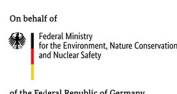


Understanding Paratransit

Defining and diagnosing paratransit
for sustainable mobility planning

Contributing Partners



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Title: "Understanding Paratransit: Defining and diagnosing paratransit for sustainable mobility planning"

Published and distributed: November 2021

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Executive summary

This document is addressed to decision-makers, practitioners, consultants and policy-makers responsible for paratransit improvement and integration in the urban transport sector to promote inclusive, affordable, balanced, efficient and qualitative mobility systems. It aims to help actors to take into account paratransit in a coherent and integrated approach.

In many cities of the South, paratransit represents an important part of daily mobility - or even the only existing transport offer. Although it is impossible to define the essence of paratransit, several common features can be identified on an international scale: this non-subsidised sector is made up of a large number of private operators who offer a service of general interest. Paratransit is an important source of employment and provides services that are adapted to the characteristics of cities of the South because of their flexibility and adaptability, but they are often accompanied by poor service quality and limited reliability. The difficulty of introducing policies to improve the quality of service and the articulation with the overall transport offer, and the precarious working conditions of the operators justify the will of the public authorities to reform the paratransit offer in order to integrate it into the urban mobility system. However, the introduction of norms and standards cannot be done without first questioning the role and function of paratransit in the local mobility system, and without having precisely identified the actors in the paratransit ecosystem and their respective interests.

The first step is therefore to situate the existing services within the typology of the different forms of paratransit that exist, which include both on-demand services that are not regulated to any great extent and regular and regulated public transport offers. This typology constitutes the first stage of the diagnosis, a preliminary and indispensable stage before the implementation of sustainable

urban mobility policies. Through the diagnosis, it is therefore a question of knowing and understanding the paratransit sector in all its diversity and complexity, in order to be able to define the most suitable and acceptable measures for all the actors. The main aspects of the diagnosis, i.e., the supply, uses, economic model and governance structures of the sector are presented, as well as the types of sources that can be used to collect information, and the necessary analysis tools. One of the main expected results is the identification of the strengths and weaknesses of the paratransit sector, in order to guide the reforms that will allow it to be integrated into the mobility system by building on its strengths and reducing its weaknesses.

From the diagnosis, and once the objectives of the local authorities have been specified, it is possible to identify the levers on which to rely in order to integrate the paratransit offer into a multimodal public transport service. These levers must be identified taking into account the conditions of acceptability of the measures and the needs of the city-dwellers. The catalogue proposes different types of actions useful for integrating paratransit, which concern preparing the reform, drawing up the reform content, and supporting the reform process and its implementation. Each page indicates the necessary prerequisites, the means to be used for implementation, points of attention, the timeframe for implementation, and evaluation criteria. Of course, these actions can be adapted according to the context, and not all of them must necessarily be used. However, the categories of actions are presented according to a logic of progressive stages: certain stages constitute indispensable bases, while other stages can be implemented within the framework of a more accomplished and ambitious reform project.



