light electric vehicles in emerging markets, however, does not have the reflection and codification capability to regularly share its valuable lessons. The interview with Three Wheels United's founder, Cedrik Tandong therefore yielded many insightful contributions to this report, such as lessons on microfinancing and the benefits of online driver communities.

We are also able to quickly distill collective insights from broad questions. For example, even though each Accelerator Lab is working in different contexts, we found commonalities and trends regarding workers' and users' needs regarding transport access, safety, affordability, governance and legality.

In other instances, the Labs helped counterbalance our focus. On the topic of digitalization, when speaking to the representatives from super-app companies, the perspective is that the field is changing so quickly that some of the technology models may not even be around by the time institutions are able to study and understand the evolving dynamics. In fact, a large part of our preliminary report, "Applying Learning Questions on Informal Economies to Informal Transportation," focused on the many opportunities and challenges posed by these rapid changes. However, based on the reflection sessions - which we call Learning Circles - the Accelerator Labs take a much different view by questioning whether digital technology is a critical focal point, given the pain points the technologies are capable of addressing in low-tech environments.

We note a clear advantage to having the Labs on the ground with the tools and networks in place to quickly gather information. In a few weeks, the Accelerator Labs contributed to the expansion of the ongoing Glossary on Informal Transportation. The Labs photographed different modes and interviewed drivers, operators and passengers in the categories required. While the Matutu buses are widely researched and photographed, the Akro ferry in Togo or the pick-up trucks in Guatemala are much less known or visible to the outside world. The Glossary entries help make informal transport more visible. And more examples illustrate the scale and diversity of these systems.

The knowledge is not only more diverse but is also given in real time. In Lebanon, where the governance situation may differ from one day to the next, understanding what is happening on the ground requires access to a live feedback loop, which the UNDP Lebanon Accelerator Lab can provide.

In **The Deep Dive** we share the blended learnings across the six key Learning Questions. Each section starts by summarizing information found in the literature review and insights from key industry experts. We then share the experiential insights from the participating Labs. Each section ends with key takeaways from this blended knowledge.


The Deep Dive

01

In Plain Sight:
Seeing Informality

Photo: “Chicken Bus” in Guatemala,
by UNDP Guatemala Accelerator Lab

Scanning the Field

An Imperfect Definition

There is no universally accepted term for what we call informal transport. Throughout the literature we find numerous terms and slightly different ways of defining them.

For example, the authors of Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms[2] recognize that "adopting a strict definition of informal transportation is difficult and problematic" because some services may exist outside of the confined definition.

Despite definitional ambiguities, who defines the system matters. While the term paratransit may emphasize a market need for last mile connectivity, semi-formal transit may focus on the regulatory mix of operational strategies. Meanwhile - and perhaps most importantly - we do not have a sense of how the people who work in and use these systems define them, other than by their local name.

> "Without trying to impose a strict definition we refer to all operations with some measure of informality as informal transit."[3]

For the purposes of this research, we are deferring to the framing presented in From Mobility to Access for All: Urban Transportation Choices in the Global South: **"Without trying to impose a strict definition we refer to all operations with some measure of informality as informal transit."**[4]

---

2 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020).

3 Christo Venter, Anjali Mahendra and Dario Hidalgo,"From Mobility to Access for All: Expanding Urban Transportation Choices in the Global South", Working Paper (Washington, DC: World Resources Institute, 2019)

4 Christo Venter, Anjali Mahendra and Dario Hidalgo,"From Mobility to Access for All: Expanding Urban Transportation Choices in the Global South", Working Paper (Washington, DC: World Resources Institute, 2019)

Graphic: The many alternative terms for "informal" transport

The terms themselves are insightful. Referring to entrepreneurial creativity that provides a transport service as "informal", "paratransit" or "unregulated", positions these systems in contrast to something else - formal, transit, regulated. Other recent and infrequent ways to refer to these forms of transport - "popular", "entrepreneurial", "neighborhood", "indigenous", attempt to affirm what it is.

An Invisible Norm

Clearly, there is a lack of data on the prevalence of these systems. This should not be surprising as city level and country level agencies do not collect information for modes that they may not recognize as legitimate businesses or forms of transport.

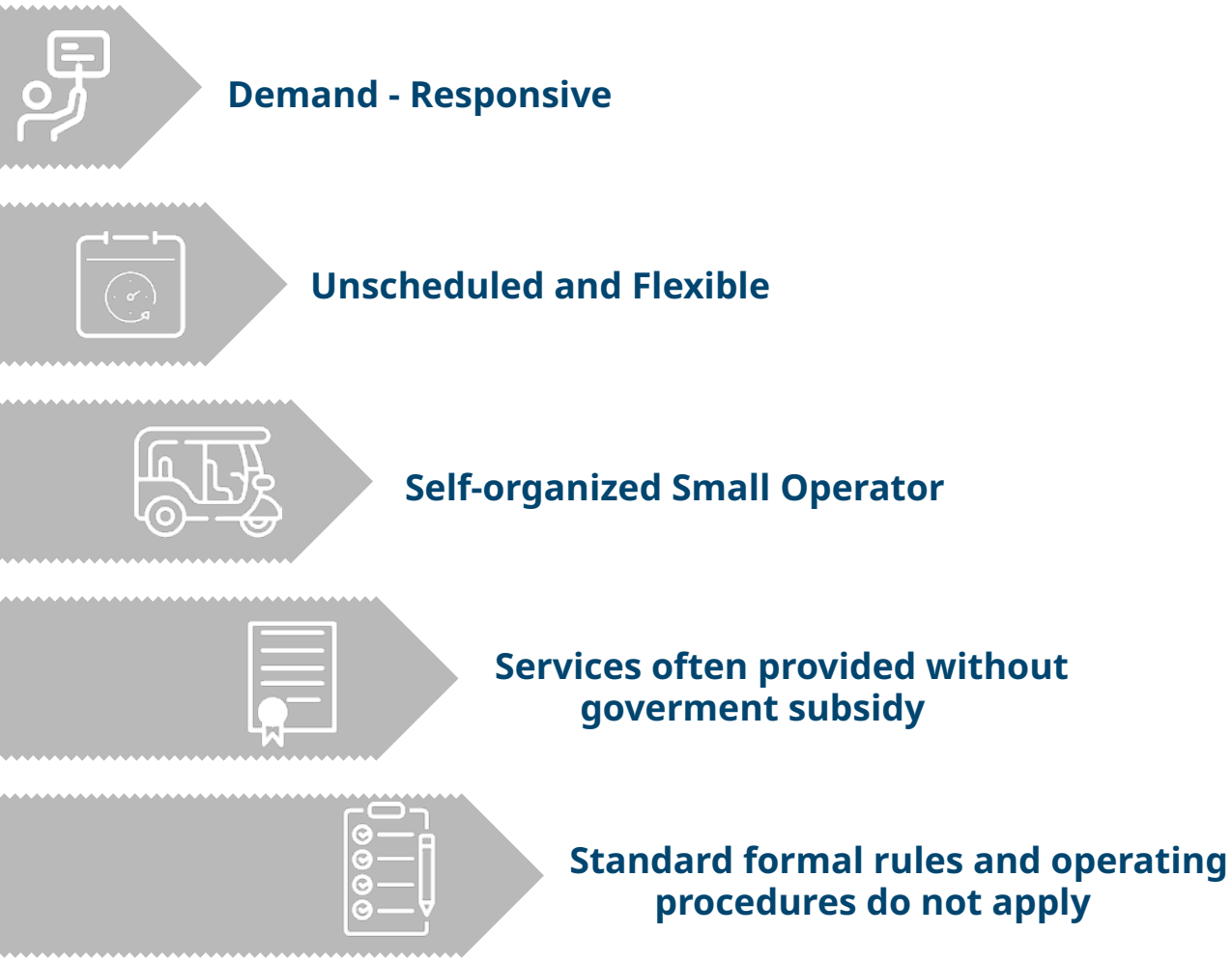
Where we do find available city and country level figures, we see that informal modes are a critical part of the public transportation offering.

- Informal transportation is an affordable mobility option for the 80% of urban dwellers in Africa who cannot afford a car.[5]
- Informal or paratransit modes are particularly important in African and some Latin American cities, where they carry up to 95 % of all public transport trips.[6]
- 20% of residents in Latin American cities lack access to formal transport within a 10-walk from their homes; 15% of residents in informal settlements lack any access at all.[7]

5 Ochenuel Mobility, Transforming Informal Transportation and Road Safety Post Pandemic in Africa (Abuja, 2021)
6 Pablo Salazar Ferro, Paratransit: a key element in a dual system, (French Development Agency, 2015) .
7 Marina Moscoso and others, eds., Sustainable Urban Mobility in Latin America: Assessment and Recommendations for Mobility Policies (Bogotá, Colombia, Despacio, 2020)

Just as there is no single definition for informal transportation, there are no two systems of transportation that function exactly alike. However, we do find commonly accepted characteristics.

Graphic: Identifying Common Characteristics of informal transportation



Based on Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020) and Pablo Salazar Ferro, Paratransit: a key element in a dual system, (French Development Agency, 2015) .

The Ecosystem

The informal transport ecosystem consists of many actors. The Mobilise YourCity Paratransit Toolkit provides this table of paratransit actors:[8]

Paratransit actors and their respective objetives
(These objectives are indicative and must be adapted to the context and the local ecosystem of actors)

Participants	Objectives	Sources of Income
Passengers	Getting around	Personal
Drivers/riders	Optimising the number of passengers carried per day	Passenger revenue
Touts	Attracting passengers and optimising occupancy	Passenger revenue
Owners	Making a profit on the investment as quickly as possible	Passenger revenue and drivers fee
Associations	Representing owners interests, optimising the organisation of the service	Members contributions
Mechanics/repairers	Selling services with an optimised margin	Cost of repairs (owner or driver)
Licence holders	Renting the licence to a driver	Passenger revenue or driver fees
Local authorities	Regulating the number of vehicles and ensuring mobility for city dwellers	Fuel taxes, licence costs, permits
Police	Enforcing regulations	Wages and fines
Financiers (banks or others)	Selling credit and securing repayments	Interest
Insurers	Increasing the number of insured vehicles	Owner's investments
Manufacturers	Selling vehicles - Increasing the number of vehicles	Owner's investments
Energy Providers	Increasing the number of vehicles on the road	Buying fuel (driver)

8 Solène Baffi, Jean-Pierre Lannes, Understanding Paratransit: Defining and diagnosing paratransit for sustainable mobility planning (Brussels, MobiliseYourCity, 2021).

The Informal Transport Worker

In the literature we find three main types of informal transport workers: 1) rural to urban migrants, renting vehicles; 2) urban, owning vehicles; and 3) the platform worker.

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. Workers typically rent their vehicles rather than owning them.

The second type of informal transport workers 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 also accrue other assets and businesses — such as a shop or plot of land for farming — and exit driving after several years.

Both urban and rural to urban transport 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.[9]

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.

An Income and a Ride

When discussing the perceptions and motivations of people who use or operate within the informal transportation system, most explicit material focuses on the importance of the jobs and the mobility it provides in the absence of better alternatives.

The literature suggests that drivers can earn a basic income, often above minimum wage. It provides a readily available form of livelihood with minimal entry requirements and immediate, daily earnings. Operators need minimal capital investment or administrative staff to make a profit, making this sector an attractive livelihood option for many people. In Uganda, for example, the boda - boda sector was the second largest employer in the country.[10]

While the informal transport industry contributes to poverty alleviation, the exploitative and insecure nature of the work is highlighted. For example, a study reviewed by the authors of The Future of

9 Interview with Deepa Sherkar, Head of Customer TapTap Send App, 6 of December, 2021
10 David Spooner, The Power of Informal Transport Workers (Global Labour Column, 2017)

Paratransit and Shared Mobility: Mapping Report, found that danfo drivers in Africa work an average of 20 hours a day despite the fact that 22% are partially blind and 99% suffer from hypertension.[11] Workers face other threats as well. In the Enciclopedia del Transporte Informal en América Central drivers reported threats and attacks (in cases of non-compliance) related to a "war tax", a kind of toll that drug traffickers and gangs impose on those who transit through their territories.[12]

From the passenger perspective, the literature finds the services to be reliable and demand responsive. This may be due to poor access or connectivity to public transport, issues of affordability, or lack of other mobility options. For instance, car-centric urban development excludes the 80% of urban dwellers in Africa who cannot afford to buy a car.[13]

The Future of Paratransit and Shared Mobility: Mapping Report further breaks down user motivations by income group. It finds that upper-middle income users list waiting times and distance as the main benefits while affordability is the main benefit for low-income users.

In the Enciclopedia del Transporte Informal en América Central, respondents give low ratings on safety and comfortability, but high ratings on travel speed and ease of use. In the Latin America context, some informal systems received higher satisfaction rates than BRT and Metro systems.[14]

In other instances, the informal option is the only option. One passenger from Hawassa, Ethiopia sums it up: "If the Bajaj is lost, then everything is lost. Without the Bajaj, we cannot move and there is no city."[15]

11 Sarah Cassius and others, The Future of Paratransit and Shared Mobility: Mapping Report (Institute for Transportation & Development Policy, 2021).

