International Transport Forum

Incorporating Informal Transport in Mobility Planning

Summary and Conclusions

199 Roundtable

Incorporating Informal Transport in Mobility Planning

Summary and Conclusions

199 Roundtable

The International Transport Forum

The International Transport Forum is an intergovernmental organisation with 69 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers. The ITF is the only global body that covers all transport modes. The ITF is politically autonomous and administratively integrated with the OECD.

The ITF works for transport policies that improve people's lives. Our mission is to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy.

The ITF organises global dialogue for better transport. We act as a platform for discussion and pre-negotiation of policy issues across all transport modes. We analyse trends, share knowledge and promote exchange among transport decision makers and civil society. The ITF's Annual Summit is the world's largest gathering of transport ministers and the leading global platform for dialogue on transport policy.

The Members of the Forum are: Albania, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Cambodia, Canada, Chile, China (People's Republic of), Colombia, Costa Rica, Croatia, Czech Republic, Denmark, Dominican Republic, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Mexico, Republic of Moldova, Mongolia, Montenegro, Morocco, the Netherlands, New Zealand, North Macedonia, Norway, Oman, Poland, Portugal, Romania, Russian Federation, Saudi Arabia, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tunisia, Türkiye, Ukraine, the United Arab Emirates, the United Kingdom, the United States and Uzbekistan.

International Transport Forum
2 rue André Pascal
F-75775 Paris Cedex 16
contact@itf-oecd.org
www.itf-oecd.org

ITF Disclaimer

Cite this work as: ITF (2025), *Incorporating Informal Transport in Mobility Planning*, Roundtable Report, No. 199 OECD Publishing, Paris.

Acknowledgements

This report expands on the expert discussions during the ITF Roundtable on Informal Transport - maximising societal benefits and minimising negative externalities held in Santiago, Chile and virtually on 1-2 April 2024. It formulates recommendations for the inclusion of informal transport in mobility planning processes to address the sector's externalities.

Andrea San Gil León (Global Network for Popular Transportation) chaired the Roundtable discussions. At the ITF, Josephine Macharia drafted the report with contributions from Joshua Paternina-Blanco and input from Roundtable participants (listed in Annex A). Josephine Macharia and Joshua-Paternina Blanco organised the event, with administrative support from Mila Iglesias and Apostolos Skourtas (all from the ITF).

The authors thank Orla McCarthy (ITF) for reviewing the report, Christopher Marquardt (independent) for copy-editing, and Camille Larmanou (ITF) for publication support.

Special thanks to the Roundtable discussants who prepared insightful presentations: Andrea Gil San León, Cristina Alburquerque, Appurva Appan, Laverne Dimitrov, Milnael Gomez, Dario Hidalgo, Tamara Kerzhner, Abdelrahman Melegy, Enrique Mungía, Juan José Pocaterra, Simon Saddier, Diego Silva, Paula Vidal; and to the rest of the Roundtable participants (listed in Annex A) for their invaluable contributions.

The authors also thank the expert report reviewers, including Gaële Lesteven and Pascal Pochet (École nationale des travaux publics de l'État) and roundtable participants.

This Roundtable Report is part of the ITF's core Programme of Work for 2024-25, co-ordinated by Orla McCarthy, and has been approved by the ITF's Transport Research Committee.

Table of contents

Figures

Tables

Boxes

Executive summary

What we did

The term *informal transport* describes a spectrum of privately organised and operated public transport services that can take various forms (e.g. motorcycle-taxis, shared ride services, minibuses, buses). Their operations can be influenced by the transport modes themselves, the organisational structure of service providers, and the relationship between public authorities and their service planning and delivery. This Roundtable Report focuses on market-led public transport initiatives (i.e. privately organised, owned and operated, and with limited government oversight or regulation over service planning) and some hybrid models that can be characterised as "semi-formal" based on the level of public authority involvement in their service planning. It aims to give transport authorities a better understanding of how to maximise the societal benefits and minimise the negative externalities of these services.

Main findings

In many cities, informal transport constitutes the main form of public and motorised transport, largely arising out of a "bottom-up" planning process to serve demand that is unmet by institutional public transport. As a result, such services provide various societal benefits, such as improved access to opportunities and mobility at little direct cost to public authorities. Importantly, service providers are direct employers, operating small and medium-sized enterprises (SMEs) in many contexts.

Fundamentally, the priorities of market-initiated public transport services differ from those that are initiated by public authorities – and without the involvement of public authorities, they are unlikely to maximise social welfare. Like all motorised modes, informal transport services contribute to the negative externalities of motorisation (congestion, pollution, crashes).

Often characterised by information and power asymmetries, the internal dynamics of the predominant organisational structures for informal transport providers contribute to the sector's negative externalities. These issues are perpetuated by authorities' responses to the sector – mainly exclusion from mobility planning processes or overreliance on regulations to reform and displace informal transport services. This combination of factors can limit opportunities to address negative externalities.

There is no single pathway for "reforming" informality; instead, the end goal should be to transform urban mobility, to focus on mutually beneficial integration, and strengthen the SMEs that operate these services to improve their operating practices and working conditions. In various contexts, authorities have taken non-punitive actions to this end, acknowledging that for many, informal services can often be the only available mode of public transport. Such actions have been successful in maximising the benefits of informal transport where authorities have not limited themselves to regulating the sector. Instead, authorities have focused on long-term actions that create benefits beyond transport: building institutional capacity, engaging in continuous dialogue with service providers and other relevant stakeholders, and supporting investment through public and private partnerships.

Top recommendations

Include informal transport in mobility planning processes using a vision-led approach

A comprehensive vision for urban mobility that considers the role of informal transport is necessary to maximise its societal benefits. Where informal transport is the dominant mode of transport, it can help authorities meet their own goals for urban mobility. Where informal and institutional public transport co-exist, they can be mutually beneficial. However, success hinges on how effectively authorities can include informal service providers in the planning processes for urban mobility. Authorities need to lead this approach and develop coherent policies to support the transformation of the sector for more efficient, safe and sustainable mobility options.

National and local authorities have different but complementary roles to play in this effort. National authorities can put in place the legislative, regulatory and fiscal instruments necessary to build institutional capacity, as well as facilitate access to funding opportunities and international climate financing for fleet renewal and infrastructure investment. Local authorities can integrate informal transport into mobility planning processes, implementing mode-agnostic measures that align broader public policy goals to address the negative externalities of motorisation and spatial inequalities.

Directly engage with service providers on an ongoing basis

Engagement with the informal transport sector has often focused on reforms that service providers may perceive as incompatible with their interests. Inherent power dynamics in the informal transport sector influence the planning and delivery of services and how decisions are made. These dynamics influence the outcomes of engagement with the sector and the success of measures to address externalities. To get buy-in from service providers, the end goal of engagement should be to co-create a common vision of the transport system that includes a role for informal transport services.

Authorities can facilitate ongoing dialogue with operators, funders and other stakeholders to improve the mutual understanding of one another's capacities, realities and needs. Regular engagement allows for more flexible and responsive regulations and creates opportunities for more collaborative decision-making. Perhaps most importantly, the continued dialogue between authorities and service providers ensures the provision of essential mobility and access to opportunities for users, improves conditions for workers in the sector and facilitates long-term investment to address externalities.

Invest in institutional capacity building

Institutional capacity is a prerequisite for effective engagement, and building it requires investment. Building institutional capacity and increasing public authority involvement establishes a framework for ensuring continuity in decision-making. This serves to reduce risk for investment in the sector, facilitating access to financing to improve fleets and make operations more efficient. Additionally, building capacity within regulatory institutions can be an opportunity to develop both more responsive regulations and localised solutions that are more acceptable to service providers and sustainable in the long term.

Importantly, these capacity building investments do not come at the cost of investing in institutional public transport (where services co-exist), or at the cost of future investments in mass public transport services.

Identify a package of comprehensive measures, beyond regulation, to address negative externalities

In most contexts, the presence of informal transport does not reflect a lack of regulation, but rather the ineffectiveness of existing regulation and a lack of adequate investment in public transport to meet demand. Efforts to address informality that rely only on regulation and displacement risk losing essential access and come at a cost to public authorities and users of the services.

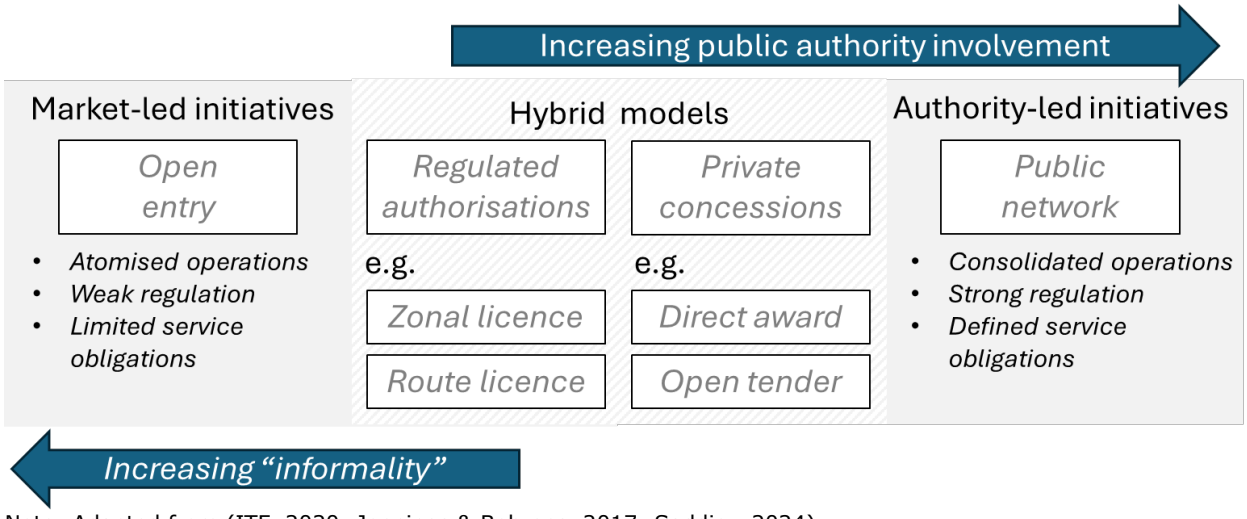
Public authorities need to work with private operators, and private and academic partners to collect and leverage qualitative and quantitative data on usage and operations of informal transport to better understand demand patterns, network capacity and constraints, emissions and priorities for investments in transport infrastructure. When supplemented with field surveys, community and driver interviews, and stakeholder consultations, such data can yield insights about the operating contexts and people using these services so that measures to transform the sector do not reinforce existing inequalities.

This approach provides an empirical foundation for identifying a package of comprehensive measures to transform mobility. These measures can include responsive regulation, integrating services, leveraging innovation, and strengthening SMEs, which can be partners in delivering essential access and mobility. This approach also requires allocating public funding towards improving mobility for everyone, such that benefits are maximised, and not simply redistributed.

Framing informality in transport

The term *informal transport* describes a spectrum of privately organised and operated public transport services, ranging from motorcycle-taxis and shared ride services to minibuses and buses. Their description as "informal" does not solely refer to the transport modes themselves, but also to the level of public authorities' involvement in their planning and delivery (Klopp, 2021). Such services take various forms, and their operations can be influenced by the modes, the service delivery models (e.g. app-based mobility), vehicle ownership, and the organisational structures of service providers. This report focuses on *market-led* public transport initiatives (i.e. privately organised, owned and operated, and with limited government oversight or regulation over service planning) and some *hybrid* models that may be characterised as "semi-formal" based on the level of public authority involvement in their service planning (as shown in Figure 1).

Figure 1. Informality in public transport services



Note: Adapted from (ITF, 2020; Jennings & Behrens, 2017; Saddier, 2024)

Other terms (e.g. *paratransit*, *artisanal transport*, *intermediate public transport*) are also commonly used, and the term *popular transport* is gaining momentum. *Popular transport* is considered by many to be a better fit for what these services are, and their role in the mobility ecosystem (San Gil León & Valverde, 2023). Although cognisant of its limitations, this report uses the term *informal transport* because it focuses on the interactions between public authorities and service providers.

Given the wide range of what can constitute informal transport, and the highly contextual nature of what might considered to be "informal", the roundtable discussions informing this report did not aim to settle on a single definition of these services. Instead, discussions focused on establishing a common understanding of the societal benefits and negative externalities of such services in the mobility ecosystem. The aim of this approach is to identify opportunities to maximise the former and minimise the latter, based on the relationship between public authorities and service providers.

Fundamentally, the priorities of market-initiated services will differ from those that are initiated by public authorities; and without the involvement of public authorities, these services are unlikely to maximise societal benefits. Due to the limited involvement of public authorities in planning and delivering these services and defining their service obligations, informal transport remains "under-scrutinized" in many

contexts where it is the dominant mode of public transport, leaving it often excluded from mobility planning processes (Klopp, 2021).