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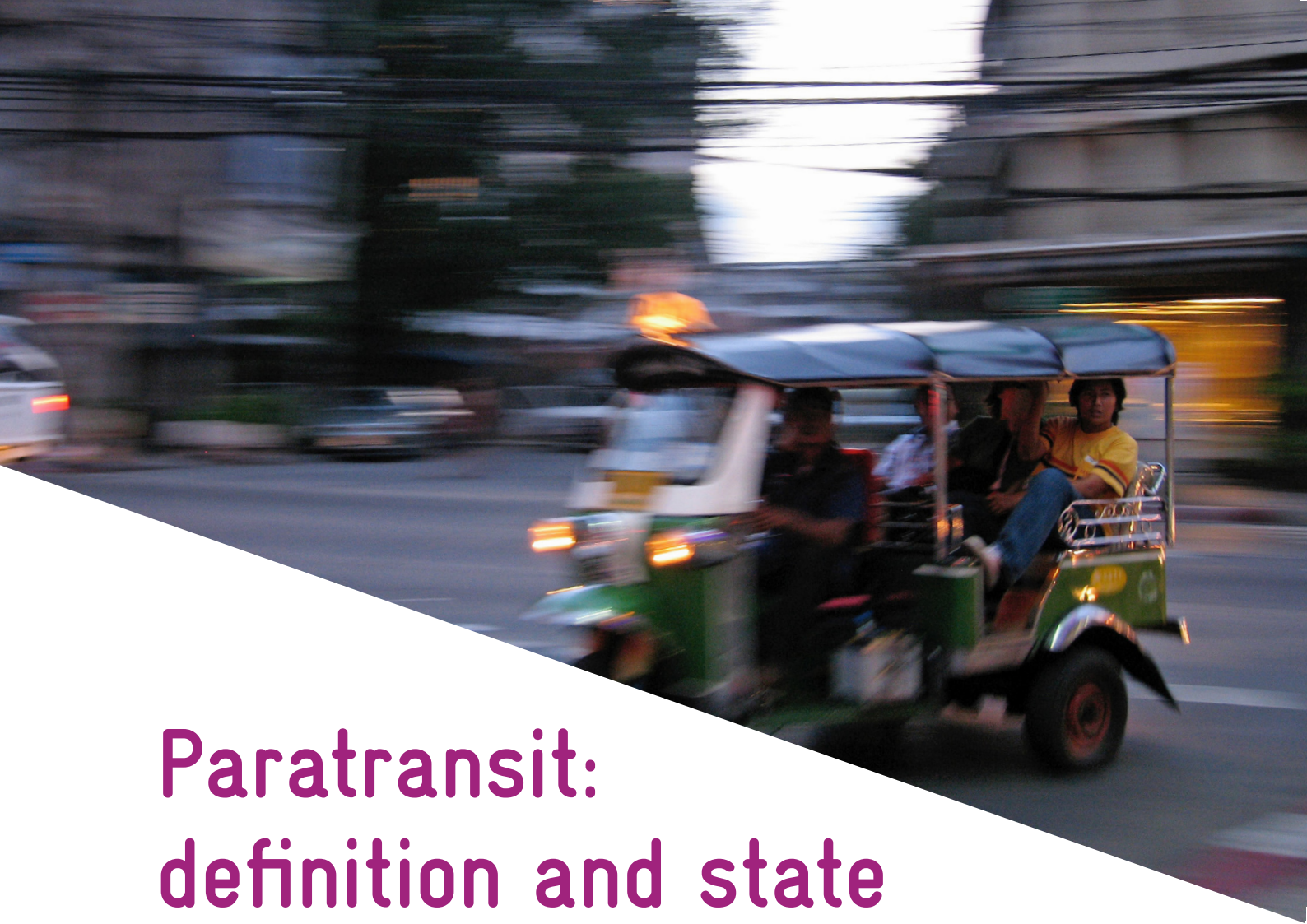
Presentation of the objectives and methodology

This document has been prepared for decision-makers, practitioners and consultants responsible for integration policies in the urban transport sector to promote inclusive, affordable, **balanced, efficient and qualitative mobility systems**. It aims to help actors take into account paratransit, based on solid actions and a coherent approach.

The knowledge and actions presented in this document were developed from two co-creation sessions organised by MobiliseYourCity in December 2020 and February 2021 with managers and practitioners from several cities in French-speaking Africa. The aim of these two sessions was not to disseminate and share previously established knowledge, but rather to be part of a **co-creation process**: the aim was to identify together, on the basis of the experiences of the participants, but also of the knowledge previously

acquired by the various MobiliseYourCity partners, the actions that can be taken at the local level in this field.

Considering that no coherent policy can be conducted without an excellent knowledge and understanding of the starting situation, the first session was devoted to the methods and objectives to be taken into account in the **establishment of a diagnosis** on paratransit, in particular (but not exclusively) in the framework of the elaboration of SUMP (Sustainable Urban Mobility Plans). The second webinar presented and critiqued a number of pre-identified actions that would be useful for paratransit reform. Based on the participants' feedback and discussions, it was possible to build a **catalogue** of actions that could be considered to contribute to the improved integration of paratransit into the overall mobility system.



Paratransit: definition and state of play

Clarifying the terms

There are many terms used to describe transport services that are not regulated by the public authorities and that are operated by private operators, with little or no organisation, and that use various types of vehicles, from carts to motorbike taxis, tricycles, minibuses or pirogues (dugout canoes). In some cases, the term “clandestine” or “illegal transport” is used to emphasise the spontaneity of the form of service and the total absence of a legal framework for an individual to carry out a passenger transport service. It is more common to encounter the term “informal transport”, which became widely used during the 20th century in conjunction with the notion of the “informal economy”, which is supposed to describe the functioning of developing societies.

The French term “transport artisanal”, developed by Xavier Godard in 1987, refers to a set of mobility services operated by a large number of small entrepreneurs and using a wide range of transport modes: buses, minibuses, taxis, private cars, three and two-wheelers, and boats. The paratransit sector thus brings together a range of transport services, more or less collective, offering particularly varied transport solutions, generally very flexible but sometimes also more conventional. The word “artisanal” is used in the French term because it refers to a sector characterised by individual entrepreneurship, most often by the absence of subsidies and public intervention, and by a commercial operation that is primarily profit-driven.