12 Nicolás Morales-Miranda and others, eds., Enciclopedia del Transporte Informal en América Central (San José, Costa Rica, Centro para la Sostenibilidad Urbana & Agile City Partners, 2021)

13 Ochenuel Mobility,Transforming Informal Transportation and Road Safety Post Pandemic in Africa (Abuja, 2021)

14 Marina Moscoso and others, eds., Sustainable Urban Mobility in Latin America: Assessment and Recommendations for Mobility Policies (Bogotá, Colombia, Despacio, 2020)

15 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

Diversifying the Context

Everywhere for Everything

In this project, we asked the Labs to submit specific information about informal modes where they live. These were used as new entries to the Glossary on Informal Transportation, which was previously launched with entries from Central America.

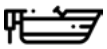
The Glossary of Informal Transportation showcases what transport modes are used to provide informal and semi-formal transport services in different cities, how they look, popular names given to them, and key insights on how they operate and how people use them, allowing us to further understand context-specific similarities and differences of these types of services around the world.

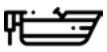
All countries were able to identify at least one mode. Initially, the UNDP North Macedonia Accelerator Lab was not aware of any informal system. However, upon further investigation, they found a case in which private cars, properly registered according to the laws, were offering informal, for-hire services for airport trips or organized carpooling. This network services neighborhoods primarily consisting of Roma communities to central locations in the city of Skopje and other destinations.

While much of the conversation focused on informality in urban transport, experience from the Labs emphasizes the importance of peri-urban to urban connectivity and provision of services in rural areas. For instance, in Bolivia, the minibuses serving inter-urban routes are appropriately named 'surubíes'.

UNDP Accelerator Labs in Togo, Kenya and Guatemala find that informal services also provide users the option to transport goods and provide other services, such as the distribution of small freight. Paola Constantino, Head of Solutions Mapping, UNDP Guatemala Accelerator Lab observes that moto - taxi vehicles are often used to deliver food and goods to customers and that vehicles mainly used to carry cargo, such as pick-ups, also provide mobility service to people in rural areas.[16]

16 Paola Constatino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Session 1, 30, March, 2022

Accelerator Lab	Glossary Snapshot
Bolivia	 **Trufis:** Fixed-route urban collective transportation services provided by automobiles in different cities of Bolivia.
	 **Surubiés:** Mode of transportation that uses minibuses and operate inter-city routes
	 **Toritos:** Modified three-wheeler motorcycles with gasoline engines that have a capacity of three passengers
Guatemala	 **Informal Taxis:** Unregistered automobiles that provide transportation services.
	 **Bici - Taxis:** Service found in Ciudad de Guatemala, Santa Catarina, Pinula and Amatitlán
	 **Ruleteros / Micro buses:** Informal Minibuses that provided transport services to rural communities.
	 **Lanchas:** Taxi - boat services found in Lake Atitlan, mainly used by indigenous communities around the lake
	 **Moto - Taxis:** Two-wheel motorcycle cab services found in different areas and cities in the country
	 **Pick - Ups:** Vehicle designed to transport goods that offers transport solutions in rural areas
	 **Tuk - Tuks:** Informal transport service that can be found in Guatemalan cities such as Camotán, Chiquimul
Indonesia	 **Becack:** Pedicab services that employs a tricycle designed to transport a maximum of two passengers
	 **Ojeks:** Motorcycle-taxi service, traditionally operated by individuals offering rides using their personal motorcycles.
	 **Bajaj:** This service uses vehicle also know as tuk - tuks or auto-rickshaw

Accelerator Lab	Glossary Snapshot
Kenya	 **Matatus:** Main transport service in Kenya. The service is provided by multiple kinds of buses that have different passenger capacities, for instance there are 14-seaters, 25-seaters or 32-seaters
	 **Boda - Bodas:** Two wheeler motorcycle taxi service found in Nairobi
	 **Tuk - Tuks:** Informal transport service found in the city of Nairobi
Lebanon	 **Services:** Cab services that use automobiles and offer shared services with flexible routes.
	 **Vans:** Informal transport service provide by minibus with a capacity of up to 12 passengers
	 **Buses:** Informal transport service found in rural areas
North Macedonia	 **Informal Taxis:** Properly registered vehicles, unauthorized to provide public transportation services
Togo	 **Informal Taxis:** Unregulated services without fixed schedule or designated areas of operation. Frequently found in the city of Lome.
	 **Akro / Piroue:** Informal mode of transportation operated using boats. It runs between the communities of Agbodrafo and Togoville across Lake Togo.
	 **Oleyia / Zem:** Motorcycle taxi that can be found in the city of Lome and generally, everywhere in Togo.
	 **Tuk - Tuk:** Informal transport services found in the city of Lome.

A Social Network

Based on their research, the Labs find additional actors and observe different types of relationships among actors.

In Bolivia, it is common for entire families to be part of the minibus system. The husband drives, the wife 'barks' - a term for attracting customers - for passengers, and the children sometimes collect fares. The family name is often displayed on a sticker in the vehicles' windows. Patricia Choque, Head of Experimentation, UNDP Bolivia Accelerator Lab, notes that drivers characterize their operation as a family business [17].

We also hear from the Accelerator Labs about the strong role NGOs, cooperatives and other types of associations play in the network. In Kenya for example, cooperatives are a prevalent form of organization with 2.5 million of them active across the country.[18] Victor Awuor, Head of Solutions Mapping, UNDP Kenya Accelerator Lab, shares that when there's a problem with the government, it is often a cooperative or an NGO that steps in to mediate between parties.

In Bolivia, most drivers and operators are organized via associations, which local governments have started to require to register and comply with certain operational and legal requirements. However, it is the associations, rather than the government, who organize drivers and establish routes. This gives them notable political influence. "They [the transport associations] are powerful politically. Because when they want to stop the city, they can," says Patricia.[19]

Businesses that Want to Thrive

Importantly, we heard from the Accelerators Labs that on the topic of formalization, drivers and operators do not identify as "informal", but rather as entrepreneurs hoping to gain stability in some aspect of their business.

The business models vary widely. One example is the range of ownership models.
Lazar Pop Ivanov, Head of Experimentation, UNDP North Macedonia Accelerator Lab shares that private vehicle owners use their legally registered vehicle to directly provide an informal service. "The vehicles are regularly registered. It is just the service that is informal," he says.[20]

In Togo, we learn that most drivers are renting their vehicles from a single vehicle owner, however, there are emerging innovative "work and pay" models that allow for drivers to make daily payments in order to finally buy their vehicles. Associations, fleets, and other consolidated, organized entities are rare in Togo, if they exist at all, according to Yawo Agnigbankou, Head of Experimentation, UNDP Togo Accelerator Lab.[21] In contrast, research from Kenya shows that middle income earners are buying motorbikes and hiring drivers as a form of investment.[22]

17 Patricia Choque, Head of Experimentation, UNDP Accelerator Lab Bolivia, Learning Session 1, 30, March, 2022
18 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Learning Session 1, 30, March, 2022
19 Patricia Choque, Head of Experimentation, UNDP Accelerator Lab Bolivia, Learning Session 1, 30, March, 2022
20 Lazar Pop Ivanov, Head of Experimentation, UNDP Accelerator Lab North Macedonia Learning Session 1, 30, March, 2022
21 Yawo Agnigbankou, Head of Experimentation, UNDP Accelerator Lab Togo, Learning Session 1, 30, March, 2022
22 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Session 1, 30 March 2022

The Labs reiterate the importance of the movement of people, goods and services. But they also reiterate the importance of the micro-economy around the transit stations which consist of various vendors. In Guatemala, in addition to stores, phone booths are also commonly found near informal stations.[23]

A Blurry Line

Many of these factors contribute to the blurred line between informality and formality. Legally registered vehicles are used as unauthorized public transport. Collective organizing through a cooperative may make work feel less informal and more professional, as would facilitating negotiations with authorities and regulators. Identifying as an entrepreneur in a wide-reaching local economy may normalize the concept of informality.

The Labs observe that the ad hoc governance structure surrounding these systems may further contribute to an unclear understanding of when something transitions from informal to formal. Victor notes that in Kenya, local police and local administration have a say in terms of where the stops or stations are situated. However, these stations are built by a mix of the private sector and sometimes the initiative of the drivers themselves. "In the absence of support from the government or private sector actors, the riders (drivers?) take their own initiative and contribute to [build] the stops," he shares.[24]

In Bolivia, the municipal authority regulates prices but is unable to enforce them. Diego Suárez, Head of Solutions Mapping, UNDP Bolivia Accelerator Lab says that as a result, drivers end up determining their own prices, often allowing competition to set the standard.[25]

23 Paola Constatino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Session 1, 30, March, 2022
24 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Session 1, 30 March 2022
25 Diego Suárez, Head of Solutions Mapping, UNDP Accelerator Lab Bolivia, Session 1, 30 March 2022

A Mainstream Alternative

It is widely accepted that informal transport exists because of a lack of alternative options, but the opposite may also be true; passengers are using informal modes despite alternatives. Igor Izotov, Head of Exploration, UNDP North Macedonia Accelerator Lab says their research found that some families use informal transport services for vacation, not only to go to the airport, but also for the whole trip, including cross border trips.[26]

In many contexts where the Labs work, the poor pedestrian environment, unfavorable environmental conditions, or fragmented public transport requiring multiple transfers to reach a destination, attract passengers to the door-to-door service provided by informal modes.

Paola shares that in Guatemala, the Tuk-Tuks are uniquely able to adapt to the topography and configuration of the narrow street networks, which is one of the reasons people prefer this kind of service. "Formal transportation doesn't even think they have to cover these areas," she says.[27]

This is echoed by Yawo, who says that in Togo, "many like using motorbikes because of the flexibility. They can drive you to your precise location."[28]

Passengers also rely on informal transportation because of their low price that makes these services available to most people. For example, according to field research done by the UNDP Lebanon Accelerator Lab, students are one of the main users driven by the low price of informal systems.

26 Igor Izotov, Head of Exploration, UNDP Accelerator Lab North Macedonia, Session 1, 30 March 2022
27 Paola Constatino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Session 1, 30, March, 2022
28 Yawo Agnigbankou, Head of Experimentation, UNDP Accelerator Lab Togo, Learning Session 1, 30, March, 2022

Shifting the Narrative

Although we do not have exact figures, the blended knowledge suggests that informality in transport exists everywhere there is an unmet need. And the scale of unmet need is huge. We know that informal transport is not a last resort to be suffered nor is it a perfect solution to be wholly accepted at face value. What we see from the literature and the Accelerator Labs is that informality in transport gives us deeper insight to how people need to and want to move on a daily basis given the reality of their context.

The blended knowledge suggests that informal transportation is more than a service to move people and goods; it is an economic ecosystem. Beyond the transport service itself, the ecosystem includes the vendors from repair shops to food stalls that depend on and support the passengers, workers, and communities where the systems operate.

We see that the system is often made up of small and medium-sized business enterprises with strong entrepreneurial energy. These entrepreneurs have the agency to make decisions on a daily basis about what is good for their business and their customers.

Given these insights, how might we assign more value to the work and services these systems provide?

02

In Flux

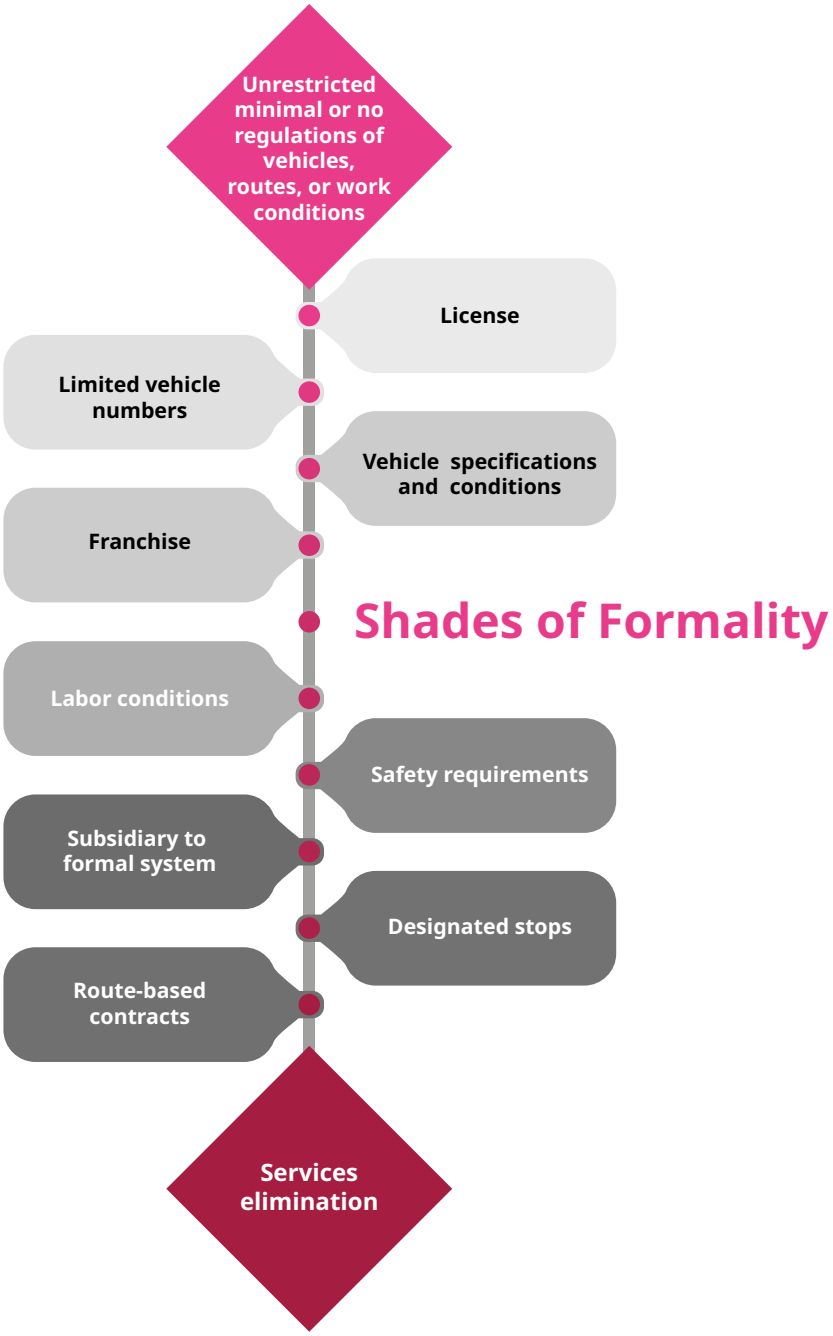
The Spectrum of Formalization

Photo: “Akro” in Togo, by UNDP Togo Accelerator Lab

Operation Formalize

What we see in the literature is a commonly accepted goal: most local authorities seek to formalize informal transport systems for the purpose of achieving better management control and enforcement of these services. However, there is a need to better understand whether these types of efforts actually incentivise informal transport operators to shift their business models, or how these efforts are affecting or impacting operators, drivers and users.