This can be a missed opportunity for authorities interested in improving mobility because of the benefits that can be derived from informal transport. These benefits include reducing social exclusion by providing access to opportunities and providing mobility where formal (institutional) public transport services do not operate (e.g. in urban peripheries, areas without paved roads, and late at night when other services are limited). These benefits, which are akin to those provided by institutional public transport services, typically come with no public subsidies and, as such, create little direct cost to public authorities (Tirachini & Proost, 2021).

Decision-makers have tended to focus on reforming the sector, usually with the end goal of replacing informal services with institutional public transport. The perception that informal transport services are transitional influences how (and whether) authorities assess the benefits and negative externalities of these services, and ultimately decides how they engage with the sector. This report explores how shifting that perspective and approach can minimise the negative externalities and maximise the societal benefits of informal transport to transform urban mobility.

How the status quo perpetuates negative externalities

In many cities, informal transport is the main form of public and motorised transport and, as a result, the accompanying negative externalities of motorisation (congestion, pollution, crashes) are often attributed to these services (San Gil León, 2024). However, it is worth noting that in terms of passenger-kilometres, the societal costs for private car travel are higher than those of public modes, which can include informal transport (Kustar et al., 2023; Rizzi & De La Maza, 2017).

Nonetheless, increasing motorisation, including the growing popularity of two- and three-wheelers as shared modes, contributes to increasing pollution and its adverse impacts on health. It also puts vulnerable road users such as pedestrians at an added risk of injury or death from crashes. In Accra, Ghana, for example, a study on road deaths by user and vehicle type found that pedestrians were at highest risk of injuries, and nearly half of collisions were due to speeding, with over 60% of motorcycles observed to be speeding (Kustar et al., 2023).

In fact, many of the negative externalities of informal transport reflect mobility systems that are unsustainable because they are designed to prioritise private motorised mobility (ITF, 2023a). For example, under-investment in transport infrastructure for active travel can mean that roads do not adequately accommodate the demand for mobility, leading to car-dependence and congestion. Similarly, it can mean informal transport services operate where there is inadequate infrastructure (e.g. stop infrastructure, terminals). This can force passengers to wait in unsafe locations and create congestion around major trip generators. It can also leave workers exposed to the elements, and without adequate facilities for breaks. Highly congested areas, poorly maintained roads, as well as the lack of quality pedestrian infrastructure also contribute to road safety issues related to the operation of these services.

Other processes and limitations beyond the purview of transport authorities where informal transport services operate also perpetuate the negative externalities of the sector. These include policies intended to decrease government expenditure, such as budget cuts, contributing to an overall weakening of institutional capacities for effective regulation and leading to both poor working conditions and a lack of social protections for workers (Ezeibe et al., 2017). Other limitations include weak or circumvented regulations on the import of un-roadworthy vehicles, and quality of fuels available (UNEP, 2020). In addition, market forces make the export of vehicles that would be considered end-of-life in their originating markets more lucrative than scrappage, contributing to the prevalence of un-roadworthy vehicles in the sector (ITF, 2023e; UNEP, 2020).

Nonetheless, the sector itself can perpetuate these issues, for a variety of reasons. For example, common operating practices in terms of competing for passengers and relying on smaller-capacity vehicles can increase road safety risks and contribute to congestion (Kustar et al., 2023). Quantifying the negative externalities of informal transport, separately from what can be attributed to other factors, requires an understanding of how the sector's methods of operation can contribute to perpetuating these issues.

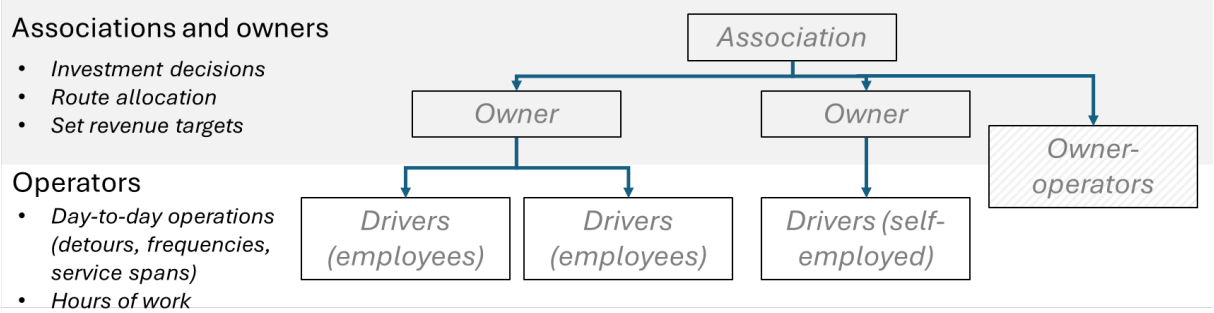
However, discussions about externalities often focus on reform and regulation, typically from a "top-down" perspective, without paying much attention to the governance processes and power dynamics that define informal transport (Klopp, 2021). While the sector's own organisational structures play a role, the approaches public authorities use to engage with the sector (if they engage with the sector at all) can have implications in terms of how negative externalities can be minimised.

This section focuses on how the internal dynamics of the predominant organisational structures for informal transport service providers can contribute to the sector's negative externalities. These gaps are perpetuated by authorities' responses to the sector – mainly, exclusion from mobility planning processes (in part due to the lack of funding for public transport) or overreliance on (often) ineffective regulations to reform and displace informal transport services. The result is fragmented networks, destructive competition, ageing fleets and inefficient operations. This combination of the sector's organisational structures and authorities' responses can limit the effectiveness of measures to address negative externalities (MobiliseYourCity, 2021).

Predominant organisational structures

Informal transport services can be said to arise out of a "bottom-up" planning process (Venter et al., 2020). They are largely self-organised individual operators working for themselves or for owners, and owners can be either individual or organised into cooperatives or associations. This organisational structure is not unlike ridehailing companies, where self-employed drivers can use their own vehicles, or lease vehicles from the platform (or a third party) to operate services (ITF, 2023d). Operators then make the day-to-day operating decisions, as described further in the following sections (Figure 2). When owners are organised as associations or cooperatives, they tend to allocate routes and zones of operation, essentially taking the role of service planning.

Figure 2. Common informal transport service organisational structures



Source: Adapted from (Dimitrov, 2024; MobiliseYourCity, 2021)

In reality, even in contexts with open entry to markets and little public authority involvement in service planning, there exist some kind of regulations for informal transport services. This is usually through the issuing of operating permits and licenses. Additionally, the organisational structures of the private operators (whether independently/individually owned and operated, or consolidated into associations or cooperatives) effectively change the dynamics for entry into the market (Saddier, 2024).

Where associations exist, there can be opportunities to collectivise some of the operating risks, pool costs for maintenance, and establish savings and loans services for workers. The operating risks can range from conflict between different service providers competing to serve the same corridors, to extractive enforcement practices and other rent-seeking factions outside the transport sector (Kerzhner, 2023). Internally, within associations, there are also power dynamics to be considered, such as the allocation of routes to different operators, the distribution of revenues, and even access to terminals and stages.

A comparison of different organisational structures for services in Nairobi, Kenya; Kampala, Uganda; and Lilongwe, Malawi, illustrates how, even with limited public authority involvement, the various models can

lead to different outcomes in terms of planning and coordination, compared to collective approaches (Table 1) (Kerzhner, 2023).

Table 1. A comparison of organisational structures in Sub-Saharan Africa

Attribute	Kampala	Lilongwe	Nairobi
Organisational structure and market entry rules	Worker-based associations, route-level to national union	National-level associations passengers, workers, owners	Owner-based cooperatives, organised at route-level
Network coverage and structure	Extensive coverage; more radial network	Limited coverage; radial network	Extensive coverage; less radial network
Investment in new routes	Start-up costs from drivers and stage associations	No investment	Start-up costs from owners via cooperatives
Effect on service expansion	Expansion focused on new locations	Little expansion	Focus on competition for existing corridors

Source: Adapted from (Kerzhner, 2023)

In Nairobi, individual operators of *matatus* (privately owned minibuses) began organising into voluntary, informal public-transport savings and credit cooperatives (SACCOs) in the 1990s to collectivise some of the operating risks (Behrens et al., 2017). Matatu SACCOs require members to include vehicle depreciation costs as part of their operating expenses and contribute to the cooperatives' capital savings, from which loans can then be provided to members for vehicle maintenance and upgrades (Behrens et al., 2017).

Since 2010, the Transport Licensing Act has required private operators to belong to a company or matatu SACCO in order to operate; also, each cooperative must have a minimum number of vehicles and typically only operates a set of pre-defined routes (Behrens et al., 2017; Kerzhner, 2022). This collective approach is more common in larger cities with higher public authority or association involvement, particularly in Sub-Saharan Africa and Latin American countries, and can include specified route or area contracts for operation, granted by the public authority (Tun et al., 2020).

On the other end of the spectrum, operators in Lilongwe have no route-based associations, and (authority-issued) permits allow operations anywhere in the city (Kerzhner, 2022). Where associations exist, they do not influence network planning decisions. This structure is more commonly found in smaller urban areas, or the urban peripheries of large metropolitan areas.

A further contrast is found in Kampala, which has strong worker's associations at the "stage" level, where decisions on routing are made (akin to zonal licences) and service providers are part of a national labour union (Kerzhner, 2023). Kampala also has a higher share of owner-operators, which has various implications for operations in terms of competition and service delivery and expansion (discussion expanded in Box 1).

These organisational structures also have implications for how authorities can engage with operators, as described in the following sections. In the above examples, it is typical for authorities to take a hands-off approach, simply issuing operating permits. As a result, service planning is led by operating entities, and their organisational structures influence how new routes are provided and whether services can expand to new operating areas.

Beyond the planning and coordination aspects, the lack of public authority involvement can also result in common drawbacks. When operating entities do not centralise planning regarding service coverage, these services tend to be concentrated where demand is high, resulting in sub-optimal service coverage and frequency (i.e., undersupply or oversupply) at best. At worst, it can mean destructive competition

(encouraging risky driver behaviour and creating road safety issues). In both cases, areas of low demand remain underserved, as discussed in the following section. Importantly, these negative externalities come at a cost to the public.

Fragmented networks

Cities often grow faster than public authorities' ability to plan and deliver public transport services (San Gil León, 2024). In addition, a range of reasons – including gaps in regulation and institutional capacities – often lead to a lack of integrated transport and land use planning. Where institutional public transport services are insufficient to meet the mobility needs of individuals and gaps exist in the regulatory frameworks, informal transport can serve the demand. As a result, it is possible for "formal" and "informal" public transport to co-exist in the same context.