The use of the term “transport artisanal” in French (“paratransit” in English) meets several requirements. Firstly, it is necessary to specify the type of service that the term “informal transport” covers. The word “informal” refers to that which has no “form”, and it is

true that this term refers to multiple services. However, as Xavier Godard pointed out, some characteristics are transversal to non-institutional transport services in the cities of the South at the turn of the 1990s, and among them, the modalities of operation of the service. Moreover, the term “informal” transport has been criticised by the scientific community, as it is apparently opposed to so-called “formal” transport, which is understood to be standardised, regulated transport services with an organizational structure.

However, the predominant place of paratransit in the cities of the South, the existence of professional structures (unions, associations, cooperatives) and the capacity of this sector to capture innovations (using digital tools) are all indicators of the level of organisation of the paratransit sector. Finally, for a long time, the term “informal” was used to describe services and practices that were not in line with modernity and performance norms and standards often imported from abroad and from industrialised countries. Thus, for several decades, most urban transport reform projects aimed to eradicate the paratransit sector without taking into account its structuring role in mobility systems and societies.

An important shift has been happening for several years, following several observations, for example: despite the introduction of higher capacity modes of transport, paratransit continues to provide a significant proportion of daily mobility and at a lower cost to the public. Moreover, the offer of high capacity public transport is not always adapted to the demographic, economic and social realities and infrastructures of the cities of the South, and in some cases, the paratransit offer appears to be more appropriate to local needs and more profitable. These different considerations explain why greater attention should be paid to the function that these different types of service can play in mobility systems, and to the levers that can be used to facilitate the integration of these services into the conventional transport offer, where it exists. The recent use of the English term “paratransit” is representative of this new approach: it emphasises the role that paratransit can play, particularly as a feeder service complementary to mass transport services.

The category of paratransit brings together services of varying degrees of informality and institutionalisation. Operators sometimes operate freely in a completely deregulated framework and market, or in the complete absence of recognition of their existence

and control by public authorities. Others operate their service in parallel with a regulated transport sector, often in a clandestine and illegal manner. However, in the vast majority of cases, barriers to market entry exist and paratransit operators are subject to a range of regulations, which they comply with to a greater or lesser extent depending on their level of resources, their organisation and their ability or willingness to comply.

A predominant and essential mode of transport in the cities of the South

The various paratransit services have most often emerged to cope with the non-existence, shortcomings or decline in the offer of institutional public transport and they sometimes represent the main **mode of motorised travel available** to the population, particularly in medium-sized cities. Today, paratransit often provides a dominant modal share in the mobility systems of the cities of the South. In the secondary city of Dire Dawa in Ethiopia, paratransit by scooter accounts for 41% of modal shares, while walking accounts for 46% in 2020.¹ In Yaoundé, in 2018, motorbike taxis account for 12.5% of the modal share, and shared taxis for 40%². Including Cape Town, where the modal share of motorised vehicles is very high at 53% in 2016, daily shuttles provided by minibuses amount to 12%³.

These services appeared very early in the 20th century in developing countries to meet the needs of populations relegated to urban spaces that were increasingly distant from urban resources, as a result of various processes of social and spatial exclusion (metropolisation, urban fragmentation, withdrawal of public authorities or the introduction of discriminatory planning policies, such as apartheid). Nevertheless, the emergence of the sector and above all its massive spread took place during the second half of the 20th century. This spread was the result of a structural absence or a deliberate withdrawal of governments

1 Data from the diagnosis carried out as part of the SUMP in Dire Dawa, 2020.

2 SUMP of Yaoundé.

3 Transport and urban Authority Development, Cape Town.

from the provision of urban transport. This absence or withdrawal generally occurred at a time when structural adjustment plans were squeezing state spending, and when private entrepreneurship was particularly valued. Thus, paratransit flourished during a period when government inaction and deregulation were strongly encouraged.

Moreover, even where developing country governments took an interventionist approach and invested in the development of public transport networks, the provision of paratransit still spread.

In addition to the importance of the modal shares of paratransit in many cities of the South, the crucial role of this sector in societies and economies is reflected in the **number of jobs it generates**, directly or indirectly. In Lagos, for example, the 75,000 minibuses and 200,000 motorbike taxis are responsible for over 500,000 jobs (SSATP, 2012). In Tanzania, the 7,500 minibuses operating in Dar Es Salaam create between 20,000 and 30,000 jobs, according to combined data from the World Bank (2017) and Rizzo (2017). Finally, on the scale of a country like South Africa, there are over 250 000 minibuses, generating over 185 000 direct jobs and 150 000 indirect jobs (ILO, 2003). The sector has thus gradually grown in all parts of the developing world, including countries where the sector is regulated and where public transport provision exists.