At one extreme, we find some governments fully ban informal systems. They may seek to wipe them out or to transition the workers to a different, formal mode, most commonly a bus system. At the other end of the spectrum we find bottom-up solutions emerging from drivers, operators, and their organizations. In between, we see a variety of semi-formal approaches.



From the Top Down

In the literature we find examples of top-down initiatives enacted by governments in response to service inefficiencies, road safety and personal safety issues, labor conditions, or environmental concerns.

One approach seeks to integrate and upgrade informal services to a fixed-route public transport system centrally managed by a government agency. In this case we see last mile solutions or fare integration to create an organized network of different services. Cities like Bangkok where songtaews, Tuk-Tuks, and motorcycle taxis bring passengers to the MRT and Skytrain aim to drive passengers to new stations and routes.

The other top-down approach we find uses incremental upgrades to achieve semi-formal compromises. Examples of gradual fleet renewal programs coupled with funding and institutional support are found in Alwar, India, Kathmandu, Nepal, and Dakar, Senegal. There are also cases in which priority lanes are allocated to informal modes or route concessions are distributed among informal operators. In other examples, we find that informal modes are allowed to operate in restricted areas, often outside of a main thoroughfare. In Guatemala, for instance, the Tuk-Tuks are only allowed on main roads but can service alternative routes that connect to the formal system. In Bolivia, the minibuses are allowed to operate but are restricted from intercity routes.

The incremental approach, to some degree, acknowledges the technical, political, and financial constraints faced by local or national transport authorities.

Less-discussed drivers of formalization, such as post-colonial influences on modernity, are explored in a few of the documents. The concepts of “formality as fetish” or “performing the modern city” show that in many contexts, informality is not associated with or accepted as part of successful modern development.[29]

From the Bottom Up

The bottom-up initiatives we find in the literature largely extend from cooperatives and vehicle owners, operators, or drivers.

As we learned in the first section, those working in the sector often self-identify as entrepreneurs. Bottom-up reforms are therefore driven by a desire for legality, security, and an ability to grow business. In Mexico City, for example, informal incumbents were motivated to sell their concession titles and routes to create a new firm that could bid in city level contracts and even purchase the new BRT buses. In Nairobi, we find another case in which drivers are able to access services through savings and credit cooperatives.

29 William Bose, “Where mobility and ‘modernity’ meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

Mixed Results

The literature presents a range of experiences with formalization efforts.

Where formality involves the implementation of rigid routes and service planning, there is a risk that the flexibility and demand responsiveness favored by users of the informal system will be altered. This may result in fare increases, longer walks to relocated transit stops, and an increase in the number of transfers required to reach a destination.

While the general expectation that the formalization process improves employment conditions for drivers and operators, the results are mixed.[30]

Some cases show that operators who attempted to enter the formal transport sector were not able to meet the required financial obligations which excluded them from bidding processes or resulted in contract cancellations.

Drivers also often face financial obstacles in the informal system. For instance, there may be fierce competition when an unregulated number of vehicles operate on the same route, driving down earnings. Individual-owner drivers or operators may be unable to access financing to expand or improve the service.

Informal workers may also be excluded from labor laws and social protections. And depending on access to effective organizing structures, they may not have collective bargaining rights. Security, improved working conditions, and guaranteed livelihood may be motivators to formalize.

Evidence from Johannesburg shows that, with an appropriate labor framework, informal transport employees who moved to work for a formal company experienced a significant increase in their annual income.[31] Other research shows that upgrading to formal transport work does not necessarily guarantee a better financial outcome, as little data is available on the before and after benefits when employment has been formalized.[32]

In Jakarta, the experiences and incomes of drivers who switched to using ride hailing apps remain the same, while the app owners "exploit their work as a place of capital extraction." In addition, the app's business model views waiting time as unproductive and aims to eradicate it, which has eroded drivers' social networks and traditional local terminals and led to some protests.[33]

30 Ajay Kumar, Sam Zimmerman & Fatima Arroyo-Arroyo, Myths and Realities of "Informal" Public Transport in Developing Countries: Approaches for Improving the Sector (Africa Transport Policy Program 2021).

31 Sarah Cassius and others, The Future of Paratransit and Shared Mobility: Mapping Report (Institute for Transportation & Development Policy, 2021).

32 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

33 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

Resistance to Change

In the literature we find a long list of reasons drivers/operators and passengers resist formalization. Drivers and operators might resist or show little interest in the formalization process because of concerns related to loss of autonomy and business flexibility, financial and economic risk, and lack of trust in government agencies initiating the projects, dependence on government subsidies and thus decreased coverage, capacity and performance in times of national macroeconomic financial crises (such as the COVID-19 pandemic).[34]

For passengers, the reasons might include increased fares, long journeys to transport stops, rigid routes, loss of the ability to operate on the narrow roads and unpaved streets often found in the peripheral areas of developing cities.[35]

Often the discourse on formalization overlooks the ability to enforce any such regulations. Willam Boose notes that in Cartagena, the sector is so large that 69% of mototaxistas ignore government restrictions.[36] In Bolivia, although some municipalities regulate fares, drivers often set their own rates based on competition.

Enter the Super-Apps

The emergence of the super-app adds another dimension to this discussion.

The experts we interviewed emphasized that the speed and impacts of digitization 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.

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 Raman maintains the platforms represent a third category of workers. From policymakers' perspective, it's important to note that while digitization 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.

The trajectory of growth and innovation has also resulted in a reverse outcome. As the platforms' technological capabilities begin to outstrip those of formal public transportation when it comes to booking and payment, it is possible the formal mode will be folded into the informal system. 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?

---

34 Ajay Kumar, Sam Zimmerman & Fatima Arroyo-Arroyo, Myths and Realities of "Informal" Public Transport in Developing Countries: Approaches for Improving the Sector (Africa Transport Policy Program 2021).

35 Ajay Kumar, Sam Zimmerman & Fatima Arroyo-Arroyo, Myths and Realities of "Informal" Public Transport in Developing Countries: Approaches for Improving the Sector (Africa Transport Policy Program 2021).

36 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

Mapping the Risks and Incentives from Formalization Efforts

Leaving No One Behind

The UNDP Accelerator Labs attempted to find whether operators, drivers, or users identify any risks, concerns or potential impacts in the different formalization efforts taking place in their different countries and cities. The experiential learning process highlighted a disconnect between formalization efforts and the realities and needs of informal transport operators and users of these services.

The main risks and incentives identified in this exercise are:

Actors	Risks and concerns	Incentives
Workers and operators	- Regulation processes might affect **job flexibility and autonomy** (working hours, territorial choices, etc) of drivers - Registration and legalization requirements increases the complexity in the possibility to earn a **quick and easy income when needed** - Taxes and other fees might affect the possibility to sustain business models - Loss of local culture and practice	- Possible access to loans or assistance in purchasing an electric vehicle. - Possibility to get insurance - Potential access to subsidies - Legality - Access to social security
Users	- Communities using informal systems may not meet the business demand required to invest in a fixed route system, putting them at risk of losing transport access all together if informal services are eliminated or not further developed. - If there are high costs associated with the formalization process, service fees could increase. - Under formal systems, it would not be possible to negotiate tariffs.	- Increased safety - Ensure transport access - Affordability - Predictability - Availability of reliable transport information - Improvements in vehicle conditions

Dialogue is Key

The Accelerator Labs find examples of differing incentives between authorities and informal transport actors. Elias Mouawad, Head of Exploration, UNDP Lebanon Accelerator Lab points out the lack of incentives that exist for informal transport operators and government regulators.[37]

Moving the Goalpost

There are many risks associated with formalizing the work, the service, or both. And the blended knowledge shows there can be a disconnect between what regulators aim to control and what the workers and users need on the ground.

A paradigm shift is likely needed to improve these systems based on how these systems actually work. We did not find any interventions which endeavored to preserve, build on or learn from the positive aspects of informal services such as flexibility, demand-responsiveness, expression of local culture, socialization or other key benefits inherent to the informal system.

More information is needed to understand what business models and incentive structures might lead to interventions that improve financial security and minimize financial risk. How might we gather more information on the varying business models, how vehicles are funded, built, maintained, and repaired, and what businesses need to improve or scale their services?

The blended knowledge shows that the drivers and operators are already self-organizing to build these informal systems. Is there an opportunity to therefore champion their own reforms from the bottom-up? Is self-organization a first step to facilitate information, conversations, negotiations and agreements with authorities and government entities? And can better dialogue between authorities and informal actors lead to more just, sustainable approaches?

37 Paola Constatino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Session # 3, 04 May, 2022

03

Going Digital
Super Apps and Beyond

Photo: Gozem Sueper App motorcycle taxi service, by UNDP Togo Accelerator

Accelerated Impact

Digital technologies have changed the way people use transport services and work in the industry. In the literature we find examples but we turn to the interviews with industry experts to better understand the implications regarding the rise of the super-apps. From the review we see the ways in which digital technologies are enabling and driving the transformation of the informal transportation sector. On the positive side, this has resulted in better access to finance and work, increased security and convenience for passengers, and more efficient service provision. However, equity concerns remain.

Driving Change

Digitalization helps promote informal transportation as a mainstream option for work and transport services. Digital platforms have lowered barriers to work in the sector and drivers can access customers with very little effort and investment. The companies can in turn scale the service and expand the network.

As a result, trip patterns are changing. 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.[38]

Enabling Growth

Digitalization enables growth in the sector through better access to finance, increased security, and improved user information.

For example, access to data can help make financing more available. Money lenders, banks, and micro-finance institutions are already using digital transactions and platforms to profile or map beneficiaires.

Roughly 90% of India's three-wheelers are financed by private entities or individuals, 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.[39]

---

38 Interview with Deepa Sherkar, Head of Customer TapTap Send App, 6 of December, 2021

39 Interview with Airshwarya Raman, Director and Head of Research Ola Institute, 23 of November, 2021

In Kenya, fintech companies are able to track actual revenue/usage via GPS and mobile technology which makes credit scores easy to obtain. Uber, for example, already uses bank accounts to make payments. As observed in another learning circle developed by the Accelerator Labs, these digital footprints enable the creation of a financial track record, leading to pathways to formality for both operators and drivers.

Cedrick Tandong of Three Wheels United 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.[40]

Traditional microfinance is both high-touch and hyper-local, requiring frequent check-ins by loan officers and thus leading to higher costs, Tandang notes. Digitization 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 of 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.[41]

Data is also playing a role in improving the transport service itself. Mapping informal transport routes has become an important step to improve the service by matching passenger demand and supply.[42] The acquisition of spatial data, such as map routes, helps users plan travel and understand mobility options which were previously dependent on word of mouth or learning through experience.

The transformative power of digital technologies in informal transportation, as detailed in this report, aligns with the discussions presented in the UNDP Accelerator Labs' blog on how digitalization is changing what informality looks like. These findings underscore the importance of continued research and dialogue in harnessing digitalization to foster growth and equity within informal networks globally.

40 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021
41 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021
42 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020).

A Rapidly Changing Field - The Super-App Era

The experts we interviewed emphasized that the speed and impact of digitalization in the recent past cannot be overstated.

We find different perspectives on the degree of super-app portability across cultural and geographic contexts. A question raised by the early success of Gozem — an aspiring super-app operating in 13 cities across eight Francophone nations in West Africa, which 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 [43] [44] [45] insist that lessons learned in organizing or formalizing transport in one cultural/geographic context cannot be successfully transplanted elsewhere.

The experience of the super-apps shows us that going digital means expanding beyond transport services.

