

Conducting a paratransit diagnosis

A practical guide with 6 key questions

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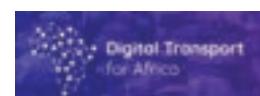
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Why a paratransit toolkit?

This document is aimed at decision-makers, experts, consultants and policy-makers responsible for integration in the urban transport sector, working to promote sustainable, inclusive, efficient, and high-quality mobility systems. Its aim is to help stakeholders consider paratransit in these systems in a coherent and integrated manner.

Paratransit is an essential mode of transport – and often the only public transport available – in many towns and cities in the Global South. Better integrating paratransit into urban mobility systems is therefore a key challenge if we are to achieve fairer and more sustainable urban mobility for everyone.

Improving the integration of paratransit means meeting three key challenges for the sector, which can sometimes be contradictory: optimising the efficiency and quality of the service provided; improving working conditions for operators; and controlling negative externalities, particularly in terms of environmental impact and road safety. To achieve these objectives, we must first identify the relevant levers that will enable decision-makers and experts to reform paratransit services in an acceptable manner to all stakeholders in order to build a sustainable and inclusive mobility system.

This publication therefore aims to provide decision-makers and experts with practical tools for planning and implementing paratransit reforms. The MobiliseYourCity toolkit consists of four documents:

- Tool I – Understanding paratransit – Global overview and local challenges
- **Tool II – Conducting a paratransit diagnosis – A practical guide with 6 key questions**
- Tool III – Reforming paratransit – Catalogue of practical measures
- Tool IV – Examples of paratransit reform – Case studies

The aim of this document (Tool II in the toolkit) is to provide decision-makers and transit planners with a practical guide to carrying out a systemic diagnosis of paratransit in their cities – the first step in identifying strengths, weaknesses, and priorities for reform. This practical guide proposes a diagnostic grid based on six key questions centred around stakeholders and their strengths, weaknesses, and motivations in order to identify realistic levers for reform.



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The paratransit diagnosis, an essential step on the road to reform

Before taking any action to reform the sector – and thus change the balance between the interests and constraints of each stakeholder – it's essential to conduct a diagnosis. To ensure a systemic approach and consider paratransit as an essential link in the mobility chain, this diagnostic method should be structured around certain key questions. These questions aim to encourage decision-makers, technicians, and consultants to better understand paratransit's role in the cities of the developing world, both today and in the future. Ideally, this diagnosis should be conducted in collaboration with the various stakeholders in the paratransit ecosystem; at the very least, the main conclusions should be shared with all parties concerned.

For each local environment, the diagnosis should identify supply and demand in the sector and its importance in the local mobility system. It is then essential to examine the existing interactions between each of the stakeholders in order to understand the key relationships within the ecosystem. These relationships are crucial to understanding how the service is provided, the interests of each stakeholder, the tools at our disposal, and the extent to which paratransit reform is possible.

This document sets out the main questions we can use to structure the approach of decision-makers and transit planners to better understand and analyse the paratransit sector. These questions can be broken down as follows:

1. **What kind of mobility system do we have?**
2. **How are revenues collected and who takes the commercial risk?**
3. **How is the sector regulated?**
4. **Are there collective management rules?**
5. **What role do users (passengers) play?**
6. **What are the sector's inefficiencies and hidden costs?**

Each of these questions analyses the specific relationships between the stakeholders identified above, with ad hoc trade-offs. Through examples, we can identify problem areas, knock-on effects, and available tools to enable the reader to build a comprehensive, long-term vision for the integration of paratransit into mobility systems.

What kind of mobility system do we have?

What paratransit services are offered, and who uses them?

Here, our aim is to conduct a survey of paratransit services and their users in order to understand the “weight” of paratransit in the overall urban mobility system, in particular:

- **What kind of paratransit services are available?** In particular, we should collect detailed information on the general principles on which the sector operates, the geographical area it covers, the level and quality of services, and the rolling stock employed in the sector.

Type of data	Example of information to be collected
Operating principles	<ul style="list-style-type: none"> • How the service is organised (existence of lines, stops, timetables, the “fill and go” model, ticketing, etc.) • Fares applied • How the sector works: operators, owners, drivers, professional associations (role and representativeness), etc. • Type and number of licences • Number of operators and average fleet size per operator • Number of direct and indirect jobs
Geographical area covered	<ul style="list-style-type: none"> • Mapping of routes or service areas • Mapping of transit hubs (location, capacity, mode, land ownership, etc.)
Level of service	<ul style="list-style-type: none"> • Frequency by route, Available Seat Kilometres (ASK), hourly range • Production per kilometre by type of service
Quality of service	<ul style="list-style-type: none"> • Passenger information, vehicle/stop comfort, reliability • Possible negative externalities: road safety, pollution, noise, etc.
Rolling stock	<ul style="list-style-type: none"> • Number of vehicles by type (size, engine type, etc.) • Age of fleet by type

Table 1. Types of data to collect on paratransit services

- **What is paratransit used for?** We should identify the usage of paratransit services in both quantitative and qualitative terms, as precisely as possible.

Appendix 1 provides more detailed information on the sources that can be used to collect such data.

Type of data	Example of information to be collected
Quantifying usage	<ul style="list-style-type: none"> ● User volume per route ● Origins and destinations of users ● User volume per terminal
Conditions for use	<ul style="list-style-type: none"> ● Types of users and reasons for travelling ● Reasons for using/not using paratransit

Table 2. Types of data to be collected on paratransit usage

What role does paratransit play in the existing mobility system?

Once we understand the supply and use of paratransit services, we need to understand how they fit into the mobility system, and in particular, whether they compete with other, more institutionalised modes. The question is as follows:

- **What other modes of transport are there?** What are the respective modal shares of each mode of transport? Knowing paratransit’s modal share, however approximate, is essential for assessing its role in the mobility system.
- **Are institutionalised public transport services available?** Depending on the answer to this first question, the local authority’s primary objective may be to ensure the economic viability of these services, which will have an impact on how paratransit is reformed and integrated.
- **Do existing transport services and paratransit compete with or complement each other?** Where multiple transport services are available, they often cater for different uses. In particular, higher-capacity modes often cover longer distances than paratransit. This leads us to distinguish between “trunk” services, that is, services deployed on routes experiencing high passenger volumes during peak hours, and “feeder” services, which provide a more local service for shorter journeys, often within a given neighbourhood. These feeder services are also referred to as “first/last mile” services, emphasising the necessity of this link for point-to-point journeys. It should be noted that the functions performed by transport services are often supported by public authorities and that they are likely to evolve over time.



Who are the authorities responsible for regulation, and in which area(s)?

Broadly speaking, the guidelines for paratransit can be formulated at a national level. In particular, national legislative and regulatory frameworks can lay the foundations for an approach that is then applied at a local level. Recognition of paratransit's legality and the role at a national level is, therefore of strategic importance. This is also where fiscal measures can be introduced. However, it is often at a local level that integration and reform projects are implemented. In the absence of a unified transit authority, responsibilities are often divided between several institutions or levels of government, such as in Madagascar, where licences for minibus paratransit services (Taxi Be) are managed at decentralised level by the City of Antananarivo within its boundaries, and by a national agency for suburban lines. This creates a number of tensions and inconsistencies as passengers travel throughout the urban area, and many lines cross administrative boundaries.

Box 1. The challenge of accessing data

Unlike other types of diagnostics, it is important to consider that data on the paratransit sector is often challenging to access and can be unreliable. This lack of data is inherent in the relatively "informal" way in which the paratransit sector operates. In addition, due to the divergent interests of the various stakeholders in the paratransit ecosystem, the unreliability of certain data (for example, operators' financial records) can be explained by the desire to protect their own interests, or even to conceal certain revenues as a result of the corrupt practices that may exist in the sector, as well as the political pressure that often exists. We have to cross-check our sources, make estimates (as it is often not exact data that is important, but rather orders of magnitude), and utilise additional sources. In addition, the lack of data is valuable information in itself; it may reflect a lack of regulation, measurement, or monitoring tools or a "blind spot" in operators' understanding of the service. In the same sense, the lack of reliability reveals the balance of power and the logic of the stakeholders who shape how the sector operates. Far from being obstacles, these unknowns constitute sources of knowledge that are an integral part of the diagnosis.





How are revenues collected and who bears the commercial risk?

What are the trade-offs between stakeholders?

The management of revenue and commercial risk lies at the heart of the paratransit sector's economic model and is a key element in understanding the relationships between stakeholders – in particular between vehicle owners and drivers, as this is the most common instance in which public authorities assume no commercial risk. With two key questions: 1) From the owner's point of view: how can you know how much revenue a vehicle generates each day when the majority of payments are in cash? and 2) how can the risks be shared between the owner, who expects a return on his investment, having mobilised his capital, and the driver, who needs a certain minimum daily income?

This question leads us to consider the extent to which commercial risk can be better shared between stakeholders and how to assess this risk in the absence of precise data.



What forms of contracting exist between owners and drivers (or even fare collectors)?

There are three main forms of contracting in the paratransit sector:

	Owner	Driver	Comments
The target system (the most common)	Receives a fixed daily rental fee for the vehicle	Collects revenue and must meet a specific daily target to generate income (he takes all commercial risk)	Precarious status of drivers -> dangerous driving, long working hours, aggressive behaviour to fill up vehicles as much as possible
Salaried employee	Collects revenue, takes the commercial risk, and pays the driver a salary	Receives a fixed income (daily? Monthly?), which may include a productivity bonus.	Requires transparent and reliable monitoring of revenues collected
Self-employed owner-operator	The operator is a self-employed entrepreneur who, in some cases, uses a third party (a loan shark) or a banking institution to obtain the funds needed to purchase the vehicle. Once the price of the vehicle has been repaid (with interest), all income goes to him.		