The main characteristics of the sector

Although it is impossible to generalise and essentialise paratransit because of the many forms it can take, the diverse territorial contexts and the variety of organisational modes that exist, several features common to all cities of the South can be distinguished in order to understand it:

- Paratransit is a **non-subsidised sector**, composed of private operators who perform a service of general interest. The type of service proposed generally emerges spontaneously to meet mobility needs that are not met by the public transport offer, either because it is inefficient or insufficient, or because it does not exist.
- Paratransit is characterised by a **very large number of operators**, and a **progressive atomisation of the fleet** coupled with a reduction in the size of vehicles. The reduction in the size of vehicles is due to the better accessibility provided by two-wheelers, particularly in towns where the road network is not always of good quality, and to the spread of low-cost vehicles imported from Asia. The greater profitability of low-capacity vehicles, which are more accessible in terms of capital, also explains the explosion of motorised two-wheelers in certain African and Asian cities.
- Guided by the profit motive of the operators, paratransit services are often very responsive and **offer extremely flexible services**. Thus, these services often appear to be well adapted to the metropolises of the South, where the speed and intensity of urbanisation exacerbate the mobility needs of local populations. However, this adaptability is accompanied by an often **mediocre quality of service** (vehicle condition, driver conduct, road safety) and limited reliability (frequency, territorial coverage, accessibility, passenger information).

The difficulties encountered by the public authorities in regulating the paratransit sector are largely due to the hybrid nature of this **service of general interest, provided by private operators** whose activity is not always coordinated and remains mainly guided by the profit motive.

A first step in the analysis of paratransit is to establish a typology, in order to position the service(s) existing in a given city according to the characteristics common to all transport services. The types of paratransit are numerous, and different parameters can be used and adapted according to the context. Among the parameters that can be used, two seem to be able to cover all types of service and define their main characteristics:

- The more or less “flexible” nature of the service provided. In particular, this makes it possible to specify whether the paratransit service is a “taxi” type of operation (individual transport on demand), or whether it is a regular service (frequency, service, and in some cases even defined routes), with all the possible intermediaries (“fill and go” on a fixed route, collective taxi, regular line with detours on demand, etc.).
- The type of existing regulation, and more particularly external regulation. It is thus possible to distinguish between situations of complete deregulation (no rules, no checks) and situations where there is a form of regulation (conditional

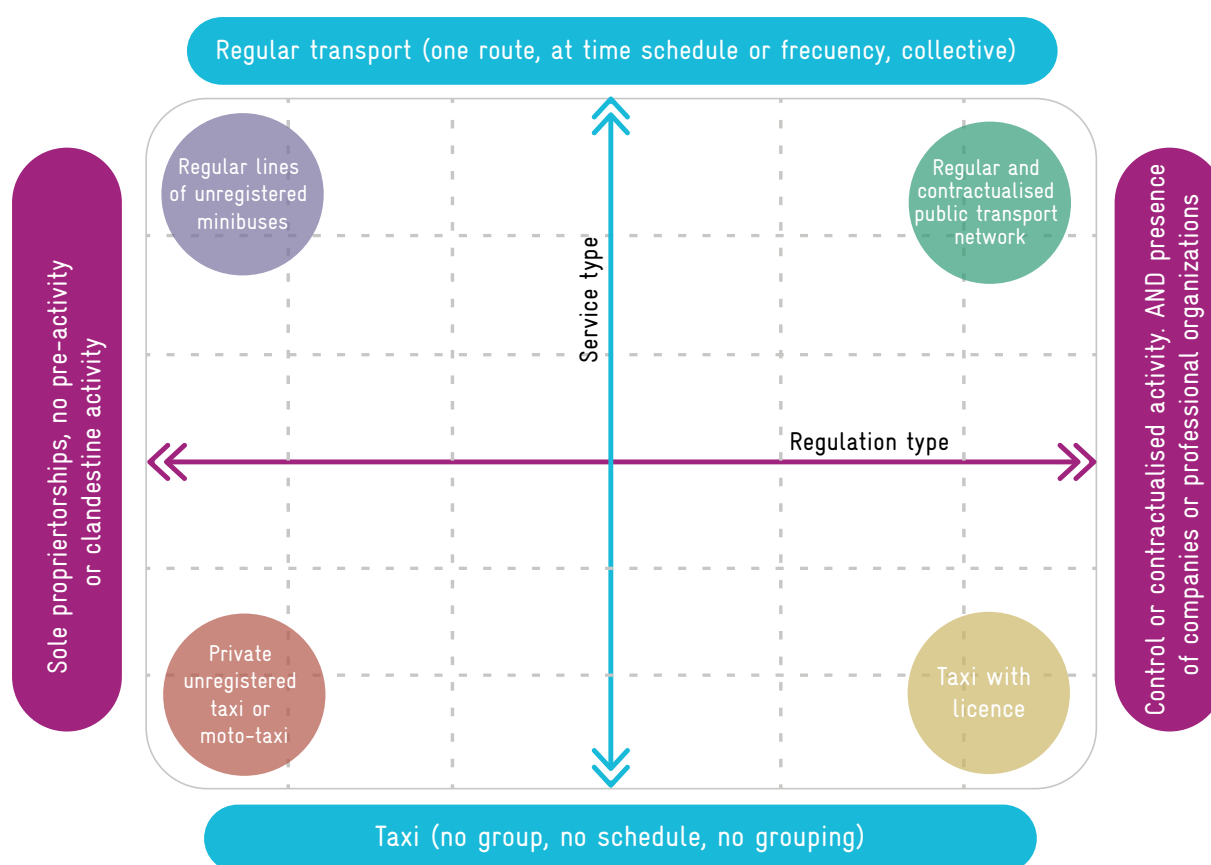
authorisations, licences or even contracts), with all the intermediaries involved: registration of professionals, internal regulation, etc.).