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 are a crucial part of the super-app model, using customer data and behavior to branch into new categories and link 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 says the share of digital repayments has risen from 10% to 80%[46]— the presence of a strong incumbent app company 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.[47]

Hence there is a strategic need for super-apps to own their wallets and the associated customer

43 Aishwarya Raman, The Power of Two Wheels: India's New Shared Mobility Frontier, (Ola Institute, 2020)
44 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021
45 Interview with Deepa Sherkar, Head of Customer TapTap Send App, 6 of December, 2021
46 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021
47 Interview with Deepa Sherkar, Head of Customer TapTap Send App, 6 of December, 2021

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.

However, equity issues remain. Digitalization can also mean that drivers and passengers who cannot afford smartphones and data do not have the same level of access to the opportunities provided. Bankability remains a barrier to integrated payment systems. All five experts interviewed touched on the dearth of digital literacy as a major challenge to equitable access.

We find differing views about the impact digital platforms have had on labor conditions. There are serious concerns about the exploitative nature of the platform work related to an overall loss of personal autonomy. Some drivers also lament the loss of community and social interaction which are minimized through platform work.

In other cases, we see that the platform work is opening opportunities to those previously marganilized from transport work, including women and transgender drivers who may not have been accepted within the traditional driver association.
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[48] 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.

A gap remains between the community level association and the technology company developing and growing a super-app. 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.

Finally, we learn of the aspects of the system which cannot be or are not best served by digital technology. 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.[49]

48 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021
49 Rida Qadri, "Delivery Platform Algorithms Don't Work Without Drivers' Deep Local Knowledge", Slate, 28 D ecember 2020

A Low-Tech, cash-based Reality

While much focus on digitalization surrounds the emergence of super-apps, experience from the UNDP Accelerator Labs suggests that informal transport services on the ground are largely low-tech, relying primarily on basic messaging and wayfinding apps. We also learn from the Accelerator Labs that cash is still largely prevalent and implementation of cashless payments faces significant barriers.

For drivers, digitalization has improved city navigation. Accelerator Labs in Bolivia,[50] Guatemala[51] and North Macedonia[52] reported the use of Google Maps and the benefits it has provided to more easily locate customers and find alternative, more efficient routes.

Experience shared by the Labs suggests the application of digital technologies is effective when focused on linking drivers and customers and harnessing data that can be used to improve services. So instead of focusing on technology, the Labs see value in shifting to look first at what issues people are trying to solve with digital technologies.

Putting Businesses First

The Accelerator Labs affirm that in some cases digitalization gives drivers better access to work. Ride-share apps lower barriers to work in the sector. They also help link drivers to customers.

By lowering barriers to entry, drivers are then primarily concerned with finding customers. They join a platform to establish these relationships, but once established, both parties often prefer to continue the transaction offline.

According to interviews conducted by several Accelerator Labs, drivers use apps to find customers but may eventually leave to avoid fees. In Kenya, based on their field research, the Accelerator Lab identified that users and drivers tend to use apps just to estimate the price and then negotiate offline prices without fees.[53]

---

50 Diego Suárez, Head of Solutions Mapping, UNDP Accelerator Lab Bolivia, Learning Circle Session #2, 27 April, 2022

51 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022

52 Igor Izotov, Head of Exploration,UNDP Accelerator Lab North Macedonia, Learning Circle Session #2, 27 April, 2022

53 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Learning Circle Session #2, 27 April, 2022

Also in Kenya, as operators service school routes, they communicate with parents throughout the journey to drop their children at school, which creates a relationship of trust. In this way, WhatsApp allows daily regular communication between customer and driver. This parent-driver trust relationship also works when the driver is not available, since the driver can recommend a colleague driver to the parent.[54]

In Guatemala, a popular app called In Driver, enables anyone to register more easily than Uber. Drivers and passengers negotiate prices through the app. Rides are cheaper, but the quality of service is reportedly not as good as Uber.[55]

Digital payments are not commonly used in many countries. The Labs observe informal workers generally may remain unbanked because they seek to avoid taxes, do not know how to use the technology or understand how to receive digital payments. All the Labs reported cash still being the most widely used form of payment in their geographies. In fact, the Labs find that cashless payments may instead be a deterrent to drivers who do not want to report financial earnings. It may also be a deterrent to those drivers and passengers who do not have formal bank accounts to link to digital platform accounts.

While the Labs did not observe digital solutions such as cashless payments to be a priority or an incentive, they understand from their experience and research that data can play a role in helping improve informal transport services. In Guatemala, the Lab learned that user travel demand and data produced using digital tools could benefit institutions to better understand transportation needs.[56]

Leveling the Playing Field

The UNDP Accelerator Labs bring up many equity concerns around digitalization. The Accelerator Labs know that digital literacy remains low among many of the communities where they work. For example, in Guatemala, the elderly are still excluded from the digitalization process.[57]

Victor Awuor, Head of Solution Mapping, UNDP Kenya Accelerator Lab, highlights the socializing component of community-based informal transport services. Based on their Lab research, the use of apps is generating a disconnect between informal workers. It becomes a “one man” operation instead of the traditional solidarity and group support between the drivers.

The Labs learned that digital technologies may threaten the financial viability for low-income drivers and passengers. This may be due to incurring additional costs through taxes once transactions become more transparent or due to fees incurred by the formal operation. Digital technologies will therefore need to consider the financial model for operators, workers, and users.

54 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Learning Circle Session #2, 27 April, 2022
55 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022
56 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022
57 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022

In Bolivia, informal transport is very cheap and since not many people have bank accounts, improving the payment system, such as moving to a cashless payment system, is not a priority. However, digitalization has the potential to support the user experience through better routes and increased safety. "It [digitalization of payments] is not going to be the solution. We need to try to digitalize other things. For example, timings, vehicle locations, security," shares Diego.[58]

These Insights also cast light on the limitations of digital technology within the transport sector. They highlight that while digital tools offer solutions to several operational challenges, they alone may not overcome the fundamental structural issues that need to be addressed to enhance the service significantly. For example, digitization can streamline transactions and improve route planning, but it doesn't directly address the critical infrastructural needs or regulatory frameworks that underpin the entire system.

Centering Users and Workers

From the blended learnings, we see that digital technologies can play a large role in transforming informal transport services. But the scale and urgency of their use can vary greatly depending on the local context.

The Labs find that drivers want to find passengers and passengers want a convenient, safe, affordable service. In many instances, these pain points are addressed through low-tech offerings. We see through the blended knowledge that digital technologies could be more inclusive as well as more legible.

We need a better understanding of the needs drivers, operators or passengers have that require a digital solution. Particularly, we need to find more examples in which drivers and operators are centered, such as the financial model and informal digital community building, provided by Three Wheels United.

58 Diego Suárez, Head of Solutions Mapping, UNDP Accelerator Lab Bolivia, Learning Circle Session #2, 27 April, 2022

04

On Sustainability:
Opening the Discussion

Photo: Informal buses in Lebanon, by UNDP Lebanon Accelerator Lab

Understanding the Impact

When discussing the environmental or sustainability implications of informal transportation, most written material focuses on the polluting nature of informal transportation infrastructure. CO2 emissions and air pollution are attributed to substandard second hand vehicles and poor maintenance as well as the inefficient provision of routes.

On the contrary, we did not find many angles to understand how informal transportation may be positively contributing to environmental sustainability. Some sources note that vehicles with larger passenger capacities will have per capita emission advantages.

The Future of Paratransit and Shared Mobility: Mapping Report[59] finds that road-based alternatives such as the ferries in Cote d'Ivoire, may provide more efficient routes. While the concept of secondhand is largely associated with being substandard, the report highlights that units, such as pinasses are produced from locally available wood and recycled tarpaulin.

While we know that the industry thrives on the reuse, recycling, or repurposing of materials, we did not find explicit references to the scale or impact of this circular economy.

The main focus of documented knowledge is on electrification. The acceleration of cleaner fuel or electric vehicles, whether private, for-hail, formal, or informal is widely perceived as a massive opportunity to curtail both GHG emissions and air pollution.

The two- and three-wheel marketplace is spearheading the electric mobility revolution. The relative low costs, proven economics, and marketplace dominance give it leverage. Bloomberg's 2022 Electric Vehicle Outlook[60] identified electric two and three wheelers as having the biggest share of EV sales worldwide (with more than 274 million electric two and three wheelers sold), also responsible for displacing 1,010,228 barrels of oil each day. Aishwarya Raman, notes that 12.8% of Indian households possess two- or three-wheelers, compared to 2.3% owning four-wheeled vehicles.[61] In June 2020, the Indian government reauthorized its FAME II (Faster Adoption and

59 Sarah Cassius and others, The Future of Paratransit and Shared Mobility: Mapping Report (Institute for Transportation & Development Policy, 2021).

60 Colin McKerracher and others, "Electric Vehicle Outlook 2022" (BloombergNEF, 2022)

61 Interview with Airshwarya Raman, Director and Head of Research Ola Institute, 23 of November, 2021

Manufacturing of Hybrid and EV) subsidy scheme until 2024, while also increasing the ceiling for two-wheeler credit by 50%.

Less is written about what is necessary to integrate informal transportation to transport decarbonization efforts and how to accelerate the adoption of EVs for informal transportation.

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 drivers and/or 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.[62]

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.[63]

62 Interview with Cedrick Tandongr, Co-founder and CEO Three Wheels United, 22 of November, 2021

63 Kumar, A. Zimmermand, S., & Arroyo-Arroyo, F. (2021. Myths and Realities of "Informal" Public Transport in Developing Countries: Discussion Paper Approaches for Improving the Sector.

Creating Incentives

The Accelerator Labs from Guatemala[64] and Bolivia[65] find that digital technologies can play a big role in making informal transport more sustainable. As discussed previously, mapping software is helping improve route efficiency which reduces the consumption and emissions from fuels.

Data can play an important role in creating awareness on environmental issues for the government and the public. The Accelerator Labs pointed out that most countries where they work do not have any regulations regarding emissions controls, resulting in a lack of data. Awareness is therefore based on perspectives rather than fact. In Bolivia, for example, drivers associate pollution with large vehicles, such as commercial vehicles or garbage trucks [66]. In other contexts, pollution is only perceived if the exhaust produces black smoke.

It will be difficult to build arguments around sustainability without baseline data and wider understanding of sustainability principles. Paola Constantino, Head of Solution Mapping, UNDP Guatemala Accelerator Lab, wonders what sustainable practices may be uncovered if framed in a way that is more identifiable to the informal operators.[67]

Financial incentives are required for drivers or operators to upgrade or change to hybrid or electric models. In Bolivia, drivers attributed the unit affordability to their decision to switch. Sustainability reasons did not factor in their decision.[68] This coincides with insights shared in our interviews with experts.

Financial incentives need to go beyond the loan offer to include sustainable business models. In Kenya, where incentives are given to purchase an electric two-wheeler, the Lab has seen large numbers of vehicles confiscated due to loan defaults.[69]

While the literature widely states that old vehicles are an issue, there is less knowledge about how to decommission them. In Kenya, the Lab understands older matatus are relegated to certain routes, but is unsure of how old boda bodas are disposed of.

The UNDP Accelerator Lab in Guatemala highlighted how a solar tuk-tuk project in the country shows the way a local ecosystem can support changing old vehicles into cleaner, greener ones. By looking at these examples, we can learn what's needed to make sure these cleaner vehicles can be repaired and maintained easily, which can encourage more people to use them. It's not just about making new types of vehicles but also about giving drivers reasons to switch, like making it affordable and providing the right parts and services.

---

64 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022
65 Patricia Choque, Head of Experimentation, UNDP Accelerator Lab Bolivia, Learning Circle Session #2, 27 April, 2022
66 Diego Suárez, Head of Solutions Mapping, UNDP Accelerator Lab Bolivia, Learning Circle Session #2, 27 April, 2022
67 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Circle Session #2, 27 April, 2022
68 Diego Suárez, Head of Solutions Mapping, UNDP Accelerator Lab Bolivia, Learning Circle Session #2, 27 April, 2022
69 Victor Awuor, Head of Solutions Mapping, UNDP Accelerator Lab Kenya, Learning Circle Session #2, 27 April, 2022

Building a Foundation for Change

It seems the negative narrative surrounding informal transportation extends to discussions regarding its environmental sustainability. The negative impacts are often repeated but deserve more nuance. Informal transport vehicles are seen as polluting agents, often invisibilizing their role as shared mobility and essentially public transport in many cities, providing transport access to mostly vulnerable populations as SDG #11 aims. The discussion needs to deepen in terms of how that access can be sustained, while improving vehicle and operational efficiency.

The role of technology and digitalization offers enormous opportunities not only to improve operational efficiency (e.g. by better route planning), but also to gather data on the numbers of operators, current levels of emissions (baseline data to make the case for climate funds to support a transition towards zero emissions vehicles), and daily/monthly income necessary to leverage access to investment or funds to electrify informal transport vehicles.

Finally, better data can also help countries in doing better planning, whether it is identifying and planning where to develop electric charging infrastructure to support vehicle electrification efforts; integrating and better planning public transport along with informal transport; improving user experience; or making public transport better and more attractive to avoid the trend of users shifting to private vehicles as soon as they have the means to do so.

There is a local supply chain of mechanics who take second-hand vehicles exported from the Global North and adapt them for use in informal transportation, especially for 4-wheelers. The chassis and vehicle bodies are refurbished, seats replaced, body repainted and often engines are replaced -- upcycling the used vehicle for use as informal transport.

We could imagine infusing that supply chain with the knowledge, skills, and tools to repower the same used vehicles with EV engines and components.