Table 3. The main forms of contracting in the paratransit sector

The operation of the vehicle is sometimes subcontracted to another crew, who may be recruited at the initiative of the main driver or the owner of the vehicle. A vehicle owner can also operate his own vehicle during certain hours or days of the week and rent out the vehicle the rest of the time. The driver also chooses whether to employ a fare collector; if so, the fare collector's salary is deducted from the revenue generated from ticket sales.

Box 2. The example of the boundary system in Manila

In the Philippines, and particularly in Manila, jeepney owners use the target system. Called the "boundary system" in the city, it consists of a rental contract between the jeepney owner and the driver. The owners set up this system because, as they are paid in cash, they cannot control the takings. The possible consequences of this system include drivers using aggressive tactics to attract as many passengers as possible, as well as dangerous driving and long working hours. In Manila, the majority of jeepney owners are very small businesses. 80% of owners have only one vehicle, and only 1% of owners have 10 vehicles or more vehicles (Kaenzig et al., 2020). In 2017, the Philippine government began to implement the Public Utility Vehicle Modernisation Program (PUVMP), which includes measures to help operators organised as cooperatives or corporations to transition to salaried employment.

Box 3. The introduction of salaried employment in the UTFA network in Dakar

During the programme to renew the minibus fleet (*Cars Rapides*) initiated in the 2000s by the *Conseil Exécutif des Transports Urbains de Dakar* (Dakar Urban Transport Executive Board), the introduction of (paper) ticketing within the *Association de Financement des Professionnels du Transport Urbain* (Dakar Urban Transport Financing Association, or UTFA) network made it possible to introduce salaried employment among paratransit operators. Revenues from ticket sales are paid back to the vehicle owner, who then redistributes these revenues. Drivers are salaried, receiving an average salary of FCFA 80,000 per month, plus a fixed daily bonus of FCFA 2,000 (for all drivers), and often a bonus based on profits earned. The fare collector is also paid by the owner, with a salary of approximately FCFA 60,000 per month. Only include drivers and conductors in the UTFA network receive salaries; the operators of other paratransit services are excluded. Nevertheless, UTFA services account for more than a third of public transport journeys.

Key points	Problem areas	Having drivers with different employment statuses (target system, salaries, etc.) within the same city can create strong differences, particularly when there are several overlapping modes of paratransit.
	Knock-on effects	Operators are sometimes reluctant to take up salaried work because they prefer to be paid daily. Salaried employment can be introduced in a flexible way, mainly by introducing a minimum monthly income for drivers, to be paid in daily instalments.
	Tools	Implementing contractual relationships is one way to improve working conditions for operators. In particular, phasing out the target system and introducing a ticketing system can allow for a better distribution of risk among the various stakeholders.

Table 4. Key points of contracting in the paratransit sector

How can the operating accounts of each stakeholder be restructured?

To assess commercial risk and gain a clear picture of the sector, we need to understand the operating accounts of the various stakeholders, making a distinction between owners and drivers. As an illustration, the table below gives an overview of the revenues and expenses to be taken into account under the target system.

Operating accounts are particularly difficult to reconstruct, not least due to the relative lack of financial transparency within the sector. There are, however, cases where operating accounts for drivers and owners have been reconstructed, such as those identified by the Global Labour Institute for Nairobi and Kampala.

The opacity of the sector's actual operating accounts is the result of the numerous – often conflicting – interests of the various stakeholders in the paratransit ecosystem. It is also due to the lack of traceability in the sector, particularly with respect to ticket revenue. Lastly, this opacity allows the various stakeholders to evade certain forms of taxation or to "make do" with the rules in force, whether it is the operators themselves who, more often than not, do not pay tax on their income, or the public authorities who may, on the contrary, impose unofficial levies. What's more, the difficulty in reconstructing operating accounts stems from operators' own poor knowledge of the sector.



Target system	Vehicle owner	Driver
Revenues	Daily rent for use of the vehicle	Income from ticket sales
Expenses	<ul style="list-style-type: none"> • Repayment of initial investment – or monthly loan instalments • Major maintenance and repairs • Purchase of a licence from a local authority • Taxes • Charges levied by associations • Insurance 	<ul style="list-style-type: none"> • Daily rent for use of the vehicle • Crew wages (where applicable) • Fuel • Station access charges or parking and security charges • Minor maintenance/repairs (as agreed) • Bribes and taxes, if any • Charges levied by associations • Insurance

Table 5. Elements for constructing operating accounts

Box 4. Setting up accounts in Madagascar

(Helluin & Rasolofojaona, 2019)

As part of the rolling stock renewal project initiated by the *Institut des Métiers de la Ville* (City Vocational Institute) in Madagascar, a preliminary effort consisted of reconstituting the operating accounts for the minibuses on line 119 (the pilot line for the project), as the owners could not provide precise figures, particularly with respect to revenue. The process was long and tedious, as two surveys had to be carried out. The first survey was contested by the drivers, who thought the results were wrong. However, the second survey showed similar results. In particular, they demonstrated that although the theoretical fare was 300 ariarys, the average revenue collected was just 264 ariarys because some passengers only paid 200 ariarys, believing this to be the normal fare for a short journey. This gave rise to an information campaign to make it clear that the single fare was 300. Finally, the operators on line 119 confirmed the data in an operating account based on their revenues and expenses.

Key points	Problem areas	<ul style="list-style-type: none"> • The construction of operating accounts is a process in which the operators themselves should take part – if possible in collaboration with the various stakeholders.
	Knock-on effects	<ul style="list-style-type: none"> • There are numerous knock-on effects resulting from the individual interests of each stakeholder, whether it be drivers' reluctance to share their daily takings under the <i>target system</i>, corrupt practices among local authorities, or discounts and credit offered to certain users. Working together in a collaborative process is one way to overcome these knock-on effects.
	Tools	<ul style="list-style-type: none"> • Estimating operating revenue and expenses is a crucial step in better understanding the sector and crafting reforms that are acceptable to operators (ideally, by demonstrating that they will ultimately benefit from the reform).

Table 6. Key points of operating accounts for paratransit

What impact do ticketing systems have on commercial risk?

The traceability of payments and financial relationships, the potential existence of intermediary stakeholders in the value chain, and the speed with which the various stakeholders receive their income – all depend on the ticketing system used. Ticketing and ticketing systems can therefore improve our knowledge of the sector’s economic model, allowing us to better understand the commercial risk.

The situation varies greatly from one city to another, and from one mode of transport to another. Ticketing is least advanced where there is no ticket office, where transactions are carried out from hand to hand, without receipts, making it impossible to track financial flows. In other cases, operators issue receipts or tickets on slips of paper, for example. This system makes it possible to estimate a minima the revenue generated and to count the number of passengers carried.

More sophisticated ticketing systems based on more efficient technologies have become more common over the last few years*; these include both card payments (NFC technology) and paperless payments (QR code, online payment). Using these new tools also means introducing new intermediaries into the sector’s economic model (banks, infrastructure providers, etc.). Given that these ticketing systems are helping to change operators’ business models, they can be accompanied by campaigns to raise awareness among operators, as well as training to make the tools easier to use. In Kigali, for example, payment cards, first introduced in 2015, have enabled cashless payment to become widespread, with more than 1.2 million users as of 2017. More generally, the introduction of cashless payment methods is manifesting itself in quite different ways, depending on the city and the paratransit service (Tinka & Behrens, 2019). However, it is important to distinguish between the ticketing system (which has a major impact on the sector’s economic model and therefore its operation) and the means of payment. In some cases, cashless payment methods may be used where no ticketing system has been implemented, which ultimately has only a limited impact on the operation of the sector.

	No ticketing system > little impact on paratransit operations	Introduction of a ticketing system > strong impact on paratransit operations
Cash payment	How traditional transport works	Example of Dakar: introduction of paper ticketing, cash payment maintained
Electronic payment	Example of Nairobi: no ticketing system but relatively widespread paperless payment (via MPESA in particular)	Example of Kigali: smart ticketing via the “Tap and Go” card and cashless payment.

Table 7. Payment methods for paratransit

* See SSATP publication “*Innovation in fare collection systems for public transport in African cities*”, 2021

Box 5. Cape Town’s first unsuccessful attempt to introduce dematerialized payment methods.

In 2010, an initial attempt to introduce paperless payment methods as part of the introduction of the new bus rapid transit service in Cape Town was unsuccessful. The local authorities, in partnership with a minibus association, identified a pilot route (the Sea Point route in Cape Town city centre) to test the use of cashless card payments known as Tap-i-fare. This ticketing innovation proved to be a failure, with most crews agreeing with passengers that they would continue to pay for their journey in cash, in exchange for a discounted fare. The crews feared the owners of the vehicles would discover the actual revenue generated each day by their vehicle.

Box 6. From tickets to ticketing systems in Dakar

In Dakar, the introduction of tickets as part of the minibus renewal project was particularly successful. They were introduced as part of a wider drive to formalise the sector through the creation of Economic Interest Groups (EIGs). A relatively simple system using paper tickets made it possible to ensure takings were traceable, in turn making it possible to transition to salaried employment. Inspectors were also deployed to check for fraud. The inspectors are employed by the Centre d’Appui à la Professionnalisation des Transports (Support Centre for the Professionalisation of Transport), known as CAPTRANS, which was set up under the minibus renewal programme to pool management of operations. Until recently, fares were paid exclusively in cash; for the last few years, however, cashless payment for UTFA bus fares has become more common, supported by several digital payment operators (Transpy, Amarante, Sudpay).