Based on these two parameters, it is possible to construct a matrix (see below) that enables the various small-scale transport services to be positioned in relation to each other.

For example,

- Motorbike taxi services, when they emerge, or more recently, shared three-wheeled auto-rickshaws (as is the case in Lomé, for example), are positioned in the bottom left-hand quadrant (towards A6) because they provide an unregulated “taxi” type of transport on demand.
- Unlicensed shared taxis (clandos) such as those operating in Dakar are in the top left quadrant (to A1) because they operate on routes that are quasi-fixed, but not regulated.
- Regular taxi services, operated with licences or through on-demand transport applications (such as Uber, Bolt) are located in the bottom right quadrant (to F6).
- Collective transport services, provided by contracted operators and whose service is structured through pre-established routes, frequencies or quality standards, are located in the top right-hand quadrant (to F1). To our knowledge, these services do not exist as such in Africa (the EIGs created in Dakar with the AFTU are similar), but are present in several Latin American cities.

Overview of the matrix:



Again, it is important to remember that this typology and the output matrix is one possibility among others of classifying and describing a paratransit service.

To understand the functioning of paratransit services, it is therefore necessary first and foremost to identify

all the actors in the sector, the characteristics of the services offered by these actors and the economic rationale underlying their activity. No reform or regulatory measure can be successful if it does not take into account the financial and economic flows that drive the sector and the interests of each actor.

A complex ecosystem of actors

The paratransit sector brings together a large number of actors who work directly or indirectly at different stages of the service provision. While some functions are similar to those found in other urban transport services, other functions are more specific to the paratransit operation, as is the way the sector operates.

Drivers are a central link in the ecosystem of actors; they are often accompanied by **touts** whose role is to attract potential passengers and optimise the filling of vehicles. In some cases, the driver is also the **owner** of the vehicle, but in many situations this is not the case, and is referred to as the “owner-renter”. The driver and the other crew members then rent the vehicle according to the “target system” model.

This is a very common practice and refers to the threshold set by the owner above which the revenue generated by the crew accrues to them. In addition to the amount paid to the owner of the vehicle, the crew pays for fuel, routine maintenance of the vehicle as well as any occasional costs that may arise during the operation (fines, bribery, infrastructure access fees, tolls, etc.). This system has strong repercussions on the operation of the vehicle, as it encourages the crew to maximise and optimise the vehicle’s fill rate, sometimes leading to competitive and dangerous practices. This practice also has the corollary of encouraging the crew to conceal part of the daily income, at the risk of seeing the amount of the rent paid to the owner increase. This concealment of part of the income makes it often difficult to know the exact daily income earned by crew and to have a precise knowledge of the business model.

A practice associated with the target system is “fill & go”, where the crew wait until all (or most) of the available seats in the vehicle are occupied before leaving the terminal. This practice ensures that the crew has a guaranteed minimum income for each journey made from the terminus. However, this results in a waiting time that is difficult to estimate for passengers and that is sometimes long during off-peak hours, and difficulties in finding an available seat in the first few kilometres of the section on which the vehicle is operated after leaving the terminal.

Finally, in some cases, a third group of actors is added to those of the owners and the crew, namely

the **license holders**. These are held either by the owners of the vehicles, by a group of operators, grouped together in a professional association whose activity is more or less organised and regulated, or by a third party. In the latter case, this sometimes complicates the relationship between drivers/riders and crew, and in any case requires the payment of an additional actor from the daily revenues.

The operating procedures for transport services are most often governed by collective rules of varying degrees of constraint, generally drawn up by **paratransit organisations**. The number of these paratransit organisations and their size vary according to the context. This sometimes limits their representativeness vis-à-vis the public authorities and contributes to the fragmentation of the sector. In theory, the existence of paratransit organisations allows operators to maintain their independence while pooling risks. In practice, these structures impose a very variable level of instructions on the operators, ranging from almost total autonomy for the operators in some cases, while in other cases the organisations are the real keystone of the sector. Furthermore, as the paratransit sector represents a wide variety of modes and practices, some operators also operate clandestinely and outside any framework set by professional structures.