The age and types of vehicles offers an opportunity to open a discussion about the life cycle of vehicles not only within each country, but also, about secondhand vehicles from the Global North being imported and operating in the Global South. Particularly considering strong ongoing efforts in electrifying public transportation in Global North cities, understanding the displaced vehicles will likely end up in Global South cities, likely adapted and used on informal transportation, there needs to be an increased responsibility regarding what happens to those vehicles at their end of life.

Pollution may still be a vague concept for many, including policy makers. It is therefore difficult to advocate change or design regulations without sufficient awareness and public support.

05

Access to Opportunity:
For many, But Not All

Photo: Tuk-tuk in Guatemala by UNDP Guatemala Accelerator Lab

Identifying Vulnerabilities

As discussed in previous sections, informal transport fosters livelihood opportunities for many people in the Global South, both for the drivers and operators who gain their income directly from these activities, and for the passengers whom informal transport enables to connect to work and study opportunities.

Research in Kampala described the city's 145,000 boda bodas as "time-space compressors" because they provide mobility and income opportunities, intertwining the city and the lives of its residents.[70] Similarly, informal transport, far from providing livelihood opportunities only in large cities, is key to rural communities. One study in Rongo (Kenya) showed that motorcycle cabs improve rural mobility and complement many public transport systems by facilitating access to markets and workplaces.[71] In Uganda, informal transport was found to significantly improve women's livelihoods by alleviating their "time poverty," turning time into a resource for pursuing opportunities.[72]

However, despite the significant contribution of informal transport to improving opportunities, vulnerable groups may be excluded from these services or have negative perceptions about them. The literature reports instances where overcrowded vehicles and poorly regulated public spaces used by or surrounding informal transport, allow for touching, groping and other forms of harassment towards women.[73] Even though sexual harassment is an imminent risk in all forms of public transport, some reports suggest that the anonymity and lack of control of unregulated, informal transport increases the possibility for sexual abuse or violence to go unpunished,[74] dissuading women from using informal transport to commute to work because of safety concerns.[75] Women attempting to enter the market as drivers or operators may also face more barriers and abuses in a sector mainly dominated by men.[76]

---

70 James Evans and others, Towards a geography of informal transport: Mobility, infrastructure and urban sustainability from the back of a motorbike (Trans Inst Br Geogr. 2018)

71 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

72 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

73 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

74 Nicolás Morales-Miranda and others, eds., Enciclopedia del Transporte Informal en América Central (San José, Costa Rica, Centro para la Sostenibilidad Urbana & Agile City Partners, 2021)

75 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

76 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public

Other populations to be considered when analyzing transport with a gender perspective, for instance, trans and non-binary people, are part of the industry as drivers, operators or users as well.[77] However, we found very little research that explores their contributions, their participation and the challenges they face.

People living with disabilities may also be left out of the informal transportation sector, facing limited accessibility to vehicles and infrastructure, and no investment, incentives or regulation to ensure universal access to these services.[78] Additionally, Porter and Turner (2019) (cited by Behrens et al. (2021) found that young students in countries or cities where they are entitled to reduced fares on public transport, are frequently barred by operators and drivers from traveling on minibuses, often with the threat of violence.[79]

It's worth mentioning that the majority of research found on equity in this sector has thus far been conducted by academic institutions based in African countries. There's a significant gap in equity research in Latin America, the Middle East and South Asia.[80]

Transportation Reforms (Interamerican Development Bank, 2020).

77 William Bose, "Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literatures, Working Paper

78 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020).

79 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

80 Sarah Cassius and others, The Future of Paratransit and Shared Mobility: Mapping Report (Institute for Transportation & Development Policy, 2021).

Zooming in on Context

The UNDP Accelerator Labs found both positive and negative experiences faced by different groups of people, including those working in the sector, and those using informal transport systems. For example, in Guatemala during their field work, the Lab found that women who are drivers of motor taxi services find a sense of freedom and independence in their job. Nonetheless, various Labs pointed out that security can be an issue for female users. As mentioned before, sexual harassment therefore becomes an important component that affects users' decisions regarding choice and determines a big part of their experience using informal transportation.

Evidence collected by the Labs on the ground found informal transport can serve as an inclusive mode of transport for excluded or vulnerable communities or populations, or the complete opposite. For instance, in North Macedonia informal transport helps connect communities with low or non-existent access to public transport access,[81] while in Lebanon, the Lab found informal transport operators charging migrant workers a higher transport fee than locals.[82] Labs found that populations such as the disabled or elderly are still facing exclusion from these transport modes as well because of a lack of accessible vehicles, particularly boda-bodas in Kenya[83] and motorcycle taxi services in Guatemala.[84]

Different Labs, however, found socialization linked to the informal transport sector as an important element for reducing vulnerability and improving a sense of community, particularly for drivers and operators in their cities. For instance, the Kenya Accelerator Lab[85] highlighted that one key benefit that informal transport systems have on drivers is the socialization that occurs in Boda Boda Stations. The Accelerator Lab from Bolivia also highlighted the benefit of socialization but attributed it with being part of a worker's association.[86] These findings are consistent with findings from researchers such as Rida Qadri on the value of mutual aid and socialization between workers to improve resilience, security, well-being and even their business operations.[87]

---

81 Ardita Zekiri, Head of Solutions Mapping, UNDP Accelerator Lab North Macedonia, Learning Session #1, 30, March, 2022

82 Elias Mouawad, Head of Exploration, UNDP Accelerator Lab Lebanon, Learning Session #1, 30, March, 2022

83 Victor Awuor, Head of Solution Mapping, UNDCO Accelerator Lab Kenya, Learning Session #1, 30, March, 2022

84 Paola Constantino, Head of Solutions Mapping, UNDP Accelerator Lab Guatemala, Learning Session #1, 30, March, 2022

85 Victor Awuor, Head of Solution Mapping, UNDCO Accelerator Lab Kenya, Learning Session #1, 30, March, 2022

86 Patricia Choque, Head of Experimentation, UNDP Accelerator Lab Bolivia, Learning Session #1, 30, March, 2022

87 Rida Qadri. . What's in a Network? Infrastructures of Mutual Aid for Digital Platform Workers during COVID-19. (Proceedings of the ACM on Human-Computer InteractionVolume 5Issue CSCW2, 2021)

Investing in the Future

The blended knowledge points to many different experiences working in and using informal transportation. Where it creates more economic opportunities for some, it still excludes others. Where it ensures an increase in personal safety for some, others still experience harassment and other issues. It is clear that informal services need to provide better safety and security for workers and passengers. Public spaces where these services operate also need to be safer, more inclusive places for the people in these communities. The degree to which these are issues unique to informal transportation rather than public transportation more generally, is discussed as well.

What is less understood in this research is the access to opportunities within the transport sector which would allow drivers and operators to grow their businesses and compete in the industry. What is the growth trajectory in this sector? How might individuals or operators not just access microfinance loans but attract large investments to compete at scale? More research could be done to understand the potential business opportunity in this sector and how a more equitable approach could lead to more sustainable solutions.

06

Embracing Hybrid Approaches:
A Semi-Formal Future

Photo: Motorcycle Taxi Association Driver in Bolivia, by UNDP Bolivia Accelerator Lab

Continuums of Formality

In the previous sections we have established that most systems already possess some degree of informality and formality. In this section we try to understand and identify models that integrate informal practices and formal tools to improve transportation work and service.

A hybrid model may involve a semi-formal system in which the service is legally authorized but operates under informal rules (dispersed property, daily rent of vehicles, noncompliance with labor laws). Another hybrid approach may focus on integrating the formal and informal modes of transportation. Hybridity may also result from a focus on supporting informal labor rather than the informal service.

TABLE: SEMI-FORMAL EXAMPLES FROM LATIN AMERICA

Accelerator Lab	Glossary Snapshot
Chile and Colombia	Informal operators are allowed to operate through an affiliated company that receives an operating permit.[88]
México	Individual concessions are granted to semi-informal services under organized associations which negotiate the number of permits, routes, and areas of operation.[89]
El Salvador	The Tuk-Tuks are recognized by legislation that says that this service has "benefited large sectors of the population at the national level, especially those with lower economic resources" and are defined as "alternative local passenger transport." According to the legislation, Tuk-Tuks can operate in "those places where there is no collective passenger transport or in those locations where this type of service is poorly provided."[90]
Guatemala	Tuk-Tuks were incorporated into the Traffic Law in 2018. They can operate in the municipal area, within public roads except main roads. Pedicab services are regulated at the municipal level.[91]
Costa Rica	Informal taxis are under the category of "special stable taxi service" and the government grants an operating permit for this service, as long as the number of permits does not exceed 3% of the formal taxi concessions.[92]

88 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020)

89 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020)

90 Nicolás Morales-Miranda and others, eds., Enciclopedia del Transporte Informal en América Central (San José, Costa Rica, Centro para la Sostenibilidad Urbana & Agile City Partners, 2021)

91 IBID

92 IBID

Integration

We also previously discussed the integration of formal and informal systems as a hybrid option. Primarily, we found examples in Nigeria, South Africa and Tanzania where informal modes are fed and distributed from exchanges with an existing or newly established formal bus system.[93] According to some authors, the common rationale for this approach is that the lower vehicle operating cost of smaller informal transport services make them better suited to lower volume and lower frequency neighborhood routes, and the lower labor cost of larger buses make them better suited to higher volume and higher frequency trunk routes.[94] This hybrid approach has been widely studied in the City of Cape Town, where the informal transport systems operates as a network of feeders to the formal Bus Rapid Transit (BRT) services.[95] Roger Behrens et al. stated that several sources point out that the BRT policy in Cape Town paved the way for local government to lead public transport reform, which opened channels of engagement at the municipal level with informal transport operators and has been seen as an effective upgrade of existing formal modes of public transport, rather than a replacement of informal transport [96].

Labor, Not Service

In questioning the parameters of formalization, our experts identified the formalization of informal work (centering the driver, rather than the service), as a possible focal area. In the literature we find examples of this, for example the Savings and Credit Cooperatives (SACCOs) and Transport Management Companies (TMCs) in Kenya have been a particular focus of study and provide a positive example of how changes in business structures have realized beneficial effects. Behrens et al. (2017b) explored the organization of inter-city matatu SACCOs and found that in most cases service quality improvements were achieved by shifting from the 'target system' for drivers to matatu driver salaries[97] (Behrens et al, 2021)

93 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

94 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

95 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

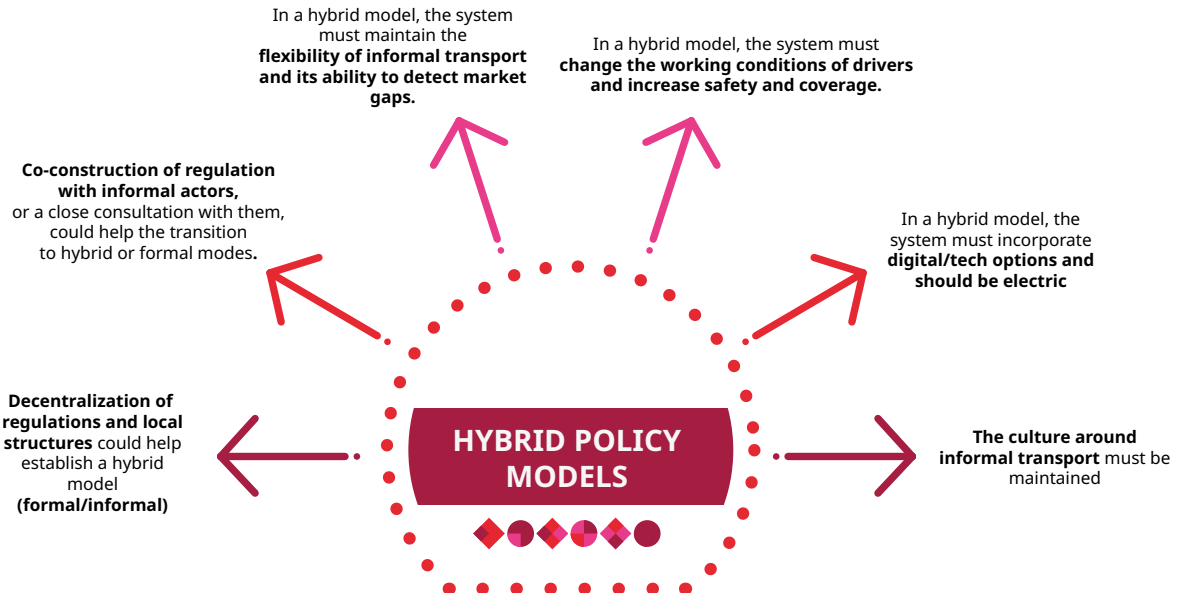
96 Roger Behrens and others, TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research (High Volume Transport Applied Research Programme, 2021).

97 Thet Hein Tun and others, Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms (Interamerican Development Bank, 2020).

Exploring Alternatives

While we did not identify specific examples within the Accelerator Lab countries, they did give us insights as to what a hybrid model should achieve. The common sentiment is that a hybrid model should provide an alternative way forward that maximizes the benefits and reduces the drawbacks.

"A future vision for informal transport would be a type of transport that adapts to new conditions and reflects the culture of the city and the community." - Victor Awuor, Head of Solutions Mapping, UNDP Kenya Accelerator Lab



So what does a hybrid model look like?