Key points	Problem areas	<ul style="list-style-type: none"> ● Tickets and ticketing systems should be introduced in consultation with the stakeholders, otherwise any such project will fail. ● An understanding of drivers’ incomes before the introduction of the ticketing system in order to be able to offer acceptable pay after the system is introduced
	Knock-on effects	<ul style="list-style-type: none"> ● By reducing the risk of financial misappropriation (corruption, racketeering, etc.), the introduction of a ticketing system can generate opposition from those who benefit from such misappropriation
	Tools	<ul style="list-style-type: none"> ● Ticketing and ticketing systems enable traceability in the sector, making it easier to manage commercial risk. ● Inexpensive ticketing systems can easily be introduced, such as paper tickets with stubs. More sophisticated systems are more complex to implement.

Table 8. Key points of ticketing systems



How is the sector regulated?

What are the trade-offs between stakeholders?

The paratransit ecosystem is characterised by the often-conflicting interests and objectives of its various stakeholders, particularly between operators (owners and drivers) on the one hand, and users and local authorities (who are supposed to represent users, but who also have an interest in receiving substantial income from the granting of licences) on the other. The degree of regulation (of licences, routes, or fares) thus reflects a trade-off between:

- The need to provide operators with security in order to guarantee them a minimum income and, in return, ask them to invest in improving the quality of service and/or limiting negative externalities (for example, by overhauling or replacing vehicles);
- The need to ensure a certain minimum level of competition to avoid monopolisation, to serve the whole city, and to keep prices low.

This is regulated both by public authorities (most often by the local authority) as well as internally, between the operators themselves, through professional organisations (cooperatives or unions).



What is the “comprehensive” model of regulation?

The logic of paratransit (that is, transit dominated by fragmented vehicle ownership, and therefore a multitude of private operators motivated by short-term economic profitability) is quite closely linked to a regulatory model based on granting licences and competition within the market – and ultimately little quantitative or qualitative regulation. A natural evolution is to move towards other, more formalised models, which involve formal invitations to tender (competition for the market), such as franchising to a group of operators or granting a concession to a company. The table below sets out the main characteristics, with each city having developed its own system to balance supply and demand.

Contractualisation is the most advanced stage in regulating the sector and regulating supply, and is reflective of an advanced degree of formalisation in the sector that goes beyond the scope of paratransit. Local authorities issue invitations to tender, to which operators respond, offering a range of services over a given period. Depending on the terms of the invitation to tender, the commercial risk falls more or less on the operators, depending on the compensation mechanisms (or lack thereof) proposed by the local authorities. This type of regulation often favoured in the context of “formal” BRT projects, was also chosen to directly regulate paratransit activity in Quito. The city has set up direct, individual contracts with paratransit operators without the need to set up an economic interest group or professional organisation. Prior to the BRT reform, operators were paid a minimum monthly wage but were required to adhere to working hours (Jennings & Behrens, 2017).

Element	Granting licences and/or operating permits directly to individuals	Granting a franchise (for a line or zone) to a group of operators	Granting a concession (generally for a package of lines) to a company “at its own risk”
Is there a formalised competition process for the market?	No – competition takes place within the market	Not necessarily	Yes
Is there any exclusivity on the route(s) concerned?	No	You must be a member of the group to operate on the line	Yes, for the duration of the concession
Do public authorities regulate the number of vehicles in a given area?	Rarely	It is operated by a group of operators	It is operated by the private operator (possibly based on targets set in the invitation to tender)
Is quality of service regulated by the public authorities?	Rarely	Possibly, associated with franchising	It is operated by the private operator (possibly based on targets set in the call for tenders)
COMMENTS AND EXAMPLES	Yaoundé	SACCO in Nairobi EIGs in Dakar	Example of Kigali: Three companies share the market; this is representative of an entrepreneurial logic, rather than small-scale paratransit.

Table 9. Selected characteristics of the various regulatory models*

Contractualisation is the most advanced stage in regulating the sector and regulating supply, and is reflective of an advanced degree of formalisation in the sector that goes beyond the scope of paratransit. Local authorities issue invitations to tender, to which operators respond, offering a range of services over a given period. Depending on the terms of the invitation to tender, the commercial risk falls more or less on the operators, depending on the compensation mechanisms (or lack thereof) proposed by the local authorities. This type of regulation often favoured in the context of “formal” BRT projects, was also chosen to directly regulate paratransit activity in Quito. The city has set up direct, individual contracts with paratransit operators without the need to set up an economic interest group or professional organisation. Prior to the BRT reform, operators were paid a minimum monthly wage but were required to adhere to working hours (Jennings & Behrens, 2017).

* In all cases, the local authority does not provide any subsidies.

How are licences distributed? (by whom and to whom)

Issuing licences is the first step towards regulating the paratransit sector. Two types of licence are generally granted:

- A vehicle licence, authorising a given vehicle to circulate.
- An operating licence (on a fixed route or within a certain territory, identified by zone or by one or more stations), which authorises one or more operators to provide a service within the given area and in accordance with a set of specifications.

There are three typical cases, depending on the degree of regulation of supply and demand regulation as well as the mechanism intended to ensure this balance (competition, public authority, or professional organisation)

Institution	The local authority's point of view	The operator's point of view	Comments
Free competition (= low regulation)	Grants a licence to "whoever wants one" and collects substantial revenue as a result	No barrier to entry, but fierce competition in the market	Too much competition -> unscrupulous and dangerous behaviour and poor quality of service
The local authority regulates quantity and quality	Sets the number of vehicles on a given route (numerus clausus) as well as minimum quality standards	Are relatively "protected"	Creation of a secondary market for licences Only works if properly enforced
Regulation by a third party – a professional association	Grants licences exclusively to structured organisations (for example, by setting a minimum number of vehicles)	Structure and organise themselves (cooperatives, professional associations) -> more power, but also additional costs	Self-regulation among peers; Can lead to mafia-like behaviour by professional organisations

Table 10. Stakeholders balancing supply and demand

Depending on the type of service and mode of transport, both licences are not always required. For example, in the case of on-demand transport such as motorbike taxis, often only a vehicle licence is required. In theory, in both cases, the licence is obtained and renewed if the operator complies with precise specifications, which may relate to vehicle maintenance or public service obligations concerning the quality of service (frequency, route, etc.). In some cities, a black market for licences is developing, particularly when individuals leave the sector and illegally resell their licences, which should theoretically be returned to the public authorities. In this case, it is important to know the resale price of a licence. Finally, by requiring licences, it is also possible to restrict the operation of vehicles to certain parts of the city, or even ban them altogether. In India, for example, rickshaws are not allowed in certain districts of Delhi, while in Ethiopia motorised two-wheelers are completely banned from the city of Addis Ababa. In Niamey, motorbike taxis are strictly prohibited; this is effectively enforced in the urban centre but not on the outskirts where there are no other alternatives. In other cases, a limited number of licences are granted per vehicle type or route according to a pre-identified optimal number.

Licences in the same urban area may be issued by one or more authorities. In Antananarivo, for example, licences are issued by the City of Antananarivo for its territory (with a population of approximately 1.5 million) and by a national government agency for the entire surrounding area (which is largely a continuation of the urban area, with a population of approximately 2 million). Licences are sometimes issued to vehicle owners, in some cases to professional organisations (more or less formally), or to third parties. This is the case, for example, in Agadir and Ouarzazate, Morocco, where the owners and/or drivers of large taxis (collective taxis) do not hold a licence in their own name, but rather the licence is held by a third party who then receives royalty income (Le Tellier, 2005). This complex system is designed to protect or reward certain individuals, with a licence being seen as a form of social insurance; however, it makes attempts to reform taxi services extremely complex. In Manila, by contrast, each owner or operator holds a licence for the vehicle and is responsible for ensuring that the service complies with the regulations imposed by the Land Transportation Franchising and Regulatory Board (LTFRB) and the local authorities. Operators are organised into three types: entrepreneur, cooperative, and corporation. However, since the introduction of the Public Utility Vehicle Modernisation Program (PUVMP) in 2017, new licences can only be issued for corporations and cooperatives, meaning that sole operators are eventually destined to disappear.

Box 7. Captured regulation in Niamey

In Niamey, the municipal authorities, which have sole responsibility for managing transport in the city, regulate access to the profession as well as the overall number of shared taxis by requiring operators to hold a public transport permit. In return for paying a quarterly tax, each taxi is issued with a licence and a registration number specific to the vehicle. In awarding this permit, the local authority, in consultation with the taxi unions and other stakeholders in the sector, also sets certain quality requirements, such as the fares charged for journeys within the city. According to Saidou (2014), the police carry out sufficiently frequent checks to deter unlicensed taxis or those charging fares in excess of those set by the authorities.

Officially, these public transport services are recognised by the national government, while the municipality is responsible for awarding the licences – a source of revenue for the city. In practice, however, the transport associations, which historically regulated the number of operators in the area, have taken this responsibility away from the municipality. Each quarter, the unions themselves take charge of this function, allocating or renewing licences according to their own interests. They collect the tax and redistribute some of the money to city hall. The unions are also known to distribute counterfeit permits, preventing the municipal authorities from knowing the true number of licences distributed in order to retain a more significant share of the income from these licences. What’s more, by bypassing the municipality, the unions hinder public action with respect to planning and quantitative regulation of transport services. Finally, although operators generally comply with the established fares, many user testimonies (Saidou, 2014) indicate that shared taxis charge higher fares at peak times or depending on the route.