In addition to these actors directly involved in the provision of the paratransit service, other actors gravitate around this sector with their own interests.

Public authorities interact extensively with crews and owners at different levels. The local authorities, whose objective is to regulate the number of vehicles in circulation, set the number of licences granted each year, the conditions for obtaining them and the criteria for renewing them. It should be noted that the fragmentation of the services in charge of regulating paratransit often tends to reinforce the lack of coordination in the sector. The role of the police can also be mentioned, as in some cases they exert financial pressure on crews through abusive practices. Finally, insurers, manufacturers and energy suppliers have an indirect role in this sector, as their strategies have a direct impact on the economic model of the operators.

The paratransit sector is therefore characterised by the large number of actors who are involved in it and who find a source of income in it. Often, **coordination between these actors is tenuous** and the balance between the interests of each is precarious. Most of the actors are seeking above all to secure a source of income in tense economic contexts.

The table below provides a simplified identification of the actors in the ecosystem, their objectives and the origin of their income. This table is by no means exhaustive or representative of all urban mobility

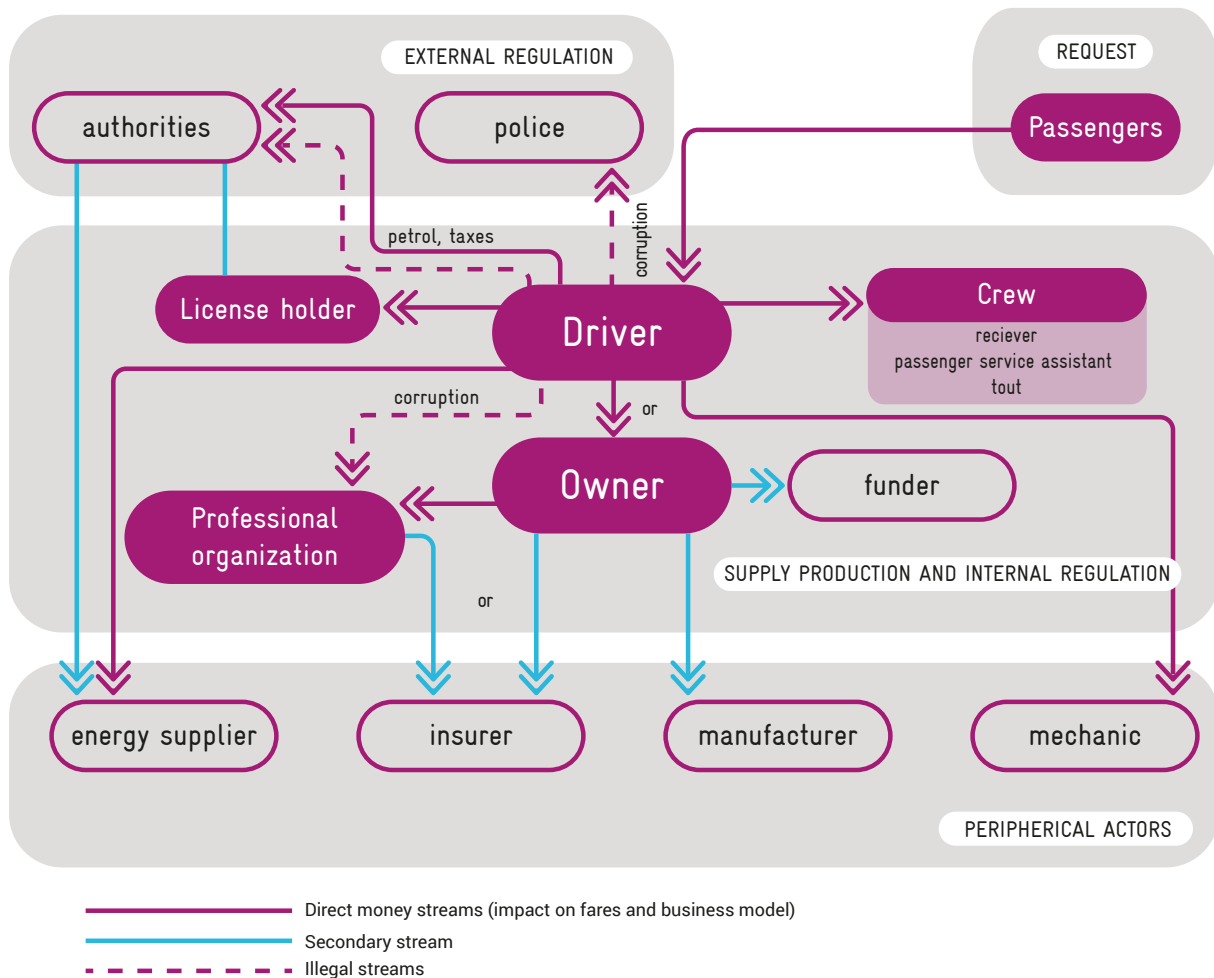
ecosystems; it suggests possible configurations observed empirically (in the field and in the literature) according to a very general approach. Any

analysis of the ecosystem of actors would require more precise information.