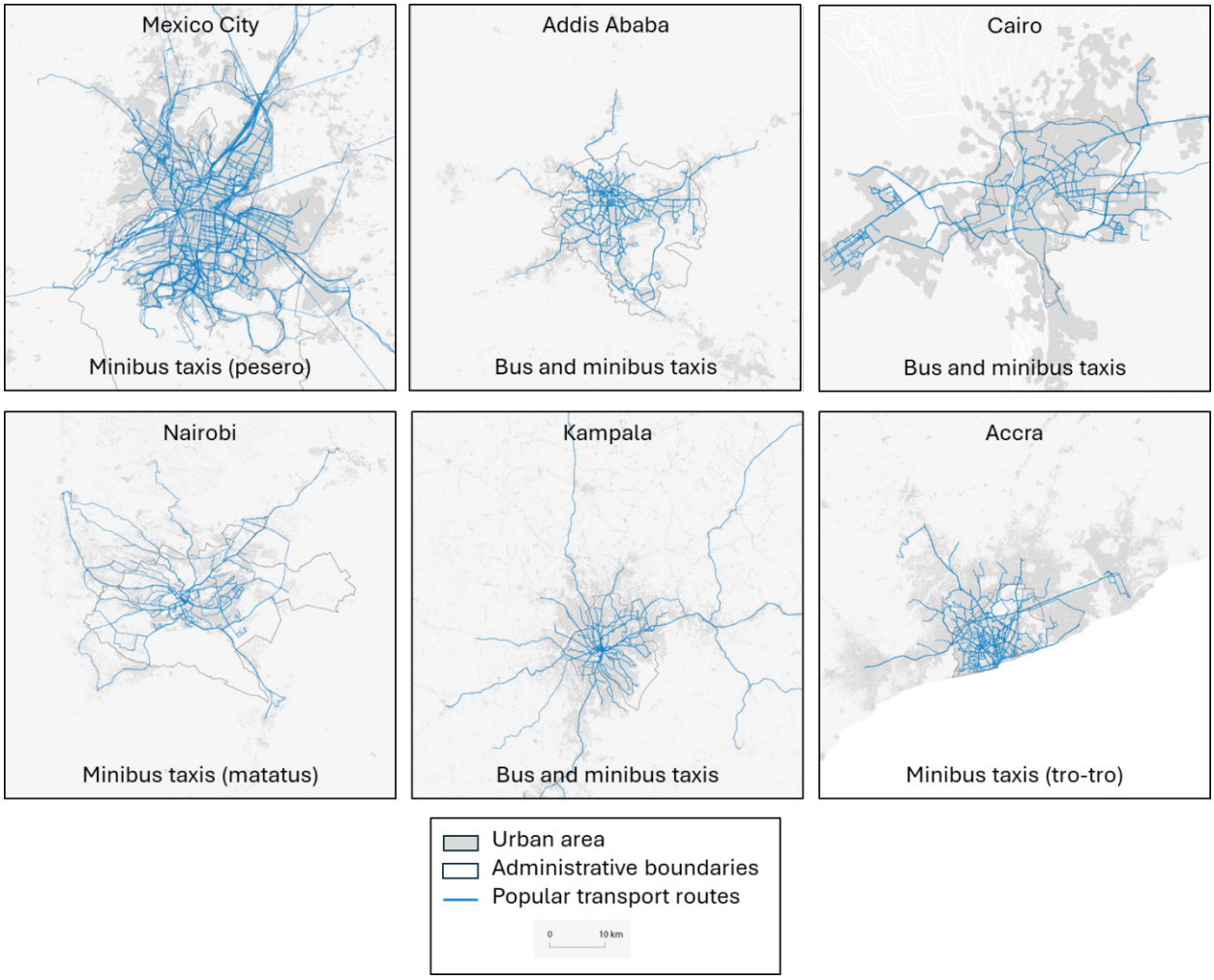
From a service design perspective, informal services are typically demand-responsive: they can be unscheduled (fill and go), and their routing can be fully flexible. While this flexibility can allow them to provide better coverage than institutional public transport systems, the more-frequent informal bus and minibus services still tend to operate along high-demand corridors. These flexible service design characteristics can be similar to demand-responsive public transport (DRT) services, which are increasingly common in contexts where travel demand does not justify fixed-route services. The lack of service obligations (e.g. minimum service levels, pre-booking requirements) can differentiate informal transport services from DRT (Gadepalli et al., 2024). A distinction can be made for app-based shared mobility services, which may operate in specific areas and allow pre-booking, potentially filling gaps in coverage – albeit at a cost to the user.

While "fill and go" operations can reduce emissions per passenger-kilometre by maximising vehicle occupancy, they can also mean less predictable travel times for users, congestion and safety risks around major hubs, and delays mid-route as operators wait for more passengers (Kerzhner, 2022).

Importantly, the tendency for informal transport services to operate primarily where demand is high (in order to maximise revenues) and the lack of authority involvement in establishing minimum service levels can perpetuate spatial inequalities. Radial networks (see Figure 3), which are common among informal transport services, can be inefficient, requiring more transfers to make orbital connections (Kerzhner, 2023; Klopp, 2021). Specifically, when services are concentrated in high-demand corridors and oriented towards central business districts, with limited coverage in urban peripheries, there are implications for users in terms of travel time, service quality and cost.

Smaller informal transport vehicles, such as motorcycle-taxis, do sometimes serve peripheral areas where other services are limited, in part because of the range of vehicles available. In Dakar, for example, informal transport services ("clandestine taxis" or "clandos") serve a majority of short- and medium-distance trips in peripheral areas where conventional buses would not be able to operate (Lesteven et al., 2022). However, distance-based fares are common, meaning that residents in peripheral areas are likely to pay more on average, and fares can also be further differentiated by mode. The costs for these services relative to household incomes in the peripheral areas are higher, which in itself is a barrier to access. Without regulations regarding fare prices, operators can also choose to "surge" prices based on weather conditions or time of day (Kerzhner, 2022). Such practices, which can mean service costs for users are high, create gaps in terms of equity and can contribute to safety risks.

Figure 3. Selection of public transport networks (including institutional and informal or semi-formal services)



Source: Adapted from (LSE Cities, 2024) analysis based on Working Map of Addis Ababa's Public Transport Network led by the Addis Ababa Road and Transport Bureau – specifically the Addis Ababa Transport Authority in partnership with WRI, Addis Ababa University, Transport for Cairo and DigitalMatatus; Accra Mobility; Transport for Cairo (TfC); CoCT; WhereIsMyTransport; Digital Matatus; Mapatón CDMX; CORINE land cover/Copernicus.eu); NYU Urban Expansion Program at the Marron Institute of Urban Management and the Stern School of Business, New York University, UN-Habitat, & Lincoln Institute of Land Policy; DLR-DFD; Addis Ababa Masterplan Project Office: International Growth Centre; JICA; University of Lagos; Dataforall.org; DIVA-GIS

These issues in service coverage, quality and reliability, and costs can accelerate the shift towards individual and higher-polluting modes, especially with the rise of app-based mobility and services such as ridehailing. The issues of costs and coverage in peripheral areas can also accelerate a shift toward smaller vehicles such as motorcycle-taxis, which can exacerbate issues of pollution and road safety risks. Such shifts present additional challenges for regulators concerned with the negative effects of increasing motorisation because these services – particularly motorcycle-taxis – currently occupy the regulatory grey area minibuses used to in many contexts (Munguía, 2024).

Without centralised planning and service obligations, informal transport can exacerbate existing equity gaps even as it serves demand unmet by institutional public transport. That is, in the same way service providers can introduce services to new corridors because they have flexible route alignments, they can

discontinue services with no obligation to maintain access where demand is low. Additionally, there is no incentive to provide service in low-demand areas, especially during off-peak times (Tun et al., 2020).

Providing gap-filling services is a risk for operators, because serving new areas requires that they take on the cost-burden of new services without any subsidies or guaranteed return on investment. In Lilongwe, for example, the limited ability to collectivise these risks (through associations or cooperatives) likely contributes to the lack of investment in new routes. If the risks associated with operating existing services and expanding new services could be collectivised, this may have some impact on coverage, as has been the case in Nairobi and even more so in Kampala (see Box 1).

Box 1. Building a bus route: planning and labour in informal transport

A study exploring the formation of new routes in informal transport networks in three African cities (Kampala, Lilongwe and Nairobi) illustrates how inherent power structures in the sector (e.g. who has resources, who makes decisions, how decisions are made) influence access and equity. The study showed that the organisational structures of informal transport service providers in these three cities have influenced how likely operators have been to explore forming new routes, rather than competing for services in high-demand areas.

Notably, where drivers leased vehicles from owners and made a majority of decisions regarding daily operations, they were less likely to explore new service areas, because they bore the risk of expansion. This was especially the case in Lilongwe, where market entry for service providers was less regulated, permits to operate did not come with any prescribed operating areas, and associations have little influence over route planning. Similarly, in Nairobi, although the rules regarding market entry are more regulated and associations play a role in creating new routes, the structure of the cooperatives and a higher tolerance for conflict mean that service remains concentrated in high-demand corridors and new services are tested through trial and error, typically in response to pressure from owner-based cooperatives to raise revenues.

By contrast, in Kampala, where the share of owner-operators is higher, associations are found at the stage level and determine routes, and drivers are affiliated with regional and national labour unions, so there is less of a reluctance to explore new service areas. In fact, new routes in Kampala are formed through various processes, including at the request of passengers. In exploring new service areas, stage associations find ways to compensate the emerging services for the costs of new services, including supplemental payments or lower vehicle-capacity targets. Where new routes are explored at the initiative of owner-operators, there is an expectation that they will operate at a loss until the service gains traction.

As part of the study, researchers piloted a new route in Kampala, exploring a cross-city "counter-connectivity" service to meet demand that was otherwise "invisible" because of how pre-existing decision-making structures influence the spatial structure of the informal bus networks. Given the requirement to get approval from existing stage associations for new services, and Kampala's radial network structure, providing a cross-city service also required more engagement with existing service providers. With the exception of an initial subsidy from the study, the new route maintained the norms of informal transport services (unscheduled, flexible routing).

During the duration of the pilot, the study exposed a gendered mobility gap: 60% of the users of the new service were women, and they were concentrated in fewer occupations, including teachers, nurses, students, domestic workers and informal trade and market vendors. Women using the service were twice as likely as men to shift from a walking trip. 13% of the women using the service also travelled

with children. These findings are consistent with other studies showing that women, particularly low-income women, have higher walking mode shares and also often have encumbered trips related to their care duties (ITF, 2023a; Lesteven et al., 2022). The outcomes of the "counter-connectivity" route illustrate the role authorities can play in filling gaps by working with service providers as well as residents to identify areas of unmet demand.

Overall, these findings illustrate that (a) the information and power asymmetries that characterise the informal transport sector influence how decisions are made; and (b) leaving the planning and coordination of public transport services to the informal transport sector may fill some gaps but does not address existing inequalities, which is the role of the public authority. Public authorities cannot leverage informal transport services to help meet their goals for mobility, access to opportunities, and safety and sustainability without understanding this dynamic and incorporating these considerations into their decision-making processes.

Source: (Kerzhner, 2022, 2023, 2024)

Destructive competition and bypassing regulation

When informal transport providers' organisational structures are characterised by information and power asymmetries, it influences how decisions are made and who makes them (Kerzhner, 2023). Where owner-operated services are rare, drivers typically either (a) lease vehicles from owners to operate them (i.e. are self-employed), in which case they face pressure to recoup their operating costs, or (b) are employed by owners and are expected to meet revenue targets (MobiliseYourCity, 2021).

Where operator associations and cooperatives are in place, drivers require permission to operate certain routes (or are assigned to routes) by the associations and may not have much say in route planning (see Figure 2). This is despite drivers being typically responsible for day-to-day operational decisions, including stops and detours, driving style (as it relates to risk-taking) and working hours (MobiliseYourCity, 2021; Saddier, 2024).

These internal dynamics can lead to inefficient operations, risk taking and poor labour conditions, particularly where regulations and institutional capacity for enforcement are weak. For example, the owner-based cooperatives in Nairobi can make investment decisions that are disconnected from day-to-day operations. That is, while drivers typically make a majority of the day-to-day operating decisions, owners (or associations) set revenue targets. The target system is largely due to the lack of reliable revenue tracking (typically cash-based systems with little traceability) (Dimitrov, 2024). This can lead to mistrust between owners and operators. Operators who have to recoup their operating costs for leases or meet targets, or operators pursuing higher earnings, can be incentivised to operate in already congested but more profitable corridors, take greater operating risks (speeding, overloading), surge fare prices, and work longer hours (Klopp, 2021).

This is significant because the informal transport sector is a major employer in many contexts. Given the rise of app-based mobility and patterns of rural-to-urban migration, the sector also provides work for people traditionally excluded from the formal economy – further complicating those power dynamics. In Nepal for example, while many women are employed to operate electric three-wheelers, owners are less likely to employ women to operate minibuses and buses, where they may have better pay and conditions (Spooner & Whelligan, 2017).

Beyond the operators and conductors employed by vehicle-owners, there are additional workers that support these services, such as mechanics, as well as various other precarious positions (e.g. terminal

vendors, cleaners, couriers and ticket-sellers) (Spooner & Whelligan, 2017). For example, in Lagos, Nigeria, the informal taxi industry is estimated to employ nearly half a million people, including maintenance staff, spare-part dealers, conductors and drivers (ITDP, 2021).

Where authorities have regulations in place, a rapidly changing operating context and potentially limited enforcement capacity to ensure compliance with regulations, as well as limited institutional capacity to keep regulations up to date and relevant, can make regulations less effective. These challenges can be further complicated by the sector's own resistance to reforms in some places (to maintain profits and operating practices – effectively restricting market entry) and their leverage as providers of a public service (Golub et al., 2009). When combined, these factors mean that informal transport services can continue to operate without compliance with existing labour laws. When service providers exploit these regulatory grey areas, it can worsen conditions for workers in the sector.

Addressing some regulatory loopholes (e.g. those that pertain to working conditions) may not be under the direct purview of transport authorities, and where there might be strong worker protections for transport workers, there may a be a gap in regulations for some workers. For example, where operators lease vehicles, they may not be classified as employees, but as entrepreneurs; and similarly, in some jurisdictions, drivers using app-based mobility services are not employees of the mobility service platforms, but as 'independent contractors' (ITF, 2019b).

This kind of work is not only precarious, but also has additional risks due to the long hours and often low wages (Klopp, 2021). The poor working conditions also contribute to worse health outcomes and increased safety risks – particularly for motorcycle-taxis. While working conditions have much to do with labour laws and their enforcement, it is worth noting the effect incentives to maximise revenues have on working conditions, and how the lack of public authority involvement in the sector perpetuates this status quo.