Key points	Problem areas	<ul style="list-style-type: none"> • Licences must be issued according to precise specifications.
	Knock-on effects	<ul style="list-style-type: none"> • The mechanisms and procedures for obtaining licences have a strong influence on the balance of power between stakeholders in the sector.
	Tools	<ul style="list-style-type: none"> • Licences represent a tool for introducing quantitative and qualitative regulation of the sector.

Table 11. Key points on paratransit licenses

How are the routes determined?

Key points	Problem areas	<ul style="list-style-type: none"> The lack of control over operating areas often results in the overlapping routes along the most profitable corridors, at the expense of services to other districts.
	Knock-on effects	<ul style="list-style-type: none"> An overly rigid process for defining routes can limit the flexibility and adaptability of supply in response to possible variations in demand
	Tools	<ul style="list-style-type: none"> In theory, local authorities set the routes for operators in order to guarantee a certain minimum level of accessibility for city residents. Making it easier for operators to open new lines means that new districts can be served quickly.

Table 12. Key points of routes

In theory, where fixed routes exist, they are determined by operating licences, which specify the service area and conditions. In India, for example, “stage carriage permits” allow holders to pick up and drop off passengers along a given route.

New lines are often opened when operators identify potential demand. They apply to the local authorities and carry out a study to determine the line’s profitability. For example, in Bogotá, until the early 2000s, the operators’ associations themselves – being relatively well structured in the country – used to identify new service needs. To justify this, a representative of the association would collect a number of signatures from residents and users attesting the demand of transport. Once a sufficient number of signatures had been obtained, these were presented to the authorities, which decided how many licences would be granted on the line. The associations then distributed these authorisations to the operators.

From the local authority’s point of view, the main challenge is to ensure a minimum level of accessibility within the urban area so that not only the most lucrative routes are served. Some cities have decided to make licences conditional on operators accepting a “package” of lines. Operators are then obliged to serve both profitable routes and routes generating less revenue.



Box 8. In Hong Kong, a system for equalisation between lines

Regulation based on a system for equalisation between lines was introduced in Hong Kong in the 1970s (Jennings & Behrens, 2017) to facilitate complementarity with public transport (in particular the new metro service). To this end, the public authorities issue “Green Public Light Bus” licences to minibus owners, with each licence associated certain fixed routes. Some operating licences serve isolated areas where there is no public transport, while others back up or reinforce existing public transport lines. An equalisation system was introduced, bundling profitable and unprofitable routes into “packages”. The authorities also protect conventional public transport services by forcing the “Green Public Light Bus” network to charge fares that are 80% higher than those of public buses. They offer a more expensive service, but generally of better quality (speed, comfort, on-board services).

Box 9. In the Paris region, the development of shared taxis is supported by suburban municipalities (Passalacqua, 2010)

Born of the economic crisis and a lack of service in the suburbs, shared taxis in Paris appeared in the mid-1930s to offer commuters an efficient mobility service at a time when bus and tram services were not adapting quickly enough to changes in the city’s urban landscape. The process of urban sprawl on the outskirts of Paris that began in the early 1920s was not initially accompanied by an extension of the urban transport networks, while most residents of the new suburbs continued to work in central Paris.

Shared taxis were thus among the first mobility providers to position themselves in the suburbs. This offer filled a glaring gap in services, which explains their rapid success. It is estimated that 20 million passengers were carried by approximately 1,200 drivers in 1934, representing approximately 1% of the modal share of public transport that year (Flonneau, 2010).

The shared taxi system was particularly innovative, developing primarily thanks to its ability to adapt to existing transport systems. In effect, these taxis were grafted onto the bus and tram network, using the same stops, accepting the same tickets, and sometimes even making the same journeys. In so doing, they compensated for the weaknesses of the existing public services by lowering certain fares, reducing waiting times and, above all, allowing users to stop on demand.

Legally, the shared taxis were operating illegally. As they charged fares not based on a taximeter but per seat occupied, they were operating as public transport services and were therefore entirely illegal. By providing a public transport service, these operators were violating the monopoly granted by the Seine department to the *Société des Transports en Commun de la Région Parisienne* (Paris Regional Public Transport Company, or STCRP). STCRP, which was in financial difficulty at the time, opposed the development of these shared taxis, which were competing with its network. Although this competition was more symbolic than real, STCRP took legal action to put a stop to it. This resulted in a few symbolic court judgements that did not really hinder the cabbies’ activities. Several municipalities on the outskirts of Paris supported shared taxis as an immediate solution to the lack of public transport services in their area.

The taxi drivers obtained legal recognition in June 1939. Their fares were then regulated by the Police, an institution which has always been favourable to them, and they won permission to operate outside the STCRP’s existing lines. However, the Second World War brought these new mobility services to a halt.

How are fares set?

In principle, fares are set by the operators, who bear the commercial risk and provide a service at their own risk. However, in many situations, public authorities intervene to ensure that these services are accessible to most people, depending on considerations which may be of a political nature.

This intervention is sometimes indirect, in particular when the authorities offer operators discounted fuel in exchange for a freeze on the fares charged for paratransit services. Where public transport capacity exists, action is sometimes taken to limit competition between modes and ensure coordination between the various services – possibly even fare integration. This process is currently being considered in several African cities (Dakar, Abidjan, Cape Town, etc.), where the introduction of high-capacity transport services is being accompanied by a restructuring of the paratransit network to provide feeder services. The need to develop an integrated fare policy explains why these cities are also evaluating paratransit pricing.

Depending on the regulation in place, specific fare models may be introduced: zone-based fares in some cases, or line-based fares in others.

External factors also influence paratransit fares: the availability of currency, for example. Depending on the denominations of notes and coins in circulation, fares are set so that operators do not have to manage too much change.

Lastly, the fares charged may vary according to demand, in particular:

- Peak and off-peak times;
- Areas served (for example, certain neighbourhoods may be considered more dangerous);
- The weather (fares can rise in the event of rain and increased demand);
- Public holidays and religious events;
- Local festivals and sporting events.

In some cases, the fares set by the public authorities may be too low for operators to make a realistic profit. This may result from operators' poor understanding of their own operating accounts and in particular of hidden costs (see below). In this case, the official fares are often not respected.

Key points	Problem areas	<ul style="list-style-type: none"> ● Paratransit fares are a political issue, not least because these modes of transport represent a significant modal share in many cities. ● When public authorities set maximum fares, they need to understand operators' actual revenues and expenses in order to ensure that the latter can achieve a realistic margin.
	Knock-on effects	<ul style="list-style-type: none"> ● Fares have an impact on paratransit's role in the mobility system when a higher-capacity mode exists, either as a competing or a complementary service.
	Tools	<ul style="list-style-type: none"> ● Depending on the regulations in place, local authorities may intervene in setting fares, in particular by providing subsidies or other relief to operators.

Table 13. Key points on paratransit fares

How is the system enforced? What happens when regulatory measures are not respected?

In many cities, paratransit legislation exists but is not enforced. One indicator for measuring enforcement is the number of licences withdrawn each year for non-fulfilment of the specifications. Very often, the failure to implement legislation stems from a lack of human and financial resources on the part of local authorities.

When enforcing regulations, we must also consider whether it is fair and in the public interest. In some cases, over-regulation can lead to the disappearance or deterioration of services, which can be detrimental to local / communities. In Vietnam, the government introduced a series of measures in the 1980s aimed at protecting the public transport service by imposing particularly strict and difficult conditions for entering the public transport market. In particular, only companies or cooperatives with a fleet of at least 100 vehicles were allowed to operate. Though these measures certainly curbed the development of paratransit services, they also made it difficult to maintain public transport services, which led to a general decline in available transport.

The enforcement of regulations can also give rise to informal practices on the part of representatives of public authorities. Technical inspections are sometimes an opportunity to extort money from vehicle owners, who must pay a bribe to renew their licences.

Key points	Problem areas	<ul style="list-style-type: none"> Proposals for new regulations must be presented and discussed in advance with industry representatives to ensure that they are feasible and to prevent any possible knock-on effects Once a regulatory framework for paratransit has been established, we need to ensure that it is implemented, in particular by allocating the necessary human and financial resources.
	Knock-on effects	<ul style="list-style-type: none"> The regulatory framework must be established and enforced in a "fair" way, that is, considering the general public interest, otherwise services risk disappearing.
	Tools	<ul style="list-style-type: none"> Internal control measures can be put in place to verify that procedures are correctly enforced by employees and representatives of public authorities.

Table 14. Key points on paratransit regulations

Box 10. Motorbike taxis in Lomé: detailed yet unenforced regulation

(Louis Berger, 2020)

The operating conditions for motorbike taxis in Lomé are governed by an inter-ministerial decree dated 4 January 1996. This decree specifies in particular that:

- the activity is subject to an authorisation issued by the Ministry of Transport after consultation with a technical committee and an opinion from the Minister of the Interior,
- services are limited to the urban area;
- the authorisation must be renewed yearly;
- the renewal is subject to payment of a fee and presentation of a tax receipt;
- a technical inspection must be carried out prior to operation, followed by quarterly inspections;
- the vehicle must be painted yellow for identification purposes, with yellow plates and an identification number;
- the driver must wear a numbered blue jackets;
- the fares are set by the Minister of Transport;
- helmets must be worn by all passengers;
- Certain thoroughfares may be off-limits to operators;

While these authorisation procedures would seem to be a deterrent, this regulatory framework (or at least some of it) is unenforceable. In any case, it is not enforced, with observers generally agreeing on the following facts:

- Authorisations are not applied;
- Very few technical inspections are carried out;
- Drivers do wear helmets;
- Passengers are not required to wear helmets at all;
- after the first year (when they are required to register the motorbike), the insurance policies are not renewed;
- fares are negotiated;
- Vehicles are not identified by a yellow plate;
- Drivers do not wear numbered blue jackets.