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

The following diagram attempts to represent the links (essentially financial) between these different actors. It is necessarily reductive given the diversity

of situations, and one of the aims of the diagnosis will be to reconstitute the set of actors in each situation studied.



Why should we improve paratransit?

The desire to integrate paratransit into sustainable urban mobility policies in the cities of the South stems from the observation of several strengths of this offer. First of all, as paratransit services are not directly subsidised, this offer represents a **low cost for the public authorities**. In addition, the small-scale transport sector is an important **source of employment** in societies where unemployment is sometimes still high. The transport services provided, because of their flexibility and adaptability, are particularly appropriate to the characteristics of urbanisation in the cities of the South (rapid urbanisation, population growth in the peripheral neighbourhoods, spontaneous and self-built housing, varied travel needs). Finally, it should be noted that in some cities, the paratransit organisations of the paratransit sector

(trade union, cooperative, association) sometimes benefit from significant **political weight** and detailed knowledge of the market. It is therefore essential to integrate these actors into the implementation of sustainable urban mobility policies, otherwise projects may fail.

Despite the many advantages of paratransit, a number of **negative externalities** remain, such as the contribution to traffic congestion, significant pollution, poor safety conditions for passengers and crews, poor quality of service, precarious - even indecent - working conditions and in some cases opacity conducive to the development of criminal activities. Improving the quality of service and the functioning of the sector requires the establishment of regulatory frameworks to truly integrate this offer. Establishing **specifications** of the "public service obligation" type is one of the levers for introducing norms and standards, which is most often accompanied by a minimum of regulation, or even subsidies. However, the introduction of norms and standards cannot be done without first questioning the role and function of paratransit in the local mobility system, and without having precisely identified the actors in the paratransit ecosystem and their respective interests.



Background to the paratransit diagnosis

Why should we carry out a diagnosis of paratransit?

Diagnosis appears to be a preliminary and indispensable step before the implementation of sustainable urban mobility policies. Diagnosis is an inventory of the situation, which allows for a better understanding of the functioning of a system. With regard to paratransit, the diagnosis has several objectives:

- To collect data and information on the sector, in order to refine the demand model.
- To gain a better understanding of the transport offer, in order to consider the complementarity between the different transport services.
- To gain a better understanding of the demand and customer base for each mode, in order to identify the competitive advantages of each.
- To gain a better understanding of the functioning and organisation of the sector, in order to identify the relevant levers of action.
- To gain a better understanding of the economic model of the paratransit sector, in order to introduce socially fair and acceptable measures.

Through the diagnosis, it is therefore a question of **knowing and understanding the paratransit sector** in all its diversity and complexity, in order to be able to define the most suitable and acceptable measures for all the actors.

Integrating paratransit services into SUMPs

One of the main objectives of SUMPs is often the integration of different transport services into the overarching mobility system. In this respect, several levers can be mobilised, in the long term, to improve the integration of paratransit into the public transport offer:

- Professionalising the sector, to limit the fragmentation of the offer and improve the working conditions of operators, while facilitating modal and fare integration
- Improving the quality of service, through the introduction of specifications (e.g. the implementation of fleet renewal programmes to ensure that rolling stock meets safety criteria)

- Reducing negative externalities (congestion, pollution), in particular to limit greenhouse gas emissions and to comply with sustainable development objectives.

However, a diagnosis of small-scale transport can be carried out outside a SUMP. And beyond the diagnosis, carrying out additional studies is often necessary to deepen knowledge.