It should maintain:

- The culture around informal transport must be maintained
- Flexibility of informal transport and it's ability to detect market gaps
- Institutional flexibility

It should guarantee:

- Coverage/security
- Legality
- Safety (worker and passenger)
- Affordability/financial security/subsidies
- Openness to operate
- clear governance

Incremental/Adoptive Approaches:

- **Focus on the rights and protections of workers**
- **Focus on the integration of existing formal and informal systems; seamless multimodal trisp**
- **Increase access to finance to upgrade/own vehicles; subsidies/vouchers**
- **Business to business model**

Possible Futures

The blended learning experience offered an opportunity to take stock of informal transport and explore how drivers and passengers alike see themselves, the service, and how it impacts their communities.

Two insights in particular open possibilities to think about informal transportation in a new and different way.

The first is the realization that the informal system is not an outlier needing to be curbed, eliminated, or assimilated into a formal one, but rather a thriving entrepreneurial ecosystem of SMEs yearning for support and recognition — without stifling fees and bureaucracy.

Second, given the emergence of super-apps in South and Southeast Asia and the governments eager to partner with them, the question is no longer whether informal transport can ever be legitimized — it already is — but rather how to level the playing field on behalf of individual workers by offering assistance with digital payments, financing vehicles, forming communities and cooperatives, and new public infrastructure, just to name a few possibilities.

An alternative approach therefore could ask: how best can formal sector partners assist workers with bottom-up formalization while using data gleaned from these improvements to increase passenger safety and sustainability?

In our research, we find various examples of hybrid approaches to improving informal transport work and services. Additional research could be done to better understand and explore the potential to build on the following examples:

1. Low-cost, universally accessible digital public infrastructure, starting with payments.

For example, India's Unified Payments Interface[98] (UPI) — developed by the National Payments Corporate of India and launched in 2016 — offers instant settlement of payments across more than 300 banks, with billions of monthly transactions worth more than $100 billion. Several experts affiliated with super apps noted in interviews how the UPI has propelled India to be the global leader in digital payments overall. No less than Google has recommended the United States model its own government-backed payment system ("FedNow") on India's.

Research has found several advantages for creating a public digital wallet for transportation. All-cash payments create opportunities for crime, violence, and corruption. Allowing super-apps and other private entities to dominate digital wallets can lead to risks for financial regulators. Investing in universally available infrastructure can support and accelerate digitalization and innovation, as India has seen.

While relatively few nations possess the resources and strong central bank needed to stand up such infrastructure on its own, other nations with large informal transport sectors such as the Philippines are pushing ahead with digitalization efforts. These types of experiences suggest an opportunity and necessity to carry out policy-oriented research , that might assist governments in exploring publicly-owned or at least accessible alternatives to the capabilities of the super apps — wallets, maps, and dispatching — to enhance individual drivers' competitiveness, while also generating data that can be captured and shared with policymakers to improve the larger ecosystem.

98 National Payments Corporation of India, "Unified Payments Interface (UPI)", available at: https://www.npci.org.in/what-we-do/upi/product-overview

2. Technology that combines formal and informal modes, creating a public alternative to the super-apps.

Can software solve the tension between formal public transportation systems and informal operators by allowing passengers to book trips on either or both through the same interface and payment system? After all, ride-hailing apps such as Uber and Gojek have done exactly that in New York (taxis) and Jakarta (MTR), while Berlin's BVG has built its own "mobility-as-a-service" app combining the city's entire public transportation system and private sharing services on a single platform. How might a city do the same with informal services as well?

One public agency doing just that is the Kochi Metropolitan Transit Authority's Open Kochi initiative. Inaugurated on November 1, 2020, the KMTA is India's first digitally native MTA, tasked with integrating, planning, and regulating different modes in the capital of southeast India's Kerala state. Open Kochi is creating an "open mobility network" powered in turn by a set of open, interoperable protocols named Beckn that can theoretically support informal- as well as formal services.

Although nascent, these examples suggest a need for further understanding and exploration on how governments might implement hybrid formalization in practice in much the same way as the super apps.

3. Regulatory sandboxes where the government can experiment with hybrid formalization

In her expert interview, the Ola Mobility Institute's Aishwarya Raman noted that several Indian cities have approached Ola for assistance in creating "regulatory sandboxes" — physical enclaves where existing laws are suspended — where new approaches to regulation and provisioning can be tested. "There is a role civil society has to play here," she said.[99]

To that end, there is an opportunity for further exploration and research, perhaps partnering with driver associations or similar groups to test different arrangements and tendering (along with the technological capabilities mentioned above). Zones are a tried-and-true approach to context-specific experimental integration or (de-) regulation.

99 Interview with Airshwarya Raman, Director and Head of Research Ola Institute, 23 of November, 2021

4. Focus on the drivers, not the service.

Literature and experiential learning from the Labs point to the potential to continue to explore the possibility and potential of formalization processes being focused on drivers, not the service per se. India has led the way in this, with the new labor codes of 2019-2020,[100] which enshrined the legal status of gig workers and extended social security benefits such maternity leave, disability insurance, gratuity, and health insurance regardless of employer. While these reforms still await implementation, they hold the potential to transform labor's relationship with governments and platforms alike — and could prove to be a model for others. Could the UNDP Accelerator Labs take part in exploring and co-creating innovative codes and regulations that change the narrative on informal transport around the world?

5. Digital-first driver communities.

While our research found that many driver associations in sub-Saharan Africa and elsewhere traditionally tend to be territorial and rent-seeking, working for the super-apps has spawned new communities that are ad hoc, peer-to-peer, and digital first, thriving in group chats on WhatsApp. In some cases, these groups have coalesced around non-profits and vendors such as Three Wheels United, the latter of which hosts an informal marketplace for renting and/or selling vehicles. Insights from the Labs also showed the entrepreneurial nature of these systems, often at the individual or even family level. Learning how these communities formed — and developing a method to identify locally important actors and institutions who can help create new ones — could be an important first step to building an alternative to both local incumbents and opaque super-apps. Once formed, these new communities could provide valuable insights and better understanding on how to tackle issues such as safety and wages, offering real-time insights and communication that were previously missing or fragmented.

100 Sakate Khaitan, "India's new employment codes present risk and insurance challenges", Airmic, 11 August 2021

6. How informal transport can participate in the electric vehicle transition

Globally, governments are earmarking hundreds of billions of dollars in tax credit and subsidies for electric vehicles, correctly identifying them as pivotal to lowering carbon emissions. But these large figures and bold headlines have not matched reality. For example, India's $1.3 billion FAME subsidy announced in April 2019 pledged to electrify 500,000 three-wheelers and a million two-wheelers. In two years, it achieved only a fraction of each. Learning from its mistakes, the Indian 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 new vehicle financing, which will in turn lower the organization's own borrowing costs and reduce vehicle costs by 20%.

On the other hand, Uber, Gojek and others have pledged ambitious ESG goals to their investors, with Gojek promising to become a "carbon-neutral" company by 2030, with a 100% EV fleet. These pledges are complicated by the fact they do not own their fleets — drivers do. Gojek's response was to partner with Gogoro in November 2021 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 2021 on a new a joint venture to manufacture electric two-wheelers, battery packaging, and battery swap stations, along with financing. Ola has also designed and sold its own electric scooters to drivers.

Further research and exploration on how public-private partnerships can improve EV fund distribution, ensure the investment in public charging infrastructure, and monitor performance could be beneficial in accelerating the sector's transition towards electric mobility.

In addition to this and based on findings on the need to understand operators and workers' needs, further exploration and research regarding how to design the best models for engaging and supporting workers and operators for the transition towards electric mobility is essential. Issues such as financial literacy — how to save for payments or changing the structure of the loans — will be key to a successful integration of the sector in global electrification and decarbonization efforts.

7. Sharing data between drivers, government, and super-apps.

For more than a decade, mapping companies such as Waze and the super-apps have leveraged users' real-time GPS data to create a competitive advantage. Occasionally, these companies have voluntarily shared data with cities and NGOs pertaining to safety and congestion. In 2016, for example, the World Bank launched the Open Transport Partnership in conjunction with several mobility companies — including 500,000 drivers for Grab — to aggregate speed and congestion data in several nations across Southeast Asia and Latin America. Other initiatives are analyzing passenger and demand data to improve services. For example, Jetty is an app connecting passengers with drivers of mini-bus routes in Mexico City. Data from each trip is analyzed and shared with fleet operators, with whom the company discusses potential new routes, vehicle types, and driver wages and insurance. It does so in hopes of encouraging drivers and owners to upgrade and standardize service across the entire system, acting as a self-described "microregulator."

Our findings suggest that regulators still have difficulties in setting requirements for apps to share anonymized data, as many cities in the Global North already do. There are opportunities for further research and exploration on how governments and local authorities could set up the best policy and regulation in order to gain access to such data and make use of it (potentially in partnership with private operators), to improve informal transport services and systems.

8. New financing models for equity and inclusion.

Three Wheels United has succeeded in financing new vehicles profitably and sustainably where others have failed through its driver-centric approach, which includes the construction of its own de facto credit score through monitoring individual drivers' behavior and partnering with super-apps such as Uber to import drivers' history on such platforms. While such scoring is a genuine innovation in pooling risk more effectively, it also raises concerns about the transparency and fairness of such scoring. (Uber's own model for rating drivers, for example, is opaque for competitive reasons.) Further research of these types of innovations, for instance partnering with organizations such as Three Wheels United to voluntarily audit the composition of these scores, could be an important step in creating additional knowledge and best practices for ensuring financial inclusion.

9. Design data aggregation, retention, and sharing policies along with privacy standards for informal transport.

The hybrid formalization initiated by the super-apps is reliant on persistent surveillance to ensure passenger safety and financial compliance, raising serious concerns about drivers' right to privacy. While passengers and regulators might decide the tradeoffs are worth it, there is still much work to be done in understanding the best way to design standards for how such data is collected, how long it is retained, who it is shared with, and how it can be combined with other data sets and to what end. (See #8 above.) Further research to understand these issues and effectively regulate them is key.

Moving Forward

The blended knowledge shows there is still much to learn and understand about informal transportation. Moving forward, it is clear more dialogue is needed with diverse sources to open up new and different ways of seeing informal transportation.

Based on this blended learning journey, we know opportunities exist to integrate, strengthen, and improve informal services and work on the ground. Rather than trying to eliminate these services, it is possible to maximize the qualities identified (flexibility, connectivity, affordability), while minimizing the drawbacks (passenger safety, pollution).

The opportunity at hand is to bring greater visibility to this sector. We need a deeper understanding of the essential role informal transportation plays in peoples' lives, the economy, and the environment.

Key questions remain.

The blended research shows there are cases in which digital technologies have transformed the way people use and work in new mobility. It also shows that digital technology is not a priority for many others in the sector. There is a need to better understand the issues which are a priority to passengers, drivers, operators, and others in the wider ecosystem and then identify how digital technologies can play a role in resolving the issue.

What do informal businesses need to thrive? What role can digital technologies play in improving services for passengers, drivers, and operators?

Similarly, more data is needed to set priorities and identify strategic entry points to achieve environmental impact at scale. From the blended research, we know electrification presents an immense opportunity, however greenhouse gas emission reduction estimates are lacking to make it a more visible priority. We also learned that financing for any solutions, such as new technologies, needs to be tailored to the specific needs of the operators and small businesses that largely make up the informal transport sector.

How should we measure environmental impact for this sector? What is the potential scale of environmental impact? And what is needed to achieve it?

Here's how we can answer these questions:

Adding Voices

The voices of informal transportation drivers, operators, and passengers are still overwhelmingly absent from international discussions, regulation and decision-making processes on the future of transport. These spaces are often very Global North-focused, ignoring the reality, context and experiences of most cities and towns where informal transport is the norm and an absolute necessity. In order to have truly inclusive and context-specific transport discussions that leave no one behind, we need to provide platforms for these voices to be heard and learned from.

There are many ways to enable and facilitate these types of conversations, such as podcasts or blog series focused on the needs and reality of transport in specific regions or of specific actors of the informal transport ecosystem, including users, operators and drivers. Informal Transport Meet and Greets or Convenings can also provide a platform for conversations to happen between researchers, practitioners and other actors involved in the sector; to share experiences, knowledge and build a community of practice.

GPIT will also engage with partners who are focused on facilitating city level engagements to bring this conversation to more decision makers and join efforts for a common goal.

Making the Sector Visible

There are many examples of innovative approaches to digitalization, integration, regulation and organization of informal transport services around the world that we could all learn from. However, there is very little documentation available to learn from these experiences. Collecting information and drafting out case studies reflecting these innovative approaches to working with informal transport could be a practical way to build upon that knowledge base. Expanding other types of crowdsourced and context-specific documentation exercises such as the Encyclopedia of Informal Transportation in Central America and the Glossary of Popular (Informal) Transportation can involve actors from different countries in raising awareness and documenting what informal transport looks like, how it operates, local regulation around it, user experience, and other relevant details that are essential for the sector to gain relevance and visibility. What is not known, what is not measured and documented can hardly be improved upon.

We hope to find and reach out to partners who are trying alternative approaches. These partners may include advocates, practitioners, or local and national governments. While this research identified many possibilities and collected some examples where hybrid policies are being applied, we believe there are many cases to still learn from which we did find. Working through

the UNDP Accelerator Lab Network and developing new inroads through online communities, such as Discord, may yield more examples.