The planned system for authorisations, including annual renewal and quarterly technical inspections, seems unworkable, both from the perspective of those providing motorbike taxi services and from that of the authorities responsible for managing these measures.



Are there collective management rules within the profession?

What are the trade-offs between stakeholders?

Efficient operation means that the stakeholders sometimes have to agree on “scheduling” or “turns”, parking rules, and the management of shared facilities such as stations, depots, and maintenance workshops. The trade-offs here are between the “big” operators, who are in a dominant position and can afford the equipment, and the small operators, who are dependent on the others; professional third parties (associations or private investors) may intervene to guarantee fairness, while local authorities may take action where it concerns public spaces, or where the quality of service needs to be defined (particularly at stations).

Who manages the scheduling, i.e., a “fleet” of multiple operators on the same line?

In addition to regulation by public authorities, there are internal regulatory mechanisms within the paratransit sector. Indeed, limiting the number of vehicles operating on a given line or in a given zone, managing services, and scheduling vehicles are part of the *raison d'être* of professional organisations. In effect, this represents a minimum level of “resource pooling” among operators.

Here again, depending on local circumstances, there is a continuum of possible situations. In some cities, operations are managed on a “first come, first served” basis, where operators organise the rota according to when each driver arrives each day, and on a “fill & go” basis. More elaborate systems are set up when resource pooling – via professional organisations – makes it possible to employ a scheduler, who sets the departure times of each driver according to their attendance and availability. However, without vehicle tracking tools, fleet management is often not optimised.

Box 11. In Tanzania, the dominant role of professional organisations in fleet management and the operation of the paratransit sector

(Heinrichs et al., 2017)

In Dar es Salaam, motorbike taxis are grouped together in camps (called “schimos”) where they park while waiting for a customer to come to solicit their services. Positioned at strategic crossroads, these camps are set up spontaneously by groups of motorbike taxis, usually by co-optation. These camps have become veritable economic and political groups whose members must abide by certain rules, such as waiting one’s turn, returning to the camp at the end of each run, and respecting collectively defined routes and fares. The camps are sometimes organised based on informal and oral rules, as well as on more formal rules. For example, some groups officially exist as an association, defining their operations by drawing up articles of association and electing executives. A chairman, treasurer, and secretary are often responsible for the association’s administrative management. Some associations also work to resolve conflicts that arise between drivers or with customers and local authorities. In order to obtain an operating licence, a motorbike taxi driver must inform the camp to which they are affiliated in order to be allocated a zone and routes on which they are officially authorised to carry passengers. The camps, which were initially self-managed, are now at the heart of paratransit regulation.

Key points	Problem areas	<ul style="list-style-type: none"> ● Possible abuse of power by associations
	Knock-on effects	<ul style="list-style-type: none"> ● The lack of optimisation in fleet management and operations results in negative externalities, both in terms of working conditions for operators and quality of service.
	Tools	<ul style="list-style-type: none"> ● The “fill & go” system and the organisation of operations on a “first come, first served” basis are still commonly applied fleet management principles. There is room for improvement, and performance can easily be enhanced.

Table 15. Key points on collective management of paratransit



Training: who pays for operator training?

For drivers, training may be required to obtain a licence. This ensures that drivers are technically competent and introduces standards for safety, operations management, and the use of tools. This training can be provided by local authorities, particularly the Transport or Mobility Organising Authority, where such exists. This is the case in Dakar, where the *Conseil Exécutif des Transports Urbains de Dakar* (Dakar Urban Transport Executive Board) is supporting the professional integration of members of the *Association de Financement des Professionnels du Transport Urbain* (Dakar Urban Transport Financing Association, representing the paratransit sector) through training programmes on safety, for example. When implementing major transport projects, such training can be financed by the project or developed as part of it. This was the case, for example, in the implementation of Phase 1 of the BRT in Cape Town, during which several dozen representatives of the minibus sector underwent training co-sponsored by the City of Cape Town and the University of Cape Town (Schalekamp, 2017). A similar principle was developed as part of the Public Utility Vehicle Modernization Program project in the Philippines: certain vehicle owners benefited from capacity-building activities on the sector's economic model as well as vehicle operation and maintenance.

Key points	Problem areas	<ul style="list-style-type: none"> The content of the training must be consistent with the regulatory framework.
	Knock-on effects	<ul style="list-style-type: none"> Training courses must be relatively widely accessible in order to prevent capacity-building activities from being concentrated on just one part of the profession and to ensure that there is no exclusivity in exchanges with public authorities.
	Tools	<ul style="list-style-type: none"> Operators may be required to undergo training as a condition of obtaining a licence. This training covers both the safety conditions that must be respected, and the level of service expected. It may be provided by local authorities, with their own funding or as part of a transport project.

Table 16. Key points on operator training

How are the stations and parking facilities organised?

In many cases, stations and parking facilities are focal points in paratransit organisation and serve as a base for professional organisations. As everywhere, there is a varied typology: in some cases, these spaces are hardly distinguishable from normal parking spaces; in others, they are marked in a rather perfunctory fashion (with signs, and platforms); finally, proper stations are often the markers of organised cooperatives or lines. This infrastructure is sometimes built and developed by public authorities; in other cases, it is the work of operators and professional organisations. As a result, several issues need to be addressed:

In design terms:

Combining the needs of operators with proper intermodal transport management, integration into the urban landscape, and standard amenities such as sheltered toilets or waiting areas, as well as clear passenger information. In the context of urban space, paratransit stations are the source of a great deal of traffic. Moreover, many commercial services often develop close to transport hubs. The development of multimodal interchanges helps to improve traffic flow in their vicinities and to improve conditions for passengers.

Ultimately, the emphasis should be on collaborative development involving both operators and public authorities to consider all these functions.

In operational terms:

- to ensure the sustainability of public facilities. When the management of these facilities is neglected, it can lead to additional public expenditures; conversely, the maintenance and development of these facilities can be a source of income for local authorities. In addition, proper management of public facilities has a positive impact on operators' business models and the quality of their services and helps improve conditions for users.

- ensure paratransit operations are democratic. Stations and parking facilities play an important role in paratransit operations, as they are places where passengers are concentrated and where a large proportion of the available revenue can be captured. It is therefore necessary to ensure that these facilities operate transparently, both in terms of operator access and the distribution of users. An operator may, for example, be recruited by the public authorities to manage the bus stations for a given period based on specifications set out by the public authority.

Box 12. Bus stations: a basic tool for paratransit regulation in Ghana (Burchardt, 2015)

Trotros are the minibuses that dominate the Ghanaian public transport market, with a 70% modal share of motorised transport. At the heart of this system, bus stations are a central element in the regulatory system. There is a great amount of bus stations in Ghana, and they are managed by Unions organised around monopolies on certain routes.

To operate, paratransit providers must first obtain a business licence, which is generally easy to obtain from the public authorities. The second step is to gain access to a bus station. To do so, operators must join the union responsible for managing the station and pay a fixed fee. They can then start their journey at the station and return there at the end. The station managers, paid by the unions, are responsible for distributing customers among the operators, who can only start their journey once their vehicle is full. This process reduces competition between operators, who can only wait their turn. Fares are set by the unions in consultation with the government.

Thanks to this station management-based regulatory system, the *trotros* are therefore almost entirely self-managed. Even though the government allocates licences and collects taxes from the unions, it is difficult for the authorities to have a precise idea of the number of operators or how they operate. Since the 2000s, the government has been trying to take control of the sector, aiming to reduce congestion and pollution and improve road safety by developing a network of high-capacity buses operated by a public company.

Key points	Problem areas	<ul style="list-style-type: none"> These areas must be integrated and developed to prevent accidents and congestion in the urban environment.
	Knock-on effects	<ul style="list-style-type: none"> The operators responsible for managing stations and parking facilities potentially have significant power over the functioning of the sector and the distribution of income. One possible knock-on effect to be avoided is a dominant – even abusive – position of the operators responsible for managing stations and parking facilities with respect to the functioning of the sector.
	Tools	<ul style="list-style-type: none"> Stations and parking facilities are essential to the operation of the paratransit sector. Basic amenities such as toilets and sheltered waiting areas improve the travel experience for users. Developing these spaces in a collaborative manner represents a tool for implementing infrastructure and facilities adapted for use by as many people as possible and makes it easier for the stakeholders involved to take responsibility for their upkeep.

Table 17. Key points about stations and parking facilities

Is there a charge for these public facilities?

The provision and maintenance of public facilities are financed by the collection of taxes and access fees by the public authorities and sometimes by professional organisations. These taxes and fees often represent a sore point between operators and local authorities, with the former seeking to be taxed as little as possible. In some cases, the management of these facilities is entrusted to a private company, as in the case of stations in the Dakar city centre (Lombard et al., 2004). At other stations, the local councils collect revenue in the form of parking charges.

Other sources of revenue can be identified, such as advertising placements. This system has been introduced in Antananarivo.

Key points	Problem areas	<ul style="list-style-type: none"> As with the introduction of any taxes, raising awareness among taxpayers is essential to let them understand the benefits.
	Knock-on effects	<ul style="list-style-type: none"> The introduction of station access fees must be offset by additional revenue (or reduced expenses) in operators' accounts and can therefore lead to higher fares or lower quality of service
	Tools	<ul style="list-style-type: none"> The management and maintenance of stations and parking facilities require sources of income. These may be comprised of access fees levied on operators and/or professional organisations, as well as external sources such as advertising revenue.