To address these issues, regulations must balance the need to encourage innovation and respond to evolving contexts with the need to ensure social welfare. This is particularly challenging when operating under resource constraints, or in complex regulatory landscapes where efforts to regulate can be met with significant pushback (see Box 2).

Box 2. Regulating ridehailing in Chile

Santiago, Chile's capital city, is well known for its comprehensive reform of the public transport network (the "Big Bang"), launched in 2007 with the opening of the Transantiago integrated bus system. The abrupt reform is also well known for the challenges it faced in regulating competition within the market at the outset of the integrated service. Although the initial supply challenges significantly affected user perceptions and service quality, these issues continue to be addressed through ongoing changes to the tendering process.

In recent years, transport authorities in Chile have had to consider the impact of competition from app-based mobility services. In some smaller cities, for example, taxi *colectivos* have almost fully displaced bus services, under limited regulations, and with fragmented operations and gaps in service, especially for low-demand areas.

These app-based mobility services, particularly ridehailing apps, are well known for exploiting regulatory ambiguity on market entry to operate and scale up services (ITF, 2019b). Despite benefits in serving unmet demand and in increasing convenient transport options for users, such services have been found to worsen congestion and pollution. This is in part because app-based mobility services can be complex to regulate: they can vary in terms of service type (e.g. ridehailing versus microtransit), and service

delivery (e.g. door-to-door versus fixed stops), and addressing their negative effects often requires more flexible and responsive regulation. With various services operating and likely overlapping, it can be challenging for authorities to adopt coherent regulations without potentially affecting supply that is essential for mobility.

In April 2024, a new *Ley de Empresas de Aplicaciones de Transporte* (Transport Application Companies Act) was introduced to address some of the issues arising from the rapid expansion of app-based mobility. The law regulates the total number of drivers (freezing the number of permits after 6 months, for 18 months), raises driver standards (requiring clean criminal records, professional licenses, and safety training), and establishes vehicle requirements in terms of age, efficiency, insurance and state of repair. The law also requires a public registry of companies, vehicles and drivers and extensive databases to enable oversight and evaluation of congestion and the passenger transport market.

The backlash to the law from the transport network companies has been significant, including publicity campaigns and lobbying to stop the regulation. This in turn has forced the authority to expend staff time and legal resources and delay the implementation of the regulations. In many contexts, the lack of adequate institutional capacity – and of the financial resources needed to implement and enforce such regulations – present a barrier for effectively regulating such services.

Source: (Vidal, 2024)

Ageing fleets and inefficient operations

The limitations of the predominant organisational structures, combined with a lack of institutional involvement, create a risky environment for investing in improvements to informal transport. Even when operators are organised as associations, they may still have limited bargaining power due to the lack of an enabling environment. Various efforts to improve the sector, particularly with respect to reducing emissions and to improving operations, require investment. The perception of these transport services as informal, or transitional, can be a deterrent for potential funders and financers.

Lack of access to capital for fleet renewal, and lack of bargaining power when attempting to reduce insurance, fuel and maintenance costs, can be barriers for individual enterprises (Dimitrov, 2024). Challenges in accessing financing are more acute for individual operators (depending on their creditworthiness or available collateral). This limits their choice of vehicles – a choice that might already be limited in countries without domestic vehicle manufacturing industries (Espelia-Codatu, 2022; ITF, 2023e). When owner-operator relationships lack transparency, it can also be difficult to verify revenues when applying for loans.

Owner-operator relationships can also affect fleet maintenance – with daily maintenance activities left to operators who have revenue targets to meet, and owners may not see major gains in addressing minor vehicle quality issues, as noted in roundtable discussions. This can result in longer replacement intervals and poor maintenance. Additionally, in some contexts, resources that could be reinvested into the service can be tied up in paying fines and bribes when punitive regulations are combined with extractive enforcement practices (Klopp, 2021).

The result of this combination of challenges is an ageing and inefficient fleet. Fleet quality issues are significant, and global. For example, in Kenya, minibuses have an average age of 17 years, and in India, roads are dominated by low-capacity three-wheelers that emit high levels of particulate matter (PM10) (Kustar et al., 2023).

With respect to operations, service providers may be reluctant to rationalise services in high-demand corridors (e.g. use higher-capacity vehicles), because it can mean higher costs and lower revenues (particularly with "fill and go" operations), although in practice, the opposite can be true with rationalised services (Jennings & Behrens, 2017). This reluctance can result in more low-capacity vehicles in circulation even in high-demand corridors, where higher-capacity vehicles would require less road space (Gadepalli et al., 2024). Similarly, it can be difficult for small associations and individual operators to invest in shared facilities, such as centralised depots, and without such facilities they can have higher unproductive mileage (deadhead) when taking vehicles home. Unproductive mileage also contributes to congestion and emissions.

Beyond issues in accessing capital for fleet renewal and improving operational efficiency, service providers also face challenges when it comes to exploring new ventures and service expansion, because their businesses can be vulnerable to external and internal shocks. When authorities begin enacting reforms, it can be difficult for incumbent service providers with less political and economic influence to bid for contracts without support, because they often lack the scale, resources, or organisational capacity required to participate in competitive processes (Tun et al., 2020). This can lead to the exclusion of existing operators and impact the implementation of the reform (expanded on in Box 3).

Common authority responses to transport informality

If informal transport services arise in response to unmet demand, their continued status as "informal" relies on gaps in existing regulatory frameworks and institutional capacities. However, the ubiquity of informal transport in the urban mobility ecosystem highlights its importance in providing access to opportunities. The exclusion of these services from planning processes, despite their potential benefits, is in part because they are perceived by authorities to be as transitional as the gaps that allow their existence. When informal transport is considered to be transitional, there is an expectation that regulations or efforts to reform these services will eventually displace them (MobiliseYourCity, 2021).

For example, authorities often use the implementation of a mass public transport project, such as mass rapid transit – bus rapid transit (BRT) and light rail transit (LRT) – as a catalyst for reforming informal transport (Tun et al., 2020). This is in part because the delivery of such large-scale projects is transformative. They require mobilised funding and accompanying changes to transport governance and institutional frameworks that can address some of the gaps that allow for informal transport services to thrive.

However, waiting for a major project to materialise to address the negative externalities of informal transport (e.g. congestion, pollution, crashes) comes at a cost to the quality of life and liveability of urban areas. This approach is also detrimental if the public authority is unable to sustainably fund the new institutional public system and meet its service obligations due to changing political priorities or financial constraints.

In fact, in the context of the global climate crisis, the challenge of sustainably funding public transport (in terms of both capital and operational costs) at the pace required to meet changing travel demand and decarbonisation goals is one that persists across contexts – even for institutional public transport systems (ITF, 2024b). Challenges in funding sustainability are also exacerbated by the changes in the role of government – whether through changing priorities or other political issues. The result is a cycle of strong regulations that effectively eliminate informal transport services, but can lead to increasing costs and changing priorities, resulting in limited authority involvement, and to fragmented services and growing informality, impacting users of the services (Tun et al., 2020).

Addressing this dynamic requires that authorities consider the long-term sustainability of regulations and reform measures, as well as what other tools are available to address externalities, beyond regulation. This would also necessitate including informal transport in mobility planning processes, and planning for the funding needed to implement measures to transform urban mobility.

Regulation and responses to innovation

As noted, most informal transport services operate with some level of regulation – usually authorisations to enter the market. In that sense, informality in transport also refers to the effectiveness of existing regulation with respect to the planning and delivery of services, and the lack of coherent policies supporting regulations. Regulations aimed at improving service delivery or meeting transport planning objectives (e.g. network coverage, minimum service levels) tend to be limited, in part because authorities do not include informal transport services in mobility planning processes. While regulations for service obligations can be a catalyst for transforming the sector, regulations alone are not enough to address the negative externalities of informal transport services, or to maximise the benefits that currently come at little direct cost to authorities (discussed in the next section).

Increasing regulations also has some drawbacks. For example, roundtable participants pointed out how informal transport service licence fees can be a significant source of revenues for local authorities, which may incentivise permitting more operators. Additionally, increasing regulations also requires increased enforcement, which can mean increased enforcement, which has implications on costs for authorities, and for operations.

Regulations can also be ineffective when they are not adequately responsive to changing contexts, or part of coherent policies related to transport. In some cases, they can create barriers for positive innovations. For example, whereas app-based ridehailing can contribute to congestion, when trips are *shared*, the effect on congestion can be limited or outweighed by the benefits to mobility. Some jurisdictions have explored fleet caps, vehicle utilisation standards and access restrictions to address some of these challenges (ITF, 2019b). However, addressing congestion by regulating app-based mobility providers presents practical challenges for regulators and may not achieve the desired effects (e.g. limiting market entry for ridehailing services may reduce the possibility of ridesharing, and impact supply).

In fact, *shared*-mobility services, including pooled rides as well as shared rides in larger vehicles such as minibuses or vans, can be an opportunity to utilise capacity in private vehicle fleets to meet mobility needs. For example, in some Latin American countries where employer-owned transportation services are common, a shared-mobility platform (Wawa) works with employers to optimise routing and group demand such that they better utilise their fleet capacity (Pocaterra, 2024). The platform (which started in Caracas, Venezuela, and operates in 18 Latin American cities) provides journey-planning for employees, and also allows for secondary stops, which can be useful for employees with drop-off duties (Pocaterra, 2024). Since trips are pre-booked, wait times are not perceived as longer despite potentially fewer vehicles and lower frequencies. The service's ease of use and service quality can make it an effective alternative to private car ownership or ridehailing.

Nonetheless, a completely hands-off approach from public authorities limits the potential benefits of such services. In the example of Wawa, the platform is particularly beneficial for employers located in peripheral areas where existing transport networks (including market-initiated services) struggle to operate efficiently. However, these services, which represent additional capacity for public mobility, are restricted in terms of productivity outside of commuting trips. Additionally, for users, a change in employment status (i.e. losing their jobs) comes with an additional burden of limited mobility. In such contexts, there may be

an opportunity for public authorities to partner with such shared-service providers to ensure they complement existing public transport services, thereby improving overall urban mobility.

As new technologies intersect with existing business models and influence how people travel, transport decision-makers will need to understand where policy interventions would be most beneficial for most people (ITF, 2023d).

It is important also for authorities to recognise that not all externalities can be managed through direct regulation of the service operator. While vehicles standards and safety requirements, for example, can be regulated for by directly targeting the operator, the management of congestion or use of public space is a concern for all traffic and should be the subject of policies targeted at managing those issues generally and not only in relation to informal transport. For example, ITF (2021) identified three regulatory domains for the management of Mobility as a Service - regulation of the operator, regulation of the digital platform provider, and regulation of the urban context (for example, pricing, parking, access regulations etc.).

Similar considerations should be reflected on when identifying the most effective interventions related to informal transport. This requires that decision-makers better understand where informal transport fits into the urban mobility ecosystem, where it overlaps with other services, and where there are opportunities to improve overall mobility by leveraging its benefits.

Informal transport as an asset for mobility

While significant attention has been paid to the negative impacts informal transport services have on congestion, pollution, and safety in cities, as well as the poor labour conditions of the sector, less attention has been paid to its societal benefits. While public services are obligated to maximise social welfare, privately organised services can opt to operate only where demand is high and set fares to maximise revenues and profits. This can be a mutually beneficial situation if public authorities are willing to explore opportunities for integration that can maximise social benefits.

For example, public authorities can establish service obligations such that the operating practices of privately organised services do not lead to poor service quality (e.g. unscheduled services, longer waits, unsafe vehicles). Additionally, where competition is high, they can increase oversight in order to improve working conditions (Tun et al., 2020).

Beyond providing access to opportunities and serving unmet demand, informal transport has significant economic impacts. Service providers are direct employers, operating small and medium-sized enterprises (SMEs) in many contexts. Crucially, depending on the level of involvement of the public authority, these services can come at little direct cost to authorities.

There is no single pathway for "reforming" informality, and different approaches are needed for different contexts. Rather than reform, the end goal should be transformation of urban mobility through *integration and strengthening* of such services, not just replacing them with institutional public transport or displacing them (which is often a costly endeavour). Greater involvement from public authorities in the sector can not only address the negative externalities of the sector, but can also be a catalyst for improving fragmented governing frameworks (in particular, the disjointed nature of land use development and transport).

In various contexts, authorities have taken non-punitive actions to address informality, working with the service providers. These have included supporting efforts to collectivise (e.g. through corporatising, regulations supporting consolidation, supporting worker unions, training and professionalisation), improving transport infrastructure (e.g. allowing informal transport services to use priority lanes, providing stop and terminal infrastructure), and investing in fleet renewal (e.g. scrappage schemes, subsidies, facilitating access to finance and loans) and operational improvements (e.g. centralised depots, mapping services, integrated fares, open data) (Albuquerque, 2024).