In addition to documenting case studies, we need more opportunities to experiment. How might we acknowledge the essential role of informal transportation and find ways to integrate, strengthen and improve the informal services on the ground today instead of attempting to make them disappear? Current or upcoming transport projects and funding from development banks, international cooperation agencies or organizations could offer opportunities to innovate, pilot or experiment in different cities. But to open up these opportunities, it is essential that informal transportation also be recognized and integrated in international discussions and programs discussing the future of transport, cities and climate.

Annex

The Learning Process

The Learning Process consisted of the following steps:

- Literature review
- Interview with Experts
- Orientation on Informal Transport for Accelerator Labs
- Lab Field Research
- Campfire Sessions

Literature Review

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.

Table X. Main text

Title	Authors	Year
Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms	Tun, T., Welle, B., Hidalgo, D., Albuquerque, C., Castellanos, S., Sclar, R., & Escalante, D.	2020
Future of Paratransit and Shared Mobility: Mapping Report	Cassius, S., Deeb, N. el, Sorour, M., Turner, S., Dalkmann, H., Gauthier, A., Kost, C., & Mason, J.	2021
TRANSITIONS-Informal Transport Compendium Report: A literature review to establish the "state of knowledge" and appraisal of gaps requiring further research.	Behrens, R., Saddier, S., Pickup, L., & Durant, T.	2021
Myths and Realities of "Informal" Public Transport in Developing Countries: Discussion Paper Approaches for Improving the Sector	Kumar, A., Zimmerman, S., & Arroyo-Arroyo, F.	2021

From Mobility to Access for All: Expanding Urban Transportation Choices in the Global South. Working Paper.	Hein Venter, C., A. Mahendra, and D. Hidalgo	2019
Transforming Informal Transport and Road Safety Post Pandemic in Africa: Situation, Analysis and Policy Recommendations	Ochenuel Mobility	2021
The power of informal transport workers	Spooner, David	2017
Where mobility and 'modernity' meet pavement: Reviewing the motorcycle taxi literature	Boose, W.	n.d.
Sustainable Urban Mobility in Latin America: assessment and recommendations for mobility policies	M. Moscoso, T. van Laake, & L. Quiñones	2019
Transport Workers in the Urban Informal Economy	Spooner, D.	2011
Enciclopedia del Transporte Informal en América Central	N. Morales-Miranda, C. Quesada-Alluín, A. San Gil-León, A. Steinvorth-Álvarez	2021
The Power of Two Wheels: India's New Shared Mobility Frontier	Raman, A.	2020

Interview with Experts

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.

Table X. Information about interviews conducted.

Interviewee	Position	Date
Cedrick Tandong	Co-Founder and CEO Three Wheels United	November 22, 2021
Aishwarya Raman	Director and Head of Research Ola Institute	November 23, 2021
Super-app	Head of Research	November 25, 2021
Deepa Shekar	Head of Customer TapTap Send	December 6, 2021
Super-app	Co-Founder	December 14, 2021

Orientation on Informal Transportation

The consulting team created an overview of informal transportation to orient participating accelerator labs.

Lab Field Research

The consulting team provided each Accelerator Lab with a series of google templates, included in the Annex, to guide the field research including:

Field Research Guide (Google Sheet), to help formulate and design interview questions
Field Research Plan Template (Google Sheet) to help the Labs to outline their own questions
Interview Template (Google Doc) to document interviews notes from each Lab.
Field Research Submission Table to gather main findings from each Lab.

Campfire Sessions

The campfire session aims to create a casual environment in which participants can openly share insights. A series of prompts are used to facilitate the dialogue, but it is not considered a strict outline. In many instances, insights shared in one session became a finding relevant to a question from another session.

Campfire Session 1

Held on 03/30/2022

Participants included: Bolivia, Guatemala, Lebanon, Kenya, and North Macedonia.

Perception and Motivation Prompts

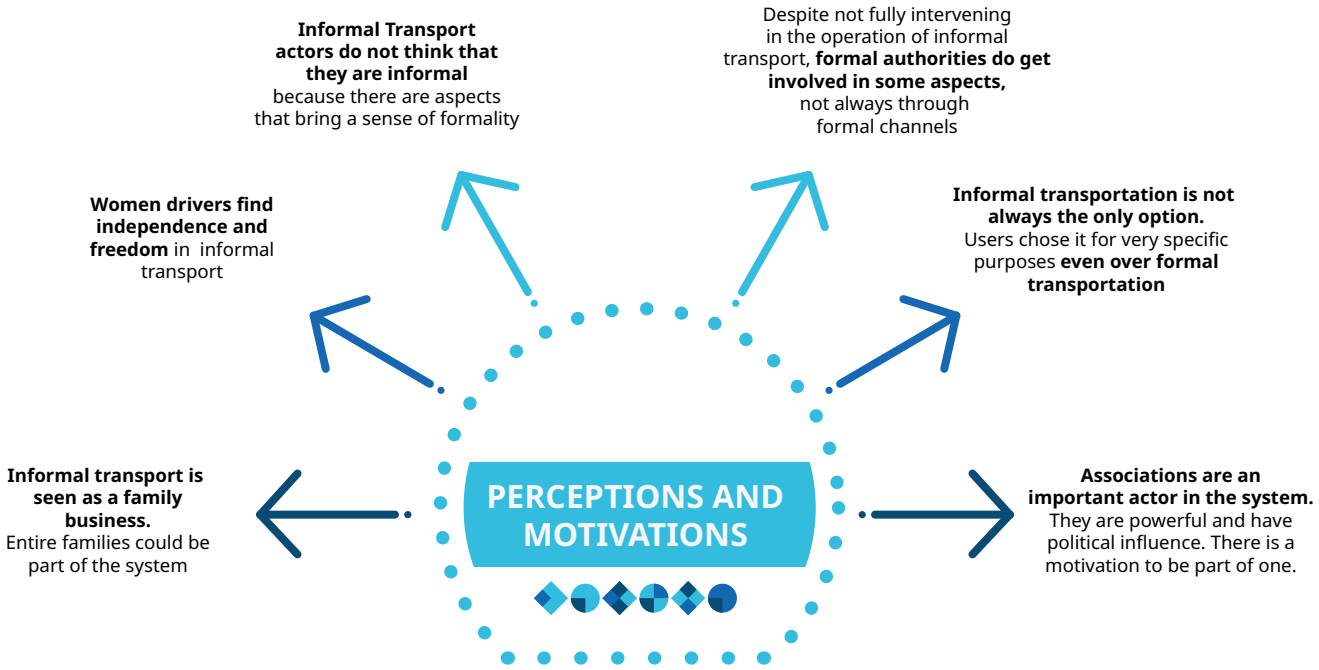
1 - What are the main actors? What roles do they play in the system and what are their reasons for playing those roles?

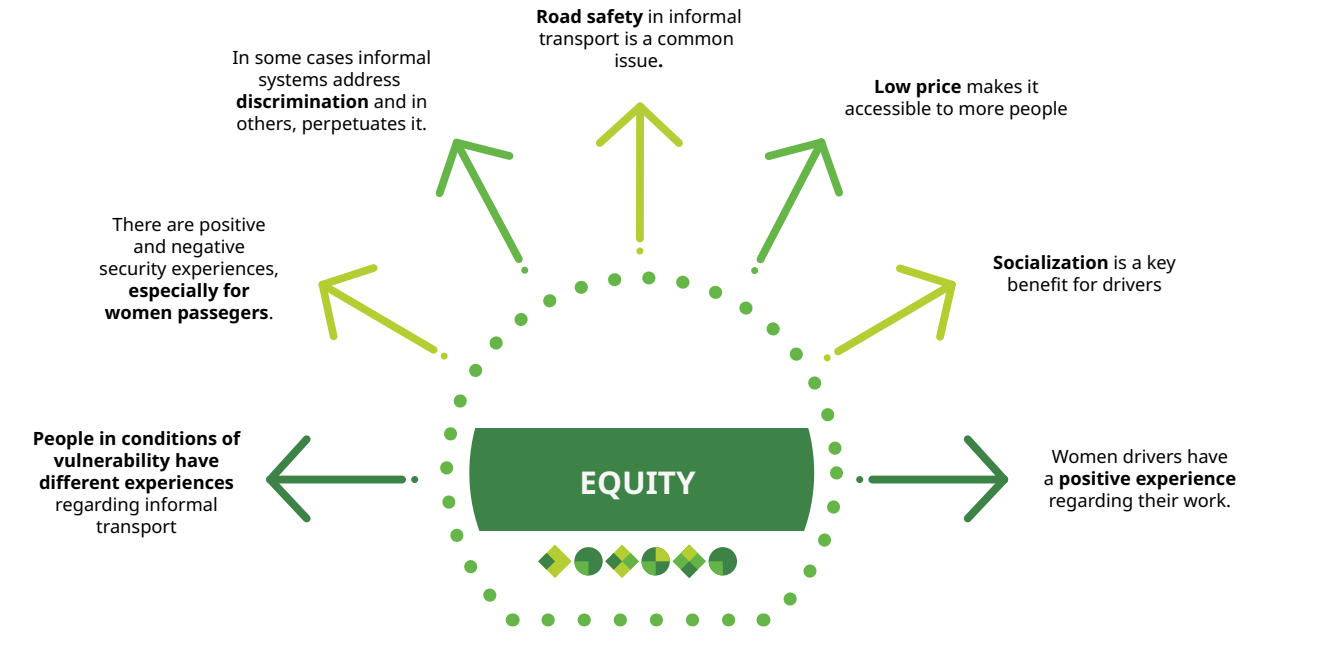
2 - How do the actors earn? What expenses do they have?

3 - How would you describe the vehicles? Anything unique?

Equity Prompts

4 - What works well for women, children, Persons with disabilities, and the elderly? What doesn't work well?





Campfire Session 2

Held on 04/27/2022

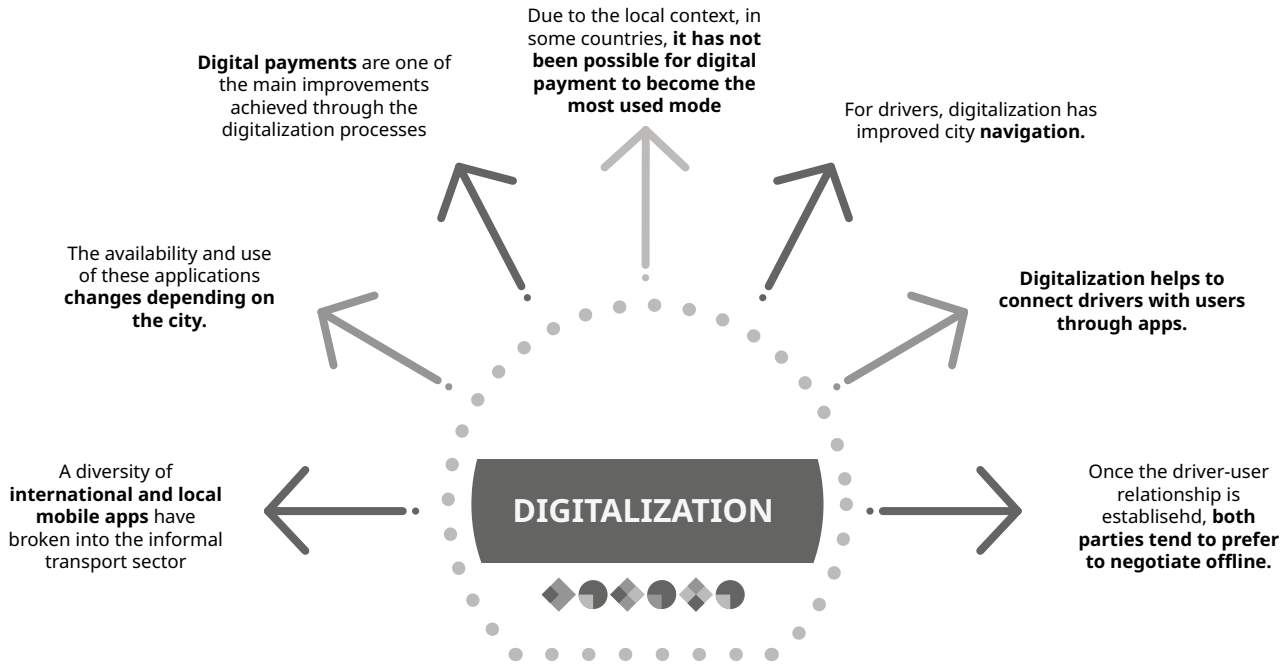
Participants included: Bolivia, Guatemala, Lebanon, Kenya, and North Macedonia.