Table 18. Key points on financing public facilities in paratransit



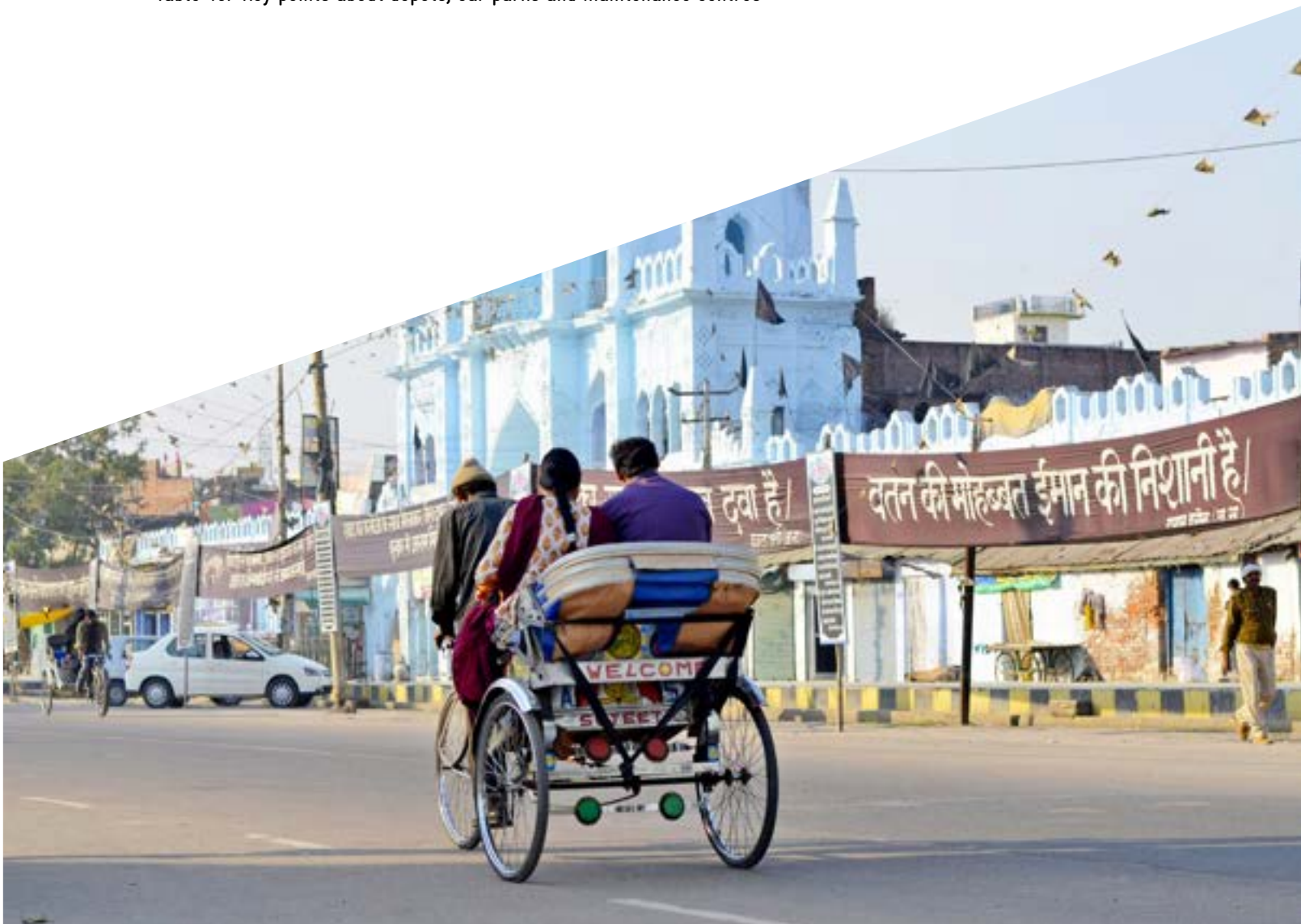
Are there any depots, parking facilities, or maintenance centres?

The existence of deposits, parking facilities, and maintenance centres corresponds to a relatively high degree of resource pooling between operators and to an advanced degree of formalisation. However, the implementation of these facilities represents a tool for:

- Optimising fleet operations by rationalising routes and improving vehicle safety;
- Improving working conditions for operators by facilitating access to services (vehicle surveillance, repairs, and maintenance) and by sharing costs;
- Facilitating access to related professions, such as mechanics, scrap dealers, and fuel suppliers.

Key points	Problem areas	<ul style="list-style-type: none"> • It may be necessary to specify the access conditions for these facilities, both for operators and for related professions.
	Knock-on effects	<ul style="list-style-type: none"> • The operators responsible for managing the depots, parking facilities, or maintenance centres potentially have significant power over the functioning of the sector. The potentially dominant – even abusive – position of these operators represents a knock-on effect that needs to be avoided.
	Tools	<ul style="list-style-type: none"> • The creation of facilities such as maintenance centres and depots is essential to support the professional integration of paratransit services. • These facilities represent a tool for optimising vehicle operations and improving working conditions for operators.

Table 19. Key points about depots, car parks and maintenance centres





What role do users play?

What are the trade-offs between stakeholders?

Paratransit is a general public service provided by private operators, whose primary objective is to generate profits, often at the expense of quality of service. This situation is exacerbated in cities where a large proportion of the population is dependent on these services on a daily basis. If we are to move towards more accessible and inclusive mobility systems, we need to take greater account of users.

What is the sociology of users?

Depending on the context, paratransit services are not aimed at one single socio-economic category of users.

In some towns, paratransit services are aimed at the poorest households, particularly where there are no other transport alternatives. In other cases, paratransit services cater to the middle class. This is often the case when paratransit fares are already too high for the poorest households. This is particularly true in Kenya, where 65% of adults in Nairobi could not afford to use a matatu on a daily basis (Salon & Gulyani, 2010) and where, in fact, walking remains the predominant mode of travel, even over long distances (walking accounts for 40% of the modal share, with half of all journeys on foot being over 9 km^{*}). This may also be the case in cities where there are higher capacity, subsidised modes offering more accessible pricing (or even social rates). This is the case, for example, in South Africa, where the poorest households use the train, whose fares are more accessible (Clark & Crous, 2002). In some cases, premium paratransit services are being developed, demonstrating the existence of a very specific market segment. This is the case, for example, in Madagascar, where premium minibus services have been deployed on a number of routes since 2021, as well as in South-East Asia.

* Feasibility Study and Technical Assistance for MRTS in the Nairobi Metropolitan Region, AFDB, 2011

As well as income being the primary determinant of user sociology, cultural factors also play a part in whether or not people use paratransit services. These cultural factors may be political, ethnic, historical or religious, depending on the population group and the local context. Finally, in some cases, the use of paratransit services linked to gender issues, as in Niamey, where the close proximity between men and women in public transport vehicles means that some women refuse to use them.

Key points	Problem areas	<ul style="list-style-type: none"> Paratransit is aimed at different categories of people. While income is often one of the main determining factors, other, more complex factors linked to the local context also need to be considered.
	Knock-on effects	<ul style="list-style-type: none"> Paratransit is part of a mobility system offering multiple modal options. A change in the paratransit supply, particularly in terms of fares, changes the relative attractiveness of paratransit within this system and can therefore have a significant impact on the relative attractiveness of other modes.
	Tools	<ul style="list-style-type: none"> A better understanding of demand by operators and users would help services evolve towards greater accessibility and inclusiveness.

Table 20. Key points about paratransit users

What are users' attitudes toward the introduction of new technologies?

How new tools and technologies are used in the paratransit sector depends very much on the user. Among these new tools, the use of cashless payment methods represents a considerable change. These payment methods offer a major security advantage, as users do not need to carry cash with them when they travel. However, users' practices depend largely on the socio-cultural context. In India, for example, as in several African countries, digital platforms such as Ola, Uber, and Taxify have been quick to introduce a cash payment option, as many users do not have a bank account or prefer to use cash. In Kenya, where mobile payment via mobile phone – not necessarily a smartphone – is widespread (using the MPESA system in particular), cashless payment is commonly used in matatus, with users transferring fares directly from their mobile payment account to the drivers'.

With the introduction of these digital tools (cashless payment methods, aggregator platforms) some passengers are using transport services to which they did not have access before or which were more difficult to access. Conversely, the need to have access to a smartphone and mobile data service represents a barrier for certain tools.

Key points	Problem areas	<ul style="list-style-type: none"> These tools cannot be generalised, as they do not correspond to the social and cultural practices of the population as a whole.
	Knock-on effects	<ul style="list-style-type: none"> The use and mastery of these tools still comes up against highly differentiated access conditions among users (access to a smartphone, to data service, mastery of the tools, etc.).
	Tools	<ul style="list-style-type: none"> The use of digital tools and new technologies brings new solutions for users, particularly with regard to payment.

Table 21. Key points about users' attitudes to new technologies

Do passengers have access to clear, reliable information?