Importantly, where such initiatives have been successful in maximising the benefits of informal transport, authorities did not limit their actions to regulating the sector. In addition to more responsive regulations, they focused on long-term actions that create benefits beyond transport: building institutional capacity, engaging in continuous dialogue with service providers and other relevant stakeholders, and supporting investment through public and private partnerships.

The role of informal transport

Research findings indicate that informal transport (depending on its definition) can account for a significant share of motorised trips globally – over half of trips in various Latin America and Caribbean cities, for example, and as high as 75% in some Sub-Saharan African cities (Kustar et al., 2023). In these contexts, informal transport is no longer filling a gap, or transitional. It is the predominant mode of motorised transport, and the mode of choice for users.

Increasing research interest on informal transport has led to various efforts to study, map and collect data on the sector. These data should include sector stakeholder mapping, to better understand financial and power relationships (MobiliseYourCity, 2021). Although still a challenge in various contexts, data collection efforts have been facilitated through various innovative methods, including more-accessible, open-source, digital tools deployed in environments that are typically considered "data-poor".

Even in contexts with limited authority involvement (or capacity), efforts to quantify informal transport services and their usage can provide authorities with important information about mobility patterns that can inform decision-making. They are also particularly useful for establishing a baseline for the sector's current emissions – which can be used to build emissions inventories for the sector (Albuquerque, 2024).

These efforts create opportunities for improving operational efficiency, integrating these services with institutional public transport, and provide the empirical foundation needed to better assess these services and select measures to address the negative externalities. However, authority involvement is necessary to realise such benefits from the sector. By adopting a holistic approach that combines regulation, investment, and innovation, cities can work towards transforming informal transport services into more efficient, safe, and sustainable mobility options.

Providing access to opportunities

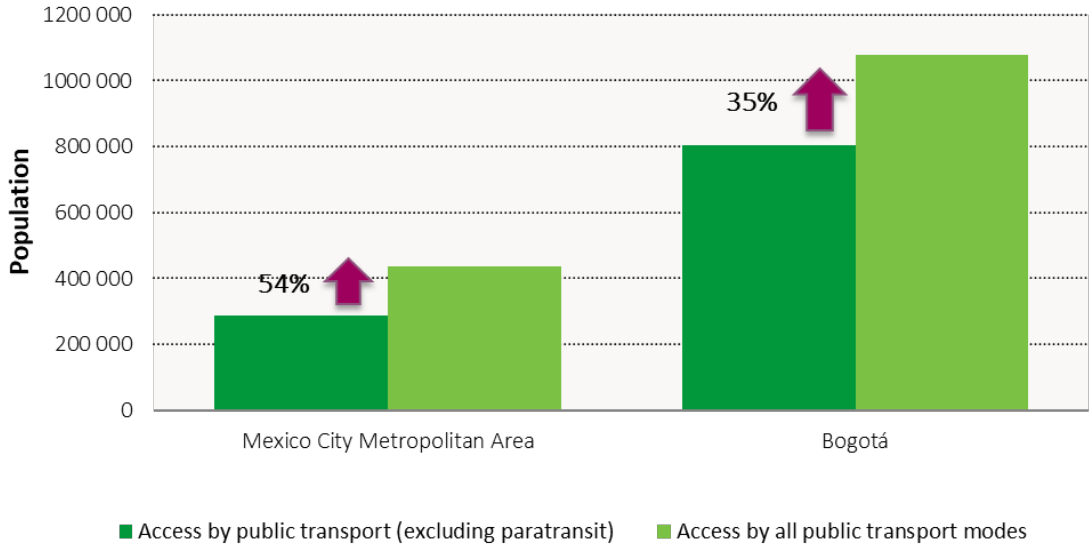
In cities that are often defined by sprawl and inequality, informal transport can be essential for survival and development. These trips represent demand that would be otherwise unmet, access to essential opportunities (healthcare, education, jobs), and reduced social exclusion. In the peripheral (often low-income) areas of fast-growing cities, informal operators are typically the first to provide services linking to opportunities in established areas (Venter et al., 2020).

In such areas, smaller vehicles, such as motorcycle-taxis, tend to provide services where buses and minibuses may not be able to operate cost-effectively. In Dakar, for example, older residents and people with disabilities living in urban peripheries often call the nearest taxi rank for door-to-door service. Similarly, residents rely on these services for late-night services, in emergencies, or even during adverse weather conditions such as floods, when the "clandos" continue to operate (Lesteven et al., 2022). These services are also popular among women, who are often carrying goods related to their care duties (see Box 1).

In the Mexico City Metropolitan Area and Bogotá, a study in Latin American cities found that, when considering overall levels of access to public transport, including access provided by informal transport networks – even though they were not functionally integrated – yielded significant improvements in "absolute accessibility" – that is, the number of opportunities that can be reached within a fixed time threshold using a given mode of transport, a measure that allows for benchmarking across territories (ITF, 2019a; OECD et al., 2022a). In the Mexico City Metropolitan Area, absolute accessibility using public transport (measured as the number of people who can be reached within 30 minutes as a proxy for

opportunities) increased by 54% when informal modes were included; in Bogotá, it increased by 35% (Figure 4).

Figure 4. Absolute accessibility to population using public transport and informal transport in Mexico City and Bogotá



Note: Population is used as a proxy for opportunities.
Source: (OECD et al., 2022)

Notably, improvements in access derived from informal transport services were not uniform throughout the urban areas assessed. Rather, the improvements were most significant in peripheral, low-income areas where the institutional public transport network is significantly limited. The barriers to providing public transport in peripheral areas go beyond the costs of the actual service (OECD et al., 2022). Specifically, transport governance in these contexts can be fragmented, with limited or no collaboration between administrative authorities across the metropolitan area to establish minimum levels of transport service provision. In addition, a lack of land-use and transport planning integration, leading in part to the rapid pace of urban sprawl across the metropolitan area, creates additional constraints

As such, coordinating and providing services within existing governance structures can be difficult, and establishing supportive regulatory frameworks can be time-consuming. In some contexts, major mass public transport projects have been used as a catalyst to reform transport governance (e.g. the TransMilenio in Bogotá) (Tun et al., 2020). However, results of this approach have been mixed, come at a cost to authorities, and can require trade-offs in terms of service quality. In such instances, without informal transport, access to opportunities can be limited.

Focusing on mutual benefits

Given that informal and institutional modes can co-exist, and are likely to co-exist through processes of reform, an approach that leverages the pre-existing informal transport services in an integrated system can also improve the modal balance of a transport network, making it more responsive to disruptions (ITF, 2023b). That is, an urban area with a greater mix of available modes not only improves access for individuals, but can also mean that disruptions to one mode do not significantly limit mobility. To avoid potentially destructive competition, however, public authorities have a role to play in making sure the available modes are complementary.

In some contexts, public transport authorities have leveraged technology to ensure integration between informal and institutional public transport. One such example is in Jakarta, Indonesia, where the introduction of the Transjakarta BRT was a catalyst for formalising the informal minibuses, now known as Mikrotrans. The service integration was first introduced through an integrated fare pilot project that was part of overall reforms towards corporatising the Mikrotrans operators (ITDP et al., 2021). Mikrotrans services now function as feeder modes for the BRT, effectively expanding the coverage of the public transport service and providing greater accessibility for all users.

In other contexts, authorities have also explored hybrid models featuring the co-existence of informal and institutional modes, which allows for more equitable allocation of funding in resource-constrained contexts. This can also go beyond the feeder-trunk model.[1] For example, in Delhi, informal modes can operate on dedicated busways (Jennings & Behrens, 2017). Similarly, a study proposing a framework for integrated planning of informal and institutional public transport in a medium-sized city in India (Visakhapatnam) found benefits in using informal public transport services to supplement frequencies over short distances in high-demand corridors (Gadepalli et al., 2024).

This approach, called "peak-lopping", can be beneficial for informal transport providers if they can maintain viable services outside their peaks. Peak-lopping can also be beneficial for institutional public transport, which faces challenges in managing peak-period fleet requirements (Jennings & Behrens, 2017). In fact, peak-period operations are a significant cost-driver for public transport operations (Eriksson et al., 2023). Public transport authorities have explored various measures to smooth peak-period demand, including fare differentiation to encourage people to take advantage of flexible work arrangements (ITF, 2024b). However, user-focused measures can be limited by constraints that can prevent public transport users from taking advantage of these options, including the lack of flexibility or discretionary time associated with care duties (ITF, 2024a). Focusing on operational efficiency can be mutually beneficial – as suggested by the modelled scenario in the Visakhapatnam study, which found significant decreases in travel time, road space requirements, and emissions (Gadepalli et al., 2024).

Planning and investment for long-term viability

In contexts where public transport services are market-initiated, the benefits of serving unmet demand come at little cost to public authorities. By contrast, a decision by public authorities to engage in transforming informal transport implies both additional responsibility and risk. That is, an approach to reform that recognises the need to address the unmet demand and does not simply opt to regulate such services out of existence requires accompanying institutional capacity and investment.

In terms of institutional capacity, to transition such services to formal operations, the public authority will need to negotiate service delivery contracts with incumbent operators or establish competitive tendering processes, as well as monitor and enforce service delivery (Jennings & Behrens, 2017). This requires adequate technical capacity, particularly if there are many incumbent operators. Involvement from the public authority would also require that they ensure their own goals for urban mobility are met, through such measures as establishing service obligations (e.g. requiring coverage in areas that may not have enough demand to be profitable for operators).

Thus, public authority involvement implies investment aimed at ensuring the long-term viability of operating the services. This is particularly challenging because operating revenue may not recoup the costs

[1] The *feeder-trunk* system can reduce the number of bus-kilometres by using smaller buses for short, local trips and larger buses for longer, high-capacity trips.

of reform, which can range from vehicle upgrades to system supervision and management (Tun et al., 2020). This highlights the need to allocate public funding towards public transport services – including informal transport. In addition to operating subsidies, some reforms require capital investments, particularly fleet and infrastructure improvements.

Public authorities must consider various trade-offs when contemplating reforms that would increase their involvement. To succeed, reforms designed to address negative externalities (e.g. high emissions, poor working conditions) will require longer-term planning and investing capacity, which come at a cost. Additionally, some reforms can end up with unintended effects, such as increasing costs and worsening service quality for users (see Box 3). With this in mind, authorities will need to consider reforms that can be mutually beneficial, such as integrating services such that benefits are maximised, not simply redistributed.

Box 3. Trade-offs for authorities in the implementation of the Bogotá SITP

In Bogotá, the 2012 launch of the *Sistema Integrado de Transporte Público* (SITP), an integrated transport system that was part of the reforms that followed the implementation of the TransMilenio BRT, initially resulted in increased costs for the public authority and dissatisfaction for many users. The planned gradual reform process focused on service delivery, with the establishment of "area contracts" for service. This required incumbent operators to bid for contracts, which led to some of the small operators dropping out because they were unable to meet the financial obligations of the bidding process. The result was a loss of service (and access to opportunities) for some areas (Rodriguez-Valencia et al., 2023).

Due to financial constraints, the authority then allowed some incumbent operators to continue operating with semi-regulated permits to reduce the gap in coverage, until 2021 (Rodriguez-Valencia et al., 2023). This process took nearly three times as long as was initially anticipated, emphasising the importance of institutional capacity and continuity for effective long-term planning. A comparison of the semi-regulated SITP service and the "formal" SITP services while both were operating illustrates the complex trade-offs for public authorities tasked with maximising the benefits of informal transport and minimizing its negative externalities (Table 2).

Table 2. A comparison of semi-formal and institutional *Sistema Integrado de Transporte Público* (SITP) in Bogotá

Attribute	Semi-regulated service	SITP
Coverage	Better	Worse: reduced coverage in peripheral areas; some combined and eliminated routes
Frequencies	Better (potentially due to excess supply based on planning standards)	Worse
Fares	Better	Worse: Fares were 22% higher
Road safety	No change to perceived road safety related to crashes	
Emissions	Worse	Better: 63% improvement from fleet renovation (and some improvement from fewer vehicle-kilometres)
Driver's working conditions	Worse	Better: salary and benefits (social security, health, labour risk protection)
Subsidies required	No subsidies required	Up to USD 200 million annually

Note: Adapted from (Hidalgo, 2024; Rodriguez-Valencia et al., 2023)

From a user perspective, the institutional service did not bring about significant benefits in terms of service quality (notably, travel time and coverage), perceived road safety or user costs. Some of the new companies that formed to operate the service failed and filed for bankruptcy (Rodriguez-Valencia et al., 2023). The public authority then became responsible for the service provision when selected providers could not meet the contract terms, requiring new subsidies or the abandonment of some service areas (Hidalgo, 2024; Rodriguez-Valencia et al., 2023).