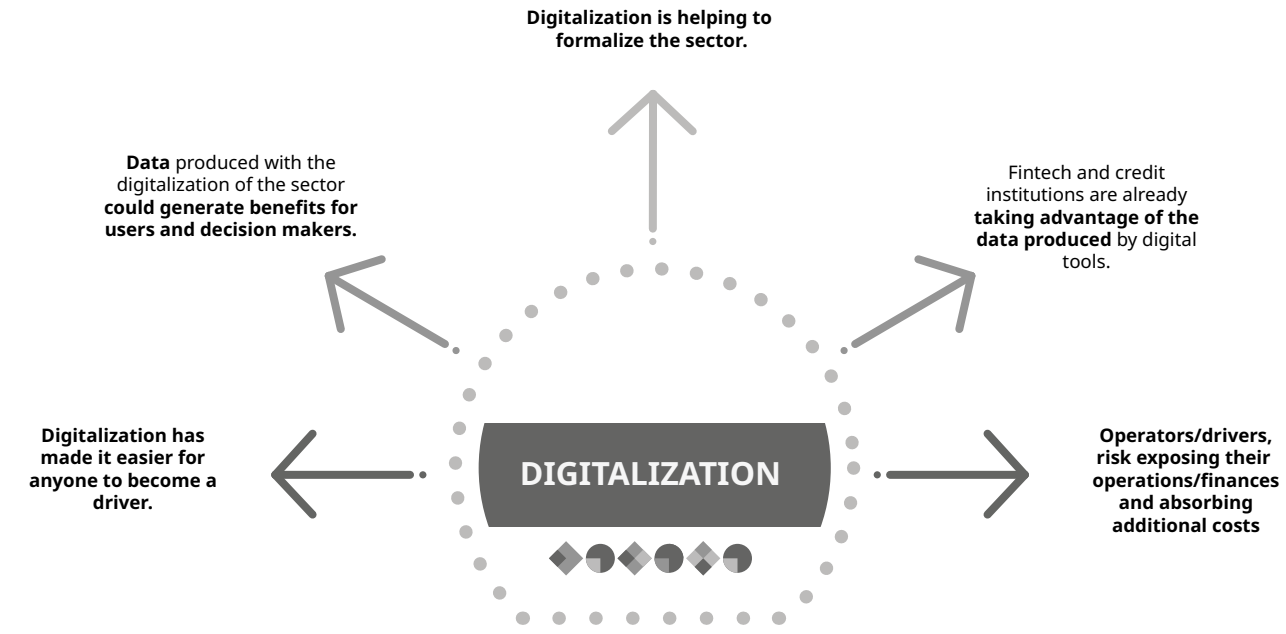
Digitalization Prompts:

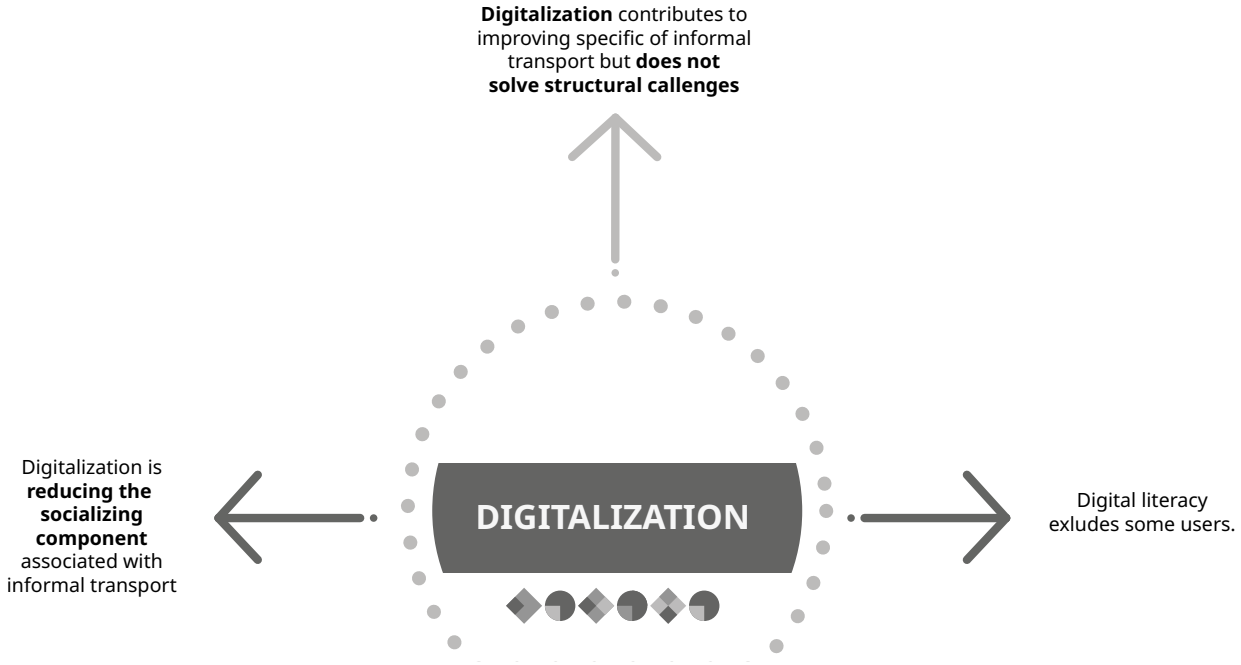
1 - What kinds of digital technology are being used and for what part of the service? What problems are they trying to solve with them? Are these super-apps/ external apps or custom solutions?

2 - What has improved or not improved with digitalization? What/who has or has not benefited? What are some things digital technologies are not solving or are not able to solve?

3 - At an aggregated level, how are digital technologies changing informal transportation in your country?



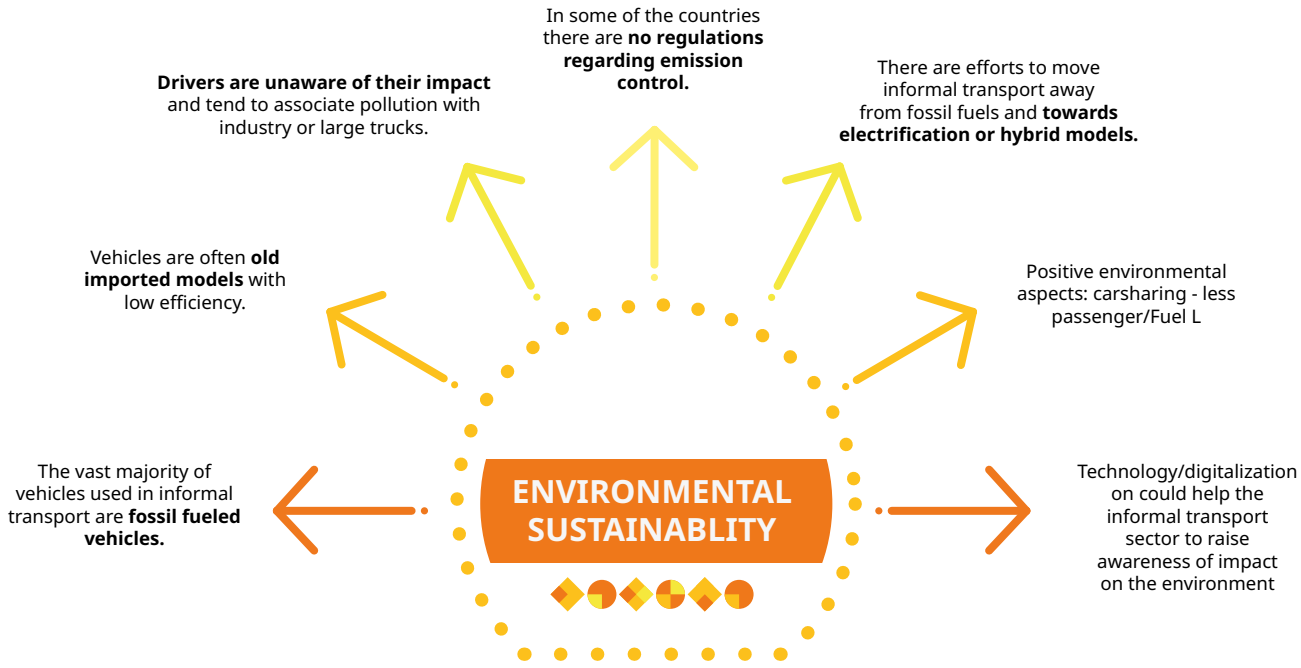




Environmental Sustainability Prompts:

4 - Does or can informal transport contribute to environmental sustainability? How? Are these contributions significant at an aggregated level?

5 - What incentives, messages, tactics, or tools encourage drivers/owners/operators to transition to more sustainable practices? What is missing or should exist?



Campfire Session 3

Held on 05/04/2022

Participants included: Guatemala, Lebanon, Kenya, North Macedonia, and Togo.

Formalization Prompts:

1 - What drives formality? What is trying to be formalized (operations, social security, payment, etc) and where is that motivation coming from? Where are we finding resistance?

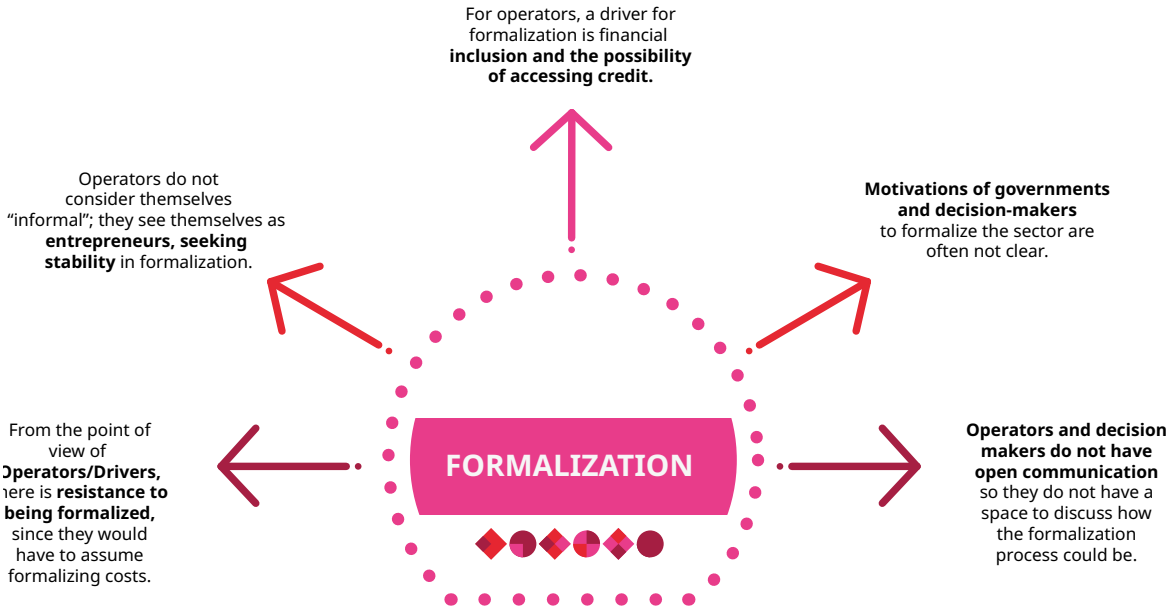
2 - What are the trade-offs with formalizing? What/who does formality help? What/who does it harm?

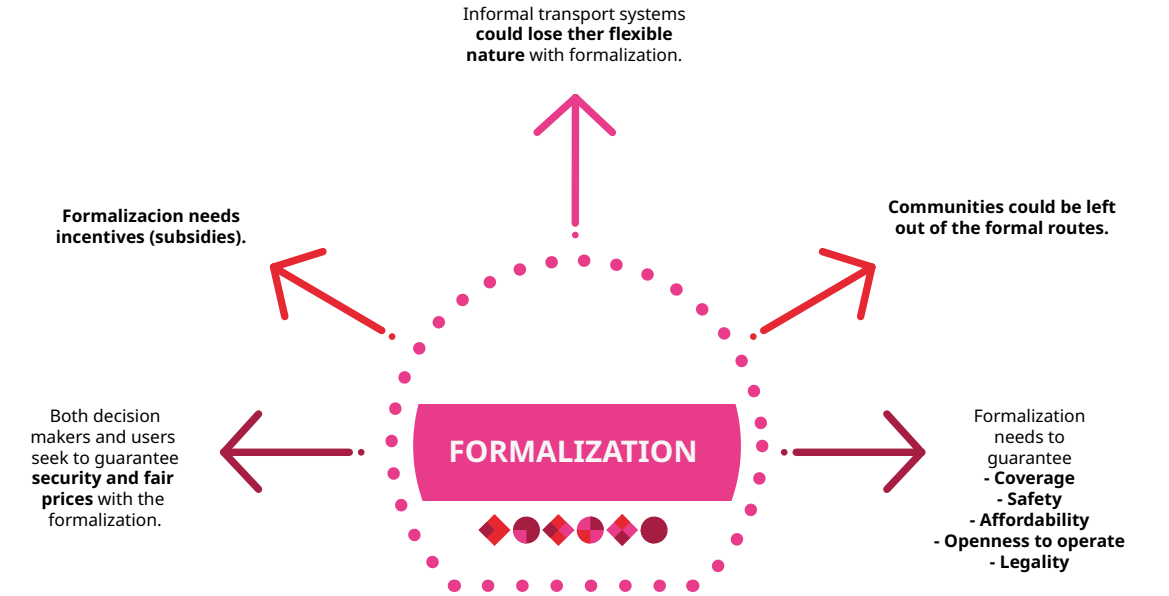
3 - What are the main components of formality? What are the minimum components of formality needed?

Policy Models Prompts:

4 - What elements of informal transportation do we want to keep for the future? What do we want to change?

5 - What should the next generation of informal and informal transport services of today look like in the future? Do you have any examples?





GlobalNetwork for PopularTransportation

UNDP accelerator labs