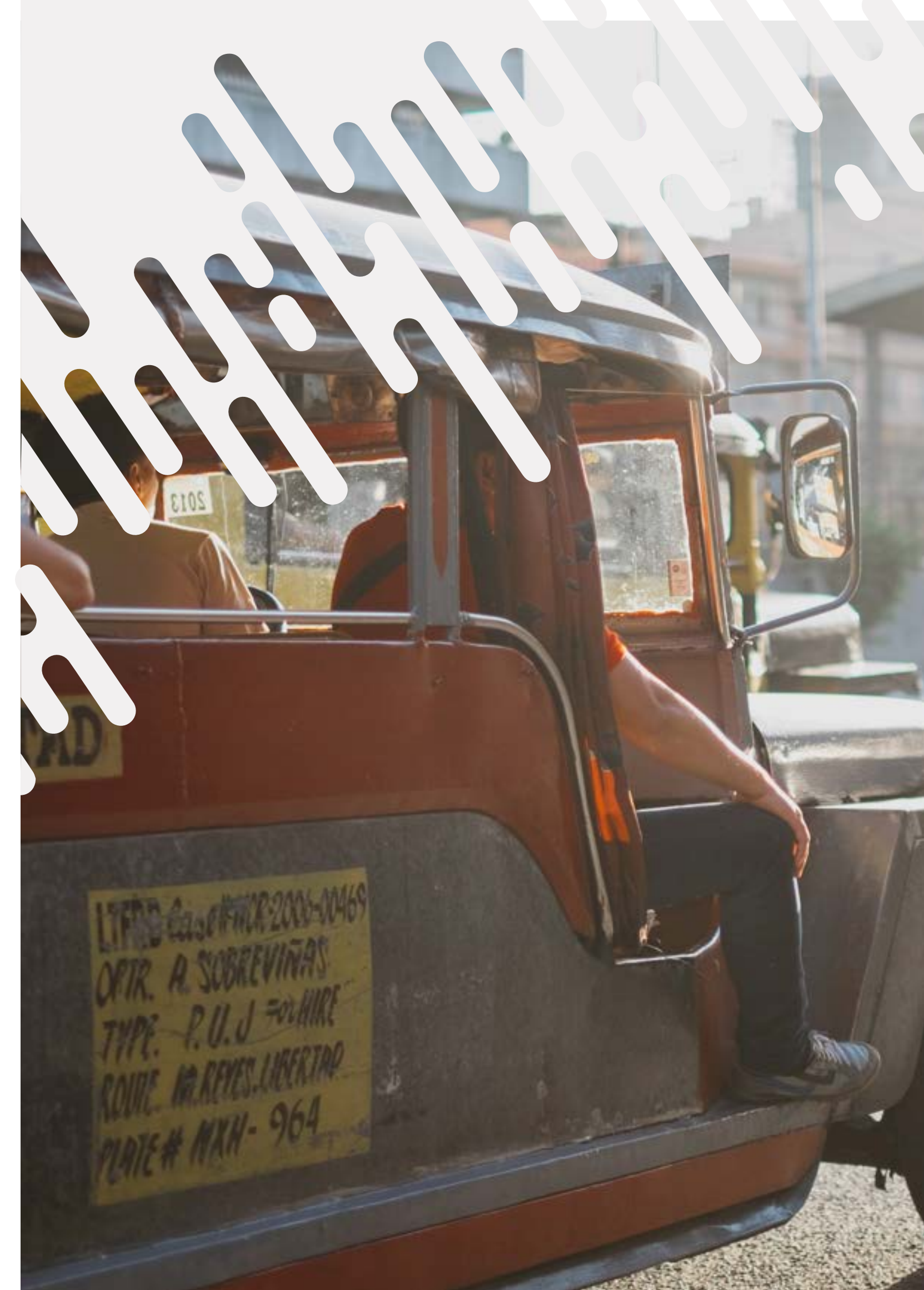
It's not always easy for users to understand what's on offer in the paratransit sector – that's why it's sometimes called "insider transport", as it might be difficult for new or occasional users to find out what's available. It is also important to understand how users find their way around in terms of the types of services available, routes, fares charged, level of service, etc. The introduction of passenger information systems makes a significant contribution to improving travel conditions for users, and more generally enables all stakeholders (other operators, public authorities, investors, etc.) to better understand what is on offer and therefore to optimise their travel choices. Where it does not exist or is not accessible to everyone (for example, via maps, timetables, or a website), passenger information may constitute an important tool in facilitating a modal shift towards paratransit.

To be as accessible as possible, information should come from multiple sources. Information provided by operators and professional organisations can be the first source, though also the most sensitive and the most difficult to obtain, as operators do not always wish to share their exact itinerary. Local authorities can also share certain information, such as the locations of stops and stations. Other stakeholders can also play a role in this area, such as private companies and universities. For several years, there has been a proliferation of projects aiming to map paratransit networks, supported by specialist companies (Jungle Bus, Go Metro, Where Is My Transport, Transport For Cairo), researchers (Digital Matatus), and funding agencies*.

Key points	Problem areas	<ul style="list-style-type: none"> As the services offered can change quite frequently, passenger information must also be able to change quickly, and at low cost
	Knock-on effects	<ul style="list-style-type: none"> Passenger information is mainly based on information provided by operators. When operators are reluctant to provide this information, it is important to explain that sharing this information can lead to an increase in paratransit use.
	Tools	<ul style="list-style-type: none"> By providing passenger information, we can improve travel conditions for users and facilitate a modal shift among those previously unfamiliar with the operation of paratransit services. Network mapping, facilitated by the emergence of specialised companies and university partnerships, is a key element in the development of traveller information.

Table 22. Key points about passenger information on paratransit

* On this point, see the Digital Transport 4 Africa portal, built on the initiative of the AFD: <https://digitaltransport4africa.org/fr/>



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What are the sector's hidden inefficiencies and costs? What costs are not currently covered by the system?

The paratransit sector involves numerous costs that are not always easy for external stakeholders – or sometimes for the operators themselves – to identify. To conclude a comprehensive diagnosis of the sector, we must identify the inefficiencies in the system, with a view to optimising certain expenses and allocating certain financial flows and human resources more effectively. To do that, we need a global understanding of the sector, including all the stakeholders and factors that have an impact on service quality and dynamics.

What are the system's inefficiencies?

Here, the aim is to identify the costs that are part of the current paratransit system and that add to the traditional operating costs of a transport system. These are mainly:

- additional costs linked to technical inefficiencies:
 - operating inefficiency;
 - additional costs linked to the poor condition of vehicles;
- high financing costs
- corruption, racketeering:
 - corrupt practices by the police and public authorities;
 - racketeering practices by associations;

Key points	Knock-on effects	<ul style="list-style-type: none"> High levels of corruption lead to higher fares and/or poorer quality of service, which can result in some users shifting to other modes of transport.
	Tools	<ul style="list-style-type: none"> Sharing information on vehicle use and operating accounts can help improve service quality by limiting corruption and facilitating more effective management.

Table 23. Key points about inefficiencies of paratransit

What costs are currently not covered by the system and should be anticipated?

In contrast to the “extra costs” generated by inefficient management, the paratransit sector’s economic model is also based on “sub-costs” that need to be identified and developed as part of any project to reform the sector.

In particular, these sub-costs relate to:

- poor vehicle servicing and maintenance;
- working conditions and the underpayment of the workforce (drivers, as well as crews and related trades such as mechanics, scrap merchants, etc.), as well as the lack of social insurance coverage for operators;
- the absence of taxation in the sector.

Box 13. Reforming paratransit: complex investments for public authorities

In the Philippines, the PUVMP programme demonstrated the price increases associated with vehicle modernisation. Moving from a target system to a salaried system means paying taxes and social insurance contributions, which makes operators reluctant to take part in this modernisation scheme. In addition, investment in a new vehicle rises from PHP 675,000 for a conventional diesel vehicle to an average of PHP 2 million for a vehicle complying with Euro-4 standards. It is estimated that only 10% of the affected operators can afford an electric *jeepney*. Though loans are available, many are not able to repay them. The traditional seven-year repayment period is considered too short, but it is difficult to extend the term for a vehicle that will only be used for approximately fifteen years. However, the government has begun financing vehicle manufacturers through a programme to revitalise the automotive industry in the Philippines.

Key points	Problem areas	<ul style="list-style-type: none"> The current economic model for paratransit does not take into account (or underestimates) certain costs. Improving working conditions for operators and enhancing the quality of service therefore involves additional expenditures, particularly on vehicle maintenance, operator remuneration, and social insurance coverage.
	Tools	<ul style="list-style-type: none"> Pooling resources among operators can help reduce these costs.

Table 24. Key points on costs not covered by the system

External cost factors

Here, the aim is to anticipate the costs associated with the stakeholders in the wider ecosystem, which are highly variable over time. Energy is the biggest expense for operators, and this is highly dependent on the type of fuel required, as well as the local production available.

The presence or absence of local automotive manufacturers has an influence on the cost of vehicles but also on the quality of maintenance available (trained technicians and the availability of spare parts). In Africa, for example, only Morocco and South Africa have an automotive industry, which largely explains the continent's dependence on imported vehicles, primarily from Europe and Asia. In Asia, the existence of a dynamic automotive sector also explains the rapid spread of motorised vehicles, particularly two-wheelers.

The environment in which insurance companies operate is also a factor, as in some cases they refuse to cover paratransit activities.

Finally, the existence of universities, training centres, networks of experts, and a rich entrepreneurial fabric are all conducive to the development of local solutions and the creation of an ecosystem open to innovation.

Key points	Problem areas	<ul style="list-style-type: none"> Both local and global factors need to be considered when assessing the sector's economic model, particularly the price of energy.
	Knock-on effects	<ul style="list-style-type: none"> Negative exogenous factors (the cost of energy, spare parts, and insurance premiums) are often significant in areas where there is a high dependence on paratransit.
	Tools	<ul style="list-style-type: none"> Public intervention can be envisaged to regulate certain exogenous factors and to stimulate the local ecosystem of stakeholders.

Table 25. Key points on external cost factors

Conclusion: what comes after the diagnosis?