Nonetheless, the process resulted in reduced emissions and better working conditions for drivers. The reforms also improved the image of the services, reduced competition within the market (and associated risk-taking behaviour), and addressed accompanying issues related to working conditions (e.g. poor safety, wages and protections) and congestion in popular corridors (Rodriguez-Valencia et al., 2023). Perhaps most importantly, the continued involvement of the authorities provides continuity for users, and also serves to de-risk the sector, allowing for long-term investment (e.g. fleet and infrastructure upgrades). In Bogotá, this is evidenced by the deployment of over 1 400 electric buses in the SITP since 2019 under various procurement models, which are only possible due to the institutional capacity of the transport authority (Batista & Bastos, 2023).

Beyond regulations

In assessing the informal transport services, authorities need to acknowledge that (a) where they exist, they are either a predominant mode of motorised transport or they co-exist with institutional public transport, and that (b) any efforts to reform them that focus on displacement run the risk of losing essential access or incurring costs. If authorities can consider informal transport services as an asset for mobility, they can maximise the benefits of the existing services, even as they work to minimise its negative externalities.

To understand how informal transport services fit into the mobility ecosystem, public authorities need to work with private operators to collect and leverage data on usage and operations. Gathering both qualitative and quantitative data on demand and usage (e.g. mobility surveys, interviews, passenger counts, observations) will allow authorities to better understand how people use informal transport, what individual travel needs are, and how informal transport can complement institutional public transport. Authorities also need to map stakeholder relationships, with a focus on understanding financial flows, revenues and costs (MobiliseYourCity, 2021).

Of course, relying on data from operators has limitations: it can be fragmented and exclusionary (Albuquerque, 2024; Melegy, 2024). Using such data for planning purposes necessitates asking questions about who is represented, and how. Additionally, there continue to be challenges in data collection when it comes to informal transport, in part because services are dynamic, often deviating to respond to changing contexts. For example, where an institutional public transport network may have dedicated stops and restrictions as to where passengers can be picked up or dropped off, informal routes can have “on-demand” stop locations (Melegy, 2024).

Fortunately, efforts to collect data and map informal transport have created a strong empirical foundation for better understanding these services. One such example, Digital Transport 4 Africa (DT4A) is a platform that allows public, private and academic partners to share open, standardised mobility data that can inform investment, planning and service delivery decisions for authorities. For authorities, these data can

be informative for understanding demand patterns, network capacity and constraints, emissions and priorities for investments in transport infrastructure.

To supplement this, authorities can play an important role in ensuring operational data is supplemented with on-site observations, community and driver interviews and stakeholder consultation. Direct engagement with service providers to understand the realities of the sector is necessary in order to design context-sensitive and appropriate measures, and to address the perception that changes in operating methods can be less lucrative. Direct engagement with users of informal transport services can also help authorities understand travel needs, and how reforms may impact users. Mixed methods of data collection can yield better insights about the operating contexts and people using these services so that existing inequalities are not reinforced (see Box 1).

Importantly, authorities can use a mix of qualitative and quantitative methods to identify opportunities to improve urban mobility outcomes, aligning existing informal transport services with their own policy priorities for transport in their cities (e.g. increasing access to opportunities, improving safety, reducing congestion and emissions). However, to be effective, such measures require buy-in from existing service providers. This implies a shift in perspective from authorities – from a hands-off, or punitive, approach toward meaningful long-term engagement. This will require investing in building the institutional capacity required to support direct engagement, develop responsive regulations, and facilitate partnerships with relevant stakeholders, such as funding institutions (see under “Investing in institutional capacity” later in this section).

Effective engagement with stakeholders

To get buy-in from stakeholders, the end goal of engagement should be to co-create a common vision of the transport system that includes a role for informal transport service. As noted, inherent power dynamics in the informal transport sector influence the planning and delivery of services. Thus, it stands to reason that these power dynamics also influence the outcomes of any engagement with the sector to implement reforms.

Informal transport service providers have long-established and powerful interests in contexts where the regulatory capacities of public authorities are limited, making reform without their buy-in unfeasible (Jennings & Behrens, 2017). For example, in South Africa, the minibus taxi industry was worth an estimated ZAR 50 billion in 2019, with at least 250 000 vehicles carrying 15 million daily commuters – compared to under 2 million daily trips on institutional public transport (Dimitrov, 2024). Despite this potential, the sector still faces significant challenges, such as destructive competition and inefficient operations, as well as lack of resources and capacity to improve services.

Authorities can facilitate ongoing dialogue with operators, funders and other stakeholders to improve the mutual understanding of one another’s capacities, realities and needs. Previous models of engagement with the sector focused on regulation and reform, which service providers may perceive as incompatible with their interests, jeopardising the reforms.

However, as authorities recognise a greater need for effective engagement, alternative models of cooperation are increasingly common. Continuous engagement can result in more flexible and responsive regulations (Saddier, 2024). For informal transport services, this is particularly relevant because of the complex organisational structures and competitive operating dynamics that characterise the sector and the nature of the operating context (typically in rapidly changing urban environments).

Regular engagement also creates opportunities for more collaborative decision-making that takes the realities of the operating context into consideration and facilitates the testing and refinement of new

services (such as the pilot route described in Box 1). A longer-term approach that focuses on mutual understanding and transparency between parties can legitimise the process of transformation. Effective engagement allows authorities to complement their expertise in setting strategic goals for mobility with the service providers' expertise in the realities of the operating context (OECD, 2022).

Box 4 illustrates the long-term engagement approach taken in Mexico City (*Ciudad de México*, or CDMX) by the authority, *Secretaría de Movilidad de CDMX* (Semovi). This approach requires adequate institutional capacity, dedicated resources and staff for engagement, and continuity. Despite the potential costs, such an approach can result in more effective outcomes. If service providers are involved in the process of developing regulations related to operations for example, they can have more ownership over the outcomes, and it can mean fewer costs associated with enforcement, and higher likelihood of success.

Box 4. Mexico City Public Transport Modernisation Program

In Mexico City, the transport authority, *Secretaría de Movilidad* (Semovi), takes a context-sensitive approach towards modernisation, regulating entry into the market more strictly along major corridors compared to neighbourhood "zonal" services operating primarily in peripheral areas. The effort began with the launch of bus rapid transit (BRT) services (known as *Metrobús*) operated by a state-established operating company (CISA), which incorporated existing permitted services into a single contract. Along major corridors, operators must bid for services as part of CISA, while individual traditional (incumbent) operators can continue providing zonal services.

As part of the modernisation effort, since 2001 a public subsidy program has aimed at upgrading the institutional bus fleet. In 2009, the program was extended to include the zonal services, providing a subsidy of MXN 100 000 (since increased to MXN 450 000) to incumbent operators renewing their vehicles. Semovi also currently finances a scrappage scheme to accelerate the process of fleet renewal. The fleet renewal program is part of a gradual process of integrating the incumbent operators with the institutional public transport services, that also includes the possibility of joining the smartcard fare payment system used by the institutional public transport system.

The fleet renewal program has led to the replacement of 2 500 minibuses with 900 new buses meeting Euro 5 emission standards. In addition to emitting fewer emissions compared to the older minibuses, the higher-capacity buses also reduce congestion. As of 2019, 12 incumbent operating companies also used the digital smartcard fare payment program, which can facilitate better revenue tracking.

With over 100 operating organisations in the city, these efforts are facilitated by a robust engagement program led by Semovi. Initial participation was low, with only 21 of the operating organisations participating in the first decade of the program. Since 2018, however, the pace has increased, with 13 organisations participating in the modernisation process for the first time. The engagement process is collaborative, with technical studies by Semovi supplemented by stakeholder workshops with operators.

To help incumbent operators access funding, Semovi also assists with their financial feasibility studies, by conducting training sessions and evaluating the projects. Importantly, Semovi does not get involved in the internal decision-making processes of the operating organisations; rather, they mainly provide support functions.

To illustrate the scale of this modernisation effort, currently, there are still more than 12 000 vehicles operating in the incumbent scheme, and there are technical studies underway for the replacement of over 2 000 vehicles. In addition, Semovi also plans to provide permits and plates to replace cycletaxis (known as *ciclotaxis,* and similar to pedicabs) operating in the downtown area with new pedal-assisted

bicycles. They have also begun to explore strategies to address motorcycle-taxis (known as *mototaxis,* they are motorcycles modified with trailers that can carry up to four people), which are currently entirely unregulated. These challenges emphasise the importance of dedicated resources for conducting robust and effective ongoing engagement.

Source: (Munguía, 2024)

Investing in institutional capacity

Institutional capacity is a prerequisite for effective engagement, and building it requires investment. This can include either (a) establishing transport authorities that can facilitate mode-agnostic improvements to transport infrastructure, guided by coherent policies for better mobility; or (b) ensuring staff capacity in existing regulatory institutions, so they can meaningfully engage with service providers and develop more responsive regulations. Such investments are not a zero-sum proposal: they do not come at the cost of investing in institutional public transport (where services co-exist), or at the cost of future investments in mass public transport services. Investing in informal transport simply acknowledges that it is a mode of choice for many (if not all, in certain areas), and it provides essential mobility at little direct cost to public authorities.

One way to build institutional capacity over the long term is through establishing transport authorities with defined responsibilities over a specified urban area, supported by legislative authority and funding to ensure continuity (ITF, 2018). Transport authorities can have decision-making authority over the strategic goals of urban transport, including coordination with other policy areas (e.g. land use, health and the environment) and revenue sources (e.g. municipal budgets, charges on vehicle ownership and use) (ITF, 2018).

Funding support and financial sustainability play a large role in ensuring effectiveness and continuity when it comes to capacity building efforts. For example, in Lagos, Nigeria, Dakar, Senegal, and Abidjan, Côte d'Ivoire, initial investments from the World Bank provided the financial stability needed to establish transport authorities, and legislation followed to secure revenue-raising capabilities to allow their ongoing operations (Jennings & Behrens, 2017). In Lagos, the Lagos Metropolitan Area Transport Authority is now funded through vehicle licence and permit fees, a right established through legislation in 2007 (Jennings & Behrens, 2017).

Where transport authorities are already in place, they are well-positioned to support improvements for informal transport that align with their own wider goals for urban mobility, to maximise the societal benefits of these services rather than just redistributing their existing benefits. These can include actions such as reallocating road space to prioritise collective and non-motorised modes and providing supportive infrastructure such as stops and terminals (Jennings & Behrens, 2017). They can also work with operators and municipalities to build or upgrade depots, which can then create an opportunity to support fleet renewal and electrification efforts (see Box 5).

Transport authorities can also work with service providers to secure funding for capital investments from partners such as development finance institutions (DFIs), who may have a higher risk-tolerance than private lenders (Dimitrov, 2024). Importantly, this kind of public authority involvement serves to de-risk the sector because it establishes a framework for ensuring continuity in decision-making.

Without transport authorities, increasing capacity within regulatory institutions to better engage with service providers can be an opportunity to develop more responsive regulations. For example, the matatu SACCOs in Nairobi initially formed voluntarily, in response to the effects of destructive competition on

their profit margins, and through this consolidation, operators managed to improve service quality and operations through technology adoption (Behrens et al., 2017). Authorities, recognising these improvements as well as increased regulatory compliance, then legitimised the status of matatu SACCOs by requiring all operators to consolidate into companies or cooperatives in order to be licensed. This regulation was then a catalyst for further requirements related to the fleet (e.g. minimum number of serviceable vehicles, cashless or "cash-lite" fares), leveraging the well-established cooperative structure (Behrens et al., 2017).

This approach takes advantage of the benefits of an existing structure without being too prescriptive, providing highly localised solutions that are less costly for authorities and can be more acceptable for service providers. Additional regulations can be supplemented with supportive actions, such as training sessions for business development, financial feasibility studies (see Box 4), training to improve operational efficiency and fleet management, as well as support for testing new services (see Box 1). Instead of focusing solely on enforcement activities, responsive regulations and supportive actions can effectively build capacity within the service providers' organisations.

Box 5. Fleet renewal opportunities

Motorised two- and three-wheelers account for a significant share of vehicle fleets in Sub-Saharan Africa and Asia – particularly as shared modes accessible through ridehailing apps and offline (Appan, 2024). In many contexts, they also occupy the regulatory grey area that was common for minibus taxis before market entry rules were more prevalent. As a result, many public authorities are exploring regulations and other measures to address the negative externalities of these modes as they gain popularity (Munguía, 2024).