Today, there are few cities that still consider informal, small-scale, even “clandestine” transport to be no more than a nuisance to be done away with. Most stakeholders now agree that this form of transport – often the only form of public transport available – represents both an asset in terms of mobility and an essential provider of jobs and economic activity. The challenge now, with often limited means of action and control, is to ensure that the positive aspects of these activities flourish while simultaneously containing, or even reducing, their negative aspects. There are many ways to achieve this, lying at the crossroads of transport, social, and economic issues. However, they all have one thing in common: the need for detailed, impartial, and comprehensive knowledge of the local conditions in which these activities are conducted. The conditions of acceptability on the part of operators, the priorities determined by the public authorities, and even their desire to change the situation to a greater or lesser extent are specific to each context.

With this in mind, a paratransit diagnosis is an essential prerequisite for any sector reform or, more generally, of the urban mobility system. This diagnosis should not be limited to an inventory of paratransit supply and use, but provide an in-depth understanding of the paratransit ecosystem, and in particular of all the stakeholders in the sector, their strengths and weaknesses, and the financial and decision-making relationships linking these stakeholders.

The diagnosis should conclude by:

- identifying **the tools** with which public authorities can and should act as a matter of priority in order to integrate paratransit into the overall public transport system and reduce negative externalities. In particular, these levers need to be identified in **financial terms**: what are the inefficiencies and hidden costs? What costs not covered do you anticipate? What are the external cost factors?
- identifying possible obstacles and bottlenecks, and in particular the **conditions under which regulatory measures would be acceptable to operators**,
- proposing an initial list of **priority objectives** that the Organising Authority can set itself.

Based on the results of the diagnosis and the analysis of the strengths and weaknesses of the paratransit sector, the stakeholders involved can envisage the general direction for reform and the main actions to be implemented. The purpose of the third tool in the MobiliseYourCity Paratransit toolkit, **“Reforming paratransit – A catalogue of practical actions”**, is specifically designed to provide practical examples of actions that can be implemented as part of such a reform.

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Appendix 1: Diagnostic sources

To conduct a diagnosis, that is, an assessment of the current situation, you will need to gather information. Identifying the sources from which you can collect this information is an essential preliminary step before the diagnosis itself.

The main diagnostic sources can be summarised as follows:

Diagnostic components	Interviews	Surveys and fieldwork	Data
Service	<ul style="list-style-type: none"> Interviews with drivers at transit hubs Interviews with companies or professional organisations, if such exist 	<ul style="list-style-type: none"> GPS tracking data Surveys and counts at transit hubs and on-board vehicles Identification and description of transit hubs 	<ul style="list-style-type: none"> Licensing/permit database (public authorities)
Usage	<ul style="list-style-type: none"> Interviews with drivers at transit hubs Interviews with companies or professional organisations, if such exist 	<ul style="list-style-type: none"> Surveys and counts at transit hubs and on-board vehicles Passenger surveys 	<ul style="list-style-type: none"> Household travel surveys
Business model	<ul style="list-style-type: none"> Interviews with drivers, owners, professional organisations, and companies: pricing, cost structure, remuneration method, developments, etc. 		<ul style="list-style-type: none"> Fuel price indices
Structures: internal and external	<ul style="list-style-type: none"> Interviews with the supervisory authorities (State, municipalities, etc.) Interviews with drivers, owners, professional organisations, and companies 		<ul style="list-style-type: none"> Conventions, laws, and regulations Licence/authorisation database

Like most diagnostic studies, the paratransit diagnosis is based on the analysis and synthesis of three main sources:

Pre-existing documentary sources:

These are numerous and come from a variety of sources. They can be classified into four main families:

- Previous studies and documents.** Firstly, you will need to check whether there are any previous studies or expert reports on the subject. You can also collect any documents, analyses, and studies that can help explain the context, explore certain aspects of the subject in greater depth, or define the preliminary intentions of the public authorities, for example, through programme or planning documents.
- The media and social networks.** Browsing local media websites can often be a very informative way of quickly understanding how people feel about an issue. They can also provide information on recent actions or plans on the part of the public authorities, which can help you prepare for interviews. Identifying a few hashtags on Twitter or Instagram can also help shed light on a subject (though it is important to exercise caution).
- Legislative and regulatory texts.** Collecting and analysing the laws and regulations relating to transport in general, and paratransit in particular, should be one of the first steps in the diagnosis; this will help you better understand the organisational framework as well as the gap – if any – which exists between the legal framework and reality.

4.4 Conducting a paratransit diagnosis

- **“Raw” data.** These will inevitably be passed on by local contacts. They may be, for example, lists of licences issued, demographic data, statistics on fuel prices, or even raw data from previous household surveys (particularly if the city has already been the subject of a Sustainable Urban Mobility Plan and has carried out such a survey).

Interviews:

Here too, there are three types:

- **Institutional stakeholders** (civil servants and elected representatives) can give their perspective on the problem, offer direction, and perhaps also suggest other local stakeholders you should meet.
- **Stakeholders on the ground:** trade unions, bus station managers, police, etc., can provide a range of viewpoints on the problems faced by paratransit.
- One of the particular characteristics of the paratransit diagnosis is that it is essential to get as close as possible to ground level, that is, to the **operators** themselves, as well as the drivers. In-depth interviews with a number of operators will provide insight into these professionals and their day-to-day lives. Above all, they are the best – if not the only – way of gathering the information needed to reconstruct the operating accounts of a typical vehicle owner and a typical driver (if the two are separate).

These interviews can be conducted face-to-face or in small or large groups. Depending on the case, it may be useful to set up working groups, diagnostic workshops, round tables, etc., using participation management methods, and in particular to encourage dialogue between divergent opinions. In other cases, however, it may be necessary to prioritise face-to-face contact, as some people may only be able to communicate on a one-on-one basis. It is up to the consultants to determine, based on their initial analysis of the stakeholders involved, the most appropriate mix of the various possible methods. In any case, individual meetings with a number of operators are essential.

In this, it is essential to remember that **each stakeholder will probably seek to present his situation in the manner most favourable to his interests.** In particular, reconstructing the costs and revenues of the paratransit system may prove to be a complex exercise, as it will be based almost entirely on information provided by operators (or organisations thereof), who will obviously tend to maximise their costs and underestimate their revenues. Only by comparing and cross-checking perspectives can consultants assess the reliability of the information collected and formulate plausible hypotheses.

Surveys and field observations

In a context where data is generally scarce and not always particularly reliable, only field analysis can provide information that is relatively objective. As there are a wide range of actions that can be taken in this area, what follows is not exhaustive. They can be divided into three groups:

- **Field observations.** Of course, observing the operation of a transit hub over a sufficiently long period of time, talking to operators, customers, shopkeepers or mechanics, putting together a photo or video report, taking one or more trips as an ordinary customer – these are all essential first steps.
- **Surveys specific to paratransit:**
 - structured surveys of GPS tracking data to map the network. In most cases, these are systematic surveys involving GPS-equipped surveyors who criss-cross the urban area in their vehicles. In other cases, data is collected with the assistance of passengers or operators, often using crowdsourcing sites. The advantage of this method is that the data can be updated automatically, unlike GPS surveys carried out by surveyors, which require regular fieldwork to update the data. However, when using crowdsourcing, a critical threshold of users and contributors is required for the data collected to be reliable and representative. Systematic surveys using GPS-equipped surveyors were successfully carried out in Accra (Accra Mobile: <https://smartcity-guide.afd.fr/accra-mobile-une-cartographie-innovante-du-transport-artisanal.html?lang=fr>), while crowdsourcing was used in Nairobi (Digital matatus: <http://digitalmatatus.com> and

<https://www.ma3route.com/>). Similar examples exist in Cairo (TransportforCairo: <https://transportfor-cairo.com/>) and Managua (Mapanica: <https://rutas.mapanica.net>).

- surveys involving interviews with a sample set of operators and passengers (with questionnaires in paper or tablet form), counting boardings and alightings at transit hubs, and recording vehicle occupancy rates. Surveys and counts of this kind can be used to identify passengers' points of origin, destinations, and reasons for travelling, to assess the volume of traffic, to gauge passenger satisfaction, and to assess how drivers and crews perceive their working conditions. Self-administered surveys (that is, distributing questionnaires to be filled in by respondents) should generally be avoided, for two main reasons: the lack of control over the representativeness of the sample, and the inability to ensure that respondents fully understand the questions. However, in certain contexts, this method may still be an option. We can also deduce approximate ridership if a realistic estimate of revenue is available, or if the number of journeys made and the average load per vehicle can be estimated
- **Household surveys** are designed to reconstruct an entire travel system, in particular in order to model it. Known as "household travel surveys", these surveys require considerable resources and rigorous methods. They apply to all forms of travel, not just paratransit. They are often carried out when developing Sustainable Urban Mobility Plans. Where such surveys are possible, they are an invaluable tool for obtaining an overview of the system, including the market share of each mode, origins and destinations, reasons for and frequency of travel, and mobility rates.

Any paratransit diagnosis should use all three types of source. However, their precise mix and consistency may vary widely depending on the complexity of the subject, the goal of the study, the availability of sources, and the available budget.

When working with the consultants responsible for the diagnosis (or before launching the study, if it is to be carried out by a company), it is necessary:

- **For the public authority to define its expectations, needs, and budget** with sufficient precision for the consultants to be able to propose an appropriate data collection system. In particular, it is strongly recommended that you draw up a precise list of the documents and documentary sources available, and even attach them to the consultation or present samples of them.
- **For the initial data collection programme to be reviewed and validated**, that it is both sufficiently defined to enable the public authorities to assess the relevance of the proposed methodologies, and sufficiently flexible to adapt to real-world contingencies that cannot be assessed in advance.

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