Because of the vehicles' prevalence, high annual mileage and operating patterns, transitioning these fleets to cleaner vehicles is an opportunity to reduce emissions and pollution in urban areas. In fact, electrifying these fleets could reduce life-cycle greenhouse-gas (GHG) emissions by 28-57% compared to their internal combustion engine (ICE) variants (ITF, 2023c). With the growing share of these vehicles in various contexts, accelerating their transition is necessary to avoid lock-in effects based on vehicle lifespans (e.g. up to 10 years in the India example). This presents practical challenges due to the high capital costs of new electric fleets (compared to ICE fleets) and the atomised nature of ownership and the services' current operations.

Public authorities have taken various approaches to address this challenge, including providing incentives for electric vehicles (EVs) and facilitating infrastructure provision (charging points, battery swapping stations). In New Delhi, collaborative models for engaging with the different stakeholders – including different levels of government, private partners, utilities and operators – have been particularly effective. The Delhi Electric Vehicles Policy, adopted in 2020, resulted in a significant increase of electric two-wheelers and modest growth in the number of electric three-wheelers (which were already prevalent before the policy) (Appan, 2024).

Importantly, supportive infrastructure (charging and battery swapping stations) saw a significant increase as result of a city-led EV charging strategy and a coordinated roll-out of charging stations (Appan, 2024). Beyond national and local government support, fleet renewal programs and financing mechanisms for small- and medium-sized operators can be considered during the implementation of major projects, as has been the case in Bogotá. In Bogotá, the concession contracts have evolved to allow operators to directly lease electric buses from fleet providers that have direct agreements with the public authority, effectively lowering their investment risks (Batista & Bastos, 2023).

Discussion and recommendations

In many cities, informal transport is the main mode of public and motorised transport – one that is often responsive to changing and emerging mobility needs, particularly for people with few alternative options. However, these benefits do not preclude the mode from the negative externalities that accompany increased motorisation (congestion, pollution, crashes) – and, in fact, the sector itself can perpetuate these issues through its operating practices.

Although regulation and displacement have long been considered the way to address the negative externalities of informal transport, in many contexts these approaches have not been successful. In part, this is because informality in transport reflects not a lack of regulation, but rather the ineffectiveness of existing regulation and service provision. Additionally, many of the negative externalities of informal transport reflect the limitations of mobility systems designed to prioritise private motorised transport at the cost of other road users.

Given the role of informal transport in essential mobility, instead of displacement, public authorities should consider how they can integrate and strengthen these services to transform urban mobility. Although the end result of this transformation might differ based on context, the goal for authorities should be ensuring essential mobility, access to opportunities, and sustainable urban mobility systems. Transformation can include providing more-attractive services through integration and by establishing and supporting service obligations; strengthening worker protections to improve working conditions; and facilitating investments designed to address inefficient vehicles and operations. Transformation requires greater involvement in the sector from public authorities and can be a catalyst for improving fragmented governance frameworks.

In various contexts, non-punitive actions to address informality have been successful in reducing destructive competition, improving working conditions, and encouraging fleet renewal. Utilising empirical assessments and data collected through innovative methods, authorities have supported improvements to operations and implemented transport infrastructure such as priority lanes and stop and terminal infrastructure. By working directly with operators, they have supported efforts towards consolidation and business development. These successes were in part driven by the inclusion of service providers in the decision-making processes, as a means for authorities to meet their own goals for urban mobility. For authorities, understanding the underlying power dynamics that influence the sector's operations, and how they contribute to perpetuating the status quo, can make reform efforts more successful.

Such an approach requires institutional capacity to support ongoing and meaningful direct engagement with service providers. Institutional capacity also establishes continuity, engendering trust between stakeholders to co-create a common vision for better urban mobility. Informal and institutional public transport can co-exist in a mutually beneficial way, but this relies on authorities' inclusion of the former in mobility planning processes.

Responsive regulation does have a role to play in transformation, but only when it is part of a package of measures within coherent policies that account for the complexity of the informal transport sector. Rather than resorting to regulation, control and displacement, authorities can instead consider the role of informal transport in the transport ecosystem, and the service providers as SMEs that can be partners in delivering essential access and mobility. Authorities' involvement also implies investing in the long-term viability of operating the services. This highlights the need for allocating public funding towards improving mobility for everyone, agnostic of mode, focusing on integrating services such that benefits are maximised, not simply redistributed.

Including informal transport in mobility planning and implementation

Various institutions can play significant roles in improving informal transport, but this process should be led by public authorities that are responsible for (a) making decisions at the strategic level and (b) developing coherent policies to support measures to improve the sector. Since public authorities are obligated to maximise social welfare when providing public services, they are best placed to align measures with broader public policy goals.

National and local authorities have different but complementary roles to play in this effort. National authorities can ensure the legislative, regulatory and fiscal instruments necessary to implement transformation measures are in place. This can include passing legislation that (a) empowers local governments to establish comprehensive mobility planning processes that include informal transport and (b) establishes local and regional transport authorities possessing the necessary institutional capacity and revenue-raising capabilities to allow their ongoing operations. National authorities can also provide incentives (subsidies, scrappage schemes) to promote fleet renewal and support capacity building efforts (e.g. training for business development, financial feasibility studies).

Support from national authorities can enable local and regional transport authorities to work with funding and financing partners such as DFIs to invest in infrastructure, because often local governments and informal transport providers lack easy access to international finance and capital markets.

National authorities can also leverage international climate financing opportunities for improvements such as fleet renewal and infrastructure investment, supported by establishing targets and including informal transport in their Nationally Determined Contributions (NDCs) (see Box 6).

Box 6. Including Informal Transport in Nationally Determined Contributions (NDC)

The third round of Nationally Determined Contribution submissions was due in February 2025. In these NDCs, governments set out their ambitions and targets for emissions reductions and adaptation to climate impacts towards 2035 and respond to the outcomes of the first Global Stocktake (GST). For transport, this means setting out a clear vision for establishing emissions reduction targets, goals, measures and investment approaches aimed at creating a resilient and zero-carbon future transport system.

While the vast majority of public transport trips in low- and middle-income countries are made using informal transport (GNPT, 2024), at the time of publication, only two countries, Uganda and Angola, mentioned informal transport in their NDCs. Currently, emissions from informal transport are not specifically recognized in NDCs, and there are no recommendations for mitigating emission from the sector (e.g. no age or emissions requirements for vehicles in the sector, weak regulations for used vehicles) (Albuquerque, 2024). A comprehensive approach to decarbonising transport, including informal transport, can meaningfully enhance countries' NDC ambitions and ensure their economy-wide targets are implemented.

By including clear intentions for policy actions and investments needed to decarbonise all modes of transport, governments can bolster their case to mobilise finance and secure funding and technical assistance to implement their ambitions. However, such an approach should be mindful of local policies and institutional capacities for developing comprehensive NDCs (Albuquerque, 2024). Publicly available resources can play a role in this, such as the International Transport Forum's published guidance on

including transport in NDCs (ITF, 2024c) and the Global Network for Popular Transportation's NDC guidance specific to informal transport (GNPT, 2024).

Increasingly, local authorities are developing sustainable urban mobility plans (SUMPs) to provide a comprehensive vision for urban mobility and to guide the implementation of sustainable mobility measures (Espelia-Codatu, 2022). By integrating informal transport into these planning processes, authorities can identify measures that not only address the negative externalities of motorisation, but can also transform informal transport within the context of wider transport investments.

This approach can be mode-agnostic, given the negative externalities of motorisation are not limited to informal transport. Many institutional public transport services face similar challenges, particularly in addressing spatial inequalities and achieving long-term funding sustainability. Where institutional and informal transport co-exist, local authorities can implement measures that can be mutually beneficial, taking an integrated approach to improve overall mobility.

Public authorities will need to work with service providers to collect both qualitative and quantitative data on demand and usage to better understand the travel needs of residents, as well as data on operations to better understand opportunities for integration.

In these contexts, local authorities can prioritise investing in and maintaining their transport networks to promote collective and non-motorised modes, using measures such as road space reallocation, to support more sustainable operations. By leveraging data on demand and service operations, authorities can also prioritise investments in key infrastructure, such as stops and terminals, which enhance passenger connections and improve operational conditions for both institutional and informal transport services.

Local authorities should focus on direct engagement with operators and service providers, mapping stakeholder relationships to better understand business models and opportunities to align objectives and maximise benefits. Interventions focused on strengthening SMEs and improving their operating practices can foster trust and dialogue between service providers and authorities. Support for SMEs can take various forms, including supporting corporatisation, introducing integrated fare systems (including digital systems to facilitate better revenue tracking), and offering training programmes to improve financial management, fleet maintenance and management, and working conditions. Additionally, supporting collective approaches, such as pooling vehicle procurement or maintenance costs, can help service providers reduce expenses while improving service quality.

In areas where informal transport is the predominant mode of public transport, meaningful, ongoing engagement with service providers is particularly necessary. This requires building institutional capacity to ensure continuity in decision-making. Strengthening institutional capacity also de-risks the sector by facilitating service providers' access to financing and funding opportunities, enabling them to invest in fleet renewals and improve operations.

Local authorities can also leverage mapping, field surveys and data collaborations with researchers, academics, and the private sector to improve service and journey-planning for users. For service providers, such data can be useful for optimising operations. For authorities, such data can provide insights into demand patterns, network capacity and constraints and suggest priorities for investments in transport infrastructure. Importantly, such data can be used for building emissions inventories to support sustainability goals.

Beyond operational improvements, authorities should identify opportunities to address service gaps and spatial inequalities. This can include innovative approaches to providing service expansions that can fill gaps and improve access to opportunities, such as pilot programmes or incentives to operate in new areas,

and partnerships with institutions and shared mobility platforms. Such approaches rely on ongoing dialogue between authorities and service providers and, importantly, engagement with the public to better understand travel needs.

Finally, authorities should consider the role of informal transport in both short- and long-term mobility planning and investment, while also factoring in its benefits outside the realm of transport. By adopting a holistic approach that combines regulation, investment and innovation, authorities can work towards transforming informal transport services into more efficient, safe, and sustainable mobility options. Perhaps most importantly, continued dialogue between public authorities and service providers ensures essential mobility services remain available, supporting access to opportunities for users while improving conditions for workers.

References

Albuquerque, C. (2024), "Improving public transport services including informal", in World Resources Institute (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities*, https://www.itf-oecd.org/challenges-and-future-opportunities-improving-informal-public-transport-developing-countries-trb.

Appan, A. (2024), "City guide: Electrification and Management of Two and Three-Wheeler Vehicles", *ITF Roundtable on Informal Transport: Maximising Societal Benefits and Minimising Negative Externalities*, https://www.youtube.com/watch?v=_jx3M0xioVU&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=10&pp=gAQBiAQB.

Batista, M., and P. Bastos (2023), "The Bogotá business model for deploying electric buses", https://transformative-mobility.org/multimedia/el-modelo-de-negocio-de-bogota-para-la-implementacion-de-buses-electricos.

Behrens, R., et al. (2017), Improving paratransit service: Lessons from inter-city matatu cooperatives in Kenya. Transport Policy, 53, 79–88. https://doi.org/10.1016/j.tranpol.2016.09.003.

Dimitrov, L. (2024), "Engaging with paratransit through transformation", in Development Bank of South Africa (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities*, https://www.youtube.com/watch?v=y8U8DdLIC5I&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=7&pp=gAQBiAQB.

Eriksson, E., L. Winslott Hiselius and H. Lidestam (2023), "Measures reducing travel by public transport during peak hours", *Transportation Research Procedia*, 72, 3609–3616, https://doi.org/10.1016/j.trpro.2023.11.561

Espelia-Codatu. (2022), *Paratransit in Asia: Scalable solutions to Reform, Modernise and Integrate*, https://www.mobiliseyourcity.net/paratransit-asia-scalable-solutions-reform-modernise-and-integrate.

Ezeibe, C. C. et al. (2017), "Work on wheels: collective organising of motorcycle taxis in Nigerian cities", *International Development Planning Review*, 39(3), 249–273, https://doi.org/10.3828/idpr.2017.10.

Gadepalli, R. et al. (2024), "A tactical planning framework to integrate paratransit with formal public transport systems", *Transportation Research Part D: Transport and Environment*, 136, 104438. https://doi.org/10.1016/j.trd.2024.104438.

GNPT (2024), *Global NDC Template for Popular Transport: How do we incorporate popular transportation in National Determined Contributions (NDCs)?,* Global NDC Template for Popular Transportation, Global Network for Popular Transport, https://www.populartransport.net/ndctemplate?rq=How%20do%20we%20incorporate%20popular%20transportation.

Golub, A. et al. (2009), "Regulation of the informal transport sector in Rio de Janeiro, Brazil: welfare impacts and policy analysis", *Transportation*, 36(5), 601–616, https://doi.org/10.1007/s11116-009-9215-y.

Hidalgo, D. (2024), "Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms", *ITF Roundtable on Informal Transport: Maximising Societal Benefits and Minimising Negative Externalities*, https://youtu.be/_Dz6OfXRolA?list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb.

ITDP (2021), *Future of Paratransit and Shared Mobility: Mapping Report*, Institute for Transportation and Development, https://itdp.org/publication/future-of-paratransit-and-shared-mobility-mapping-report.

ITDP, City of Jakarta, and Transformative Urban Mobility Initiative (TUMI) (2021), *Lessons Learned from Jakarta's Journey to Integrated and Resilient Transport Systems*, Institute for Transportation and Development, https://itdp.org/wp-content/uploads/2021/11/MOBILIZE-Jakarta-Case-Study-11.16.21_pages.pdf.

ITF (2018), *Policy Directions for Establishing a Metropolitan Transport Authority for Korea's Capital Region*, No. 61, OECD Publishing, Paris, https://doi.org/10.1787/8b87cefc-en.

ITF (2019a), *Benchmarking Accessibility in Cities: Measuring the Impact of Proximity and Transport Performance*, International Transport Forum Policy Papers, No. 68, OECD Publishing, Paris, https://doi.org/10.1787/4b1f722b-en.

ITF (2019b), *Regulating App-Based Mobility Services*, International Transport Forum Roundtable Reports, No. 175, OECD Publishing, Paris, https://doi.org/10.1787/94d27a3a-en.

ITF (2020), *Reforming Public Transport Planning and Delivery,* International Transport Forum Research Reports, OECD Publishing, Paris, https://doi.org/10.1787/6c2f1869-en.

ITF (2021), *Developing innovative mobility solutions in the Brussels-Capital Region*, International Transport Forum Policy Papers, No. 97, OECD Publishing, Paris, https://doi.org/10.1787/37cc3a85-en.

ITF (2023a), *Improving the Quality of Walking and Cycling in Cities: Summary and Conclusions*, International Transport Forum Roundtable Reports, No. 192, OECD Publishing, Paris, https://doi.org/10.1787/cdeb3fe8-en.

ITF (2023b*), ITF Transport Outlook 2023*, OECD Publishing, Paris, https://doi.org/10.1787/b6cc9ad5-en.

ITF (2023c), *Life-cycle assessment of passenger transport,* International Transport Forum Policy Papers, No. 120, OECD Publishing, Paris, https://doi.org/10.1787/2d11e416-en.

ITF (2023d), *Measuring New Mobility: Definitions, Indicators, Data Collection*, International Transport Forum Policy Papers, No. 114, OECD Publishing, Paris, https://doi.org/10.1787/0a25deea-en.

ITF (2023e), *New but Used: The Electric Vehicle Transition and the Global Second-hand Car Trade,* International Transport Forum Policy Papers, No. 125, OECD Publishing, Paris, https://doi.org/10.1787/28ee4515-en.

ITF (2024a), *Fare's Fair: Experiences and Impacts of Fare Policies*, International Transport Forum Policy Papers, 132, https://www.itf-oecd.org/fares-fair-experiences-impacts-fare-policies.

ITF (2024b), *The Future of Public Transport Funding,* International Transport Forum Research Reports, OECD Publishing, Paris, https://doi.org/10.1787/82a4ba65-en.

ITF (2024c, November 19), *A Guide to Integrating Transport into Nationally Determined Contributions (NDCs),* OECD Publishing, Paris, https://www.itf-oecd.org/transport-ndc-guide.

Jennings, G., and R. Behrens (2017), *The Case for Investing in Paratransit: Strategies for regulation and reform,* Volvo Research and Educational Foundations (VREF), https://www.researchgate.net/publication/317357984_The_Case_for_Investing_in_Paratransit_Strategies_for_regulation_and_reform.

Kerzhner, T. (2022), "Is informal transport flexible?", *Journal of Transport and Land Use*, 15(1), 671–689, https://doi.org/10.5198/jtlu.2022.2213.

Kerzhner, T. (2023), "How are informal transport networks formed? Bridging planning and political economy of labour", *Cities*, 137, 104348, https://doi.org/10.1016/j.cities.2023.104348.

Kerzhner, T. (2024), "Build a Bus Route: Planning and Labour in Informal Transport", in *ITF Roundtable on Informal Transport: Maximising Societal Benefits and Minimising Negative Externalities*, https://www.youtube.com/watch?v=66rlYF9mkmk&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=13&pp=gAQBiAQB.

Klopp, J. M. (2021), "From 'para-transit' to transit? Power, politics and popular transport", Chapter 7 in *Advances in Transport Policy and Planning*, Vol. 8, pp. 191–209, https://doi.org/10.1016/bs.atpp.2021.07.002.

Kustar, A. et al. (2023), *Connecting Informal Transport to the Climate Agenda: Key Opportunities for Action*, https://vref.se/wp-content/uploads/2023/03/Connecting-Informal-Transport-to-the-Climate-Agenda-Key-Opportunities-for-Actions_fin.pdf.

Lesteven, G. et al. (2022), "Daily Mobility in Urban Peripheries: The Role of Clandestine Taxis in Dakar, Senegal", *Sustainability*, 14(11), 6769, https://doi.org/10.3390/su14116769.

LSE Cities (2018), "Popular Transit, London", Data, *Urban Age*, https://urbanage.lsecities.net/data/popular-transit-london.

Melegy, A. (2024), "Popular Transport in Transportation Planning, Answering questions with data", in Transport for Cairo (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities,* https://www.youtube.com/watch?v=6GgpejcGyxU&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=4&pp=gAQBiAQB.

MobiliseYourCity (2021), *Understanding Paratransit: Defining and diagnosing paratransit for sustainable mobility planning*, https://www.mobiliseyourcity.net/sites/default/files/2021-11/Understanding%20Paratransit.pdf.

Munguía, E. (2024), "Mexico City Public Transportation Modernization Program", in Semovi (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities*, https://www.youtube.com/watch?v=1fdYBd-QG_g&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=6&pp=gAQBiAQB.

OECD (2022), *Competition and Regulation in the Provision of Local Transportation Services,* OECD Roundtables on Competition Policy Papers, No. 279, OECD Publishing, Paris, https://doi.org/10.1787/2f2378f9-en.

OECD, CAF, and European Union (2022), *Latin American Economic Outlook 2022: Towards a Green and Just Transition*, OECD Publishing, Paris, https://doi.org/10.1787/3d5554fc-en.

Pocaterra, J. J. (2024), "The role of data & tech in paratransit operations and commuting networks", in Wawa (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities*, https://www.youtube.com/watch?v=365pU2HBEaA&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=5&pp=gAQBiAQB.

Rizzi, L. I., and C. De La Maza (2017), "The external costs of private versus public road transport in the Metropolitan Area of Santiago, Chile", *Transportation Research Part A: Policy and Practice*, 98, 123–140, https://doi.org/10.1016/j.tra.2017.02.002.

Rodriguez-Valencia, A., D. Rosas-Satizábal and D. Hidalgo (2023), "Big effort, little gain for users: lessons from the public transport system reform in Bogotá", *Public Transport*, 15(2), 411–433, https://doi.org/10.1007/s12469-022-00308-1.

Saddier, S. (2024), "Implementing reforms: strengthening assets through regulations and incentives", in SSATP (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities*, https://www.youtube.com/watch?v=gIWxw-ZdtxU&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=9&pp=gAQBiAQB.

San Gil León, A. (2024), "Framing - Popular transport", in *ITF Roundtable on Informal Transport: Maximising Societal Benefits and Minimising Negative Externalities,* https://www.youtube.com/watch?v=tLsB2AeCg68&list=PLmidloSvnJgLDECWim69S6BrmhD5K1_Qb&index=2&pp=gAQBiAQB.

San Gil León, A., and A. Q. Valverde (2023), "Informal Transport", in *Transport, Climate and Sustainability Global Status Report* (3rd edition), https://tcc-gsr.com.

Spooner, D., and J. Whelligan (2017), *The Power of Informal Transport Workers*, https://www.itfglobal.org/en/resources/power-informal-transport-workers.

Tirachini, A., and S. Proost (2021), "Transport taxes and subsidies in developing countries: The effect of income inequality aversion", *Economics of Transportation*, 25, 100206, https://doi.org/10.1016/j.ecotra.2021.100206.

Tun, T. H. et al. (2020), *Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms,* Inter-American Development Bank, https://doi.org/10.18235/0002831.

UNEP (2020), *Used Vehicles and the Environment: A Global Overview of Used Light Duty Vehicle Flow, Scale and Regulation*, United Nations Environment Programme, https://www.unep.org/resources/report/used-vehicles-and-environment-global-overview-used-light-duty-vehicles-flow-scale.

Venter, C. et al. (2020), *Public Transport System Design and Modal Integration in Sub-Saharan African Cities*, Volvo Research and Educational Foundations, https://vref.se/wp-content/uploads/2024/01/Venter-et-al-2020-Public-transport-system-design-and-modal-integration-in-Sub-Saharan-Africa-cities-VREF.pdf.

Vidal, P. (2024), "Reforming paratransit: the Chilean experience", in Ministry of Transport and Telecommunications (ed.), *ITF Roundtable on Informal Transport: Maximising societal benefits and minimising negative externalities,* https://www.youtube.com/@international-transport-forum.

Annex A. List of Roundtable participants

Andrea Gil San Leon (Chair), Global Network for Popular Transportation (GNPT), Costa Rica
Cristina Alburquerque, World Resources Institute, Brazil
Appurva Appan, Ricardo, United Kingdom
Vicente Aprigliano, Pontificia Catholic University of Valparaíso, Chile
Pauline Baudens, International Transport Forum, France
Anne Chaussavoine, Agence Française de Développement (AFD), France
Benjamin de la Pena, Shared Use Mobility Centre, United States
Jose Miguel de la Vega, Metropolitan Public Transport Department, Chile
Laverne Dimitrov, Development Bank of South Africa (DBSA), South Africa
Gershwin Fortune, UITP Paratransit Working Group Co-Chair, South Africa
Milnael Gomez, MobiliseYourCity Partnership, Belgium
Dario Hidalgo, Pontificia Universidad Javeriana, Colombia
Tamara Kerzhner, University of Toronto, Canada
Lucy Kihonge, Flone Initiative, Kenya
Jacqueline M. Klopp, Columbia University, United States
Clarisse Linke, Institute for Transportation and Development Policy, Brazil
Martin Lopez, Ricardo, Spain
Nico McClachlan, Organisation Development Africa, South Africa
Abdelrahman Melegy, Transport for Cairo, Egypt
Enrique Munguia, Semovi, Mexico
Daniel Oviedo Hernandez, University College of London, United Kingdom
Cristobal Pineda, Ministry for Transport and Telecommunication, Chile
Juan José Pocaterra, Wawa, Venezuela
Simon Saddier, World Bank, Cote d'Ivoire
Haruki Sawamura, Ministry of Land, Infrastructure, Transportation and Tourism, Japan
Diego Silva, Metropolitan Public Transport Department, Chile
Paola Tapia Salas, Metropolitan Public Transport Department, Chile
Tun Hein Thet, World Resources Institute, United States
Carolina Alwyn Varela, Metropolitan Public Transport Department, Chile
Paula Vidal, Ministry for Transport and Telecommunication, Chile
Sotaro Yukawa, Osaka University of Commerce, Japan

Participants provided their affiliations at the time of their attendance at the Roundtable.

International Transport Forum

Incorporating Informal Transport in Mobility Planning

In many emerging economies, informal transport constitutes an indispensable mobility service for millions of people. It provides demand-responsive transport service and coverage in areas with scarce mobility options and creates employment at little direct cost to public authorities.

However, informal transport services also generate negative externalities, including those related to motorisation - like traffic congestion, pollution and crashes - as well as increased safety issues related to operating practices. Unless public authorities establish service obligations, informal transport services also tend to be concentrated where demand is high, making quality of service in some areas inadequate. Despite its importance, the role of informal transport as an asset for mobility has received little research attention, and engagement with the sector has often focused on replacing and formalising these services.

Drawing on case studies from several regions, this report provides insights into how decision makers can maximise the societal benefits of informal transport while limiting its negative externalities. It also explores the various forms and business models associated with informal transport, and how these influence engagement with public authorities. The study examines potential benefits for marginalised communities and pathways to transform the sector to reduce congestion while improving safety, working conditions and sustainability.

International Transport Forum
2 rue André Pascal
F-75775 Paris Cedex 16
+33 (0)1 73 31 25 00
contact@itf-oecd.org
www.itf-oecd.org

OECD

Published: 03/2025 | Photo credit: Lukas Kienzler/Unsplash