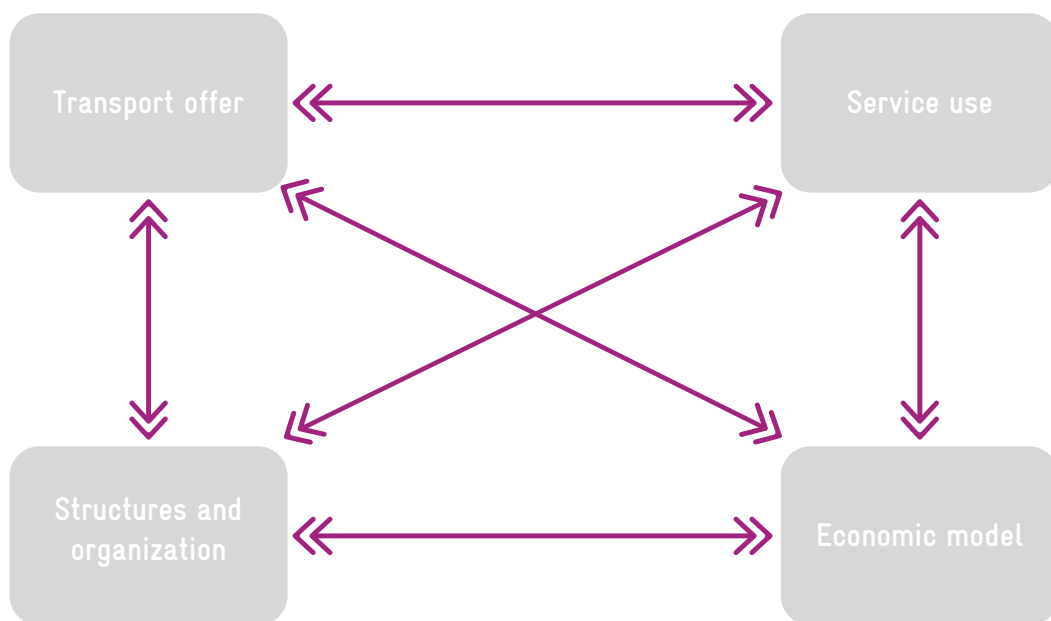
Unlike other types of diagnosis, it is important to take into account the **sometimes difficult access to data** in the paratransit sector, as well as the unreliability of certain data. The lack of data is inherent in the still relatively “informal” functioning of the paratransit sector. Furthermore, due to the divergent interests of the actors in the ecosystem, the lack of reliability of certain data (for example, operators’ operating accounts) can be explained by the desire of some to ensure their own interests, or even to conceal part of the flows due to the corrupt practices that exist in the sector (which are carried out by law enforcement agencies as well as by criminals) and the political pressure that sometimes exists. For the diagnostician, it is necessary to **cross-check sources**, make estimates (often it is not so much the exact data that is important, but rather the orders of magnitude), and use additional sources. In addition, the absence of data is a source of information in itself; it may reflect a lack of regulation, measurement or monitoring tools, or a “blind spot” in the operators’ understanding of the service. Similarly, the lack of reliability is indicative of the power relations and the logic of the actors that drive the sector and direct its functioning. Far from being obstacles, these hazards are therefore **sources of knowledge** that are an integral part of the diagnosis.

The four components of the diagnosis

In the case of paratransit, four main components are identified to address the various components of the sector:

- The **service offer**; this involves first identifying and quantifying paratransit: what the routes are, the frequency of services, the state of the fleet, where the assembly points are, etc.
- The **demand**; because it is then necessary to understand who the users - or clients - of paratransit are, what their travel practices are (motives, directions), the volume that this use represents, etc.
- The **business model**; a central element of the paratransit ecosystem. The business model includes revenues as well as the costs of the services, the fares charged, and the margins made by the actors.
- **Structures**; this component refers to the governance of the sector. These structures are internal (EIGs, associations, unions, cooperatives) and external when it comes to documents, regulatory models and authorities in charge of managing and regulating the sector.

DIAGNOSIS



The choice of these four components is based on the following considerations:

- The identification of supply and demand is a prior analytical element common to all urban systems for describing and understanding the transport sector;
- Among the specific characteristics of paratransit, we note that the economic model is central to understanding the ecosystem of actors and to initiating "win-win" approaches;
- In the perspective of a general reform of the mobility system, the identification of governance structures is necessary to anticipate the implementation of the measures identified following the diagnosis.

Sources that can be used

In order to carry out a diagnosis, i.e. an inventory, it is necessary to collect information. Identifying the sources to be used to extract this information is therefore the first step in implementing the diagnosis.

The main sources for the diagnosis can be summarised as follows:

	Interviews	Field investigation	Data
Service offer	Interviews with drivers at assembly points Interviews with companies or paratransit organisations if they exist	GPS tracking records Surveys and counts at assembly points and on-board Identification and characterisation of assembly points	Licensing/authorisation database (public authorities)
Demand	Interviews with drivers at assembly points Interviews with companies or paratransit organisations if they exist	Surveys and counts at assembly points and on-board Passenger surveys	Household travel surveys
Business model	Interviews with drivers, owners, paratransit organisations and companies: pricing, cost structure, remuneration method, trends		Fuel price indexes
Structures: internal and external	Interviews with regulatory authorities (state, municipalities, etc.) Interviews with drivers/riders, owners, paratransit organisations and companies		Agreements, laws and regulations Database of licences/permits

As with most diagnoses, the diagnosis of paratransit is based on the analysis and synthesis of three main sources:

most will have to be provided by donors and/or local counterparts. This data will therefore often be collected through interviews (see below).

Pre-existing documentary sources

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

- **Previous studies and documents.** Firstly, it is advisable to check whether there are any previous studies and expert reports on the same subject. In addition, documents, analyses and studies should be collected to clarify the context, deepen certain aspects of the subject, or set out the organising authority's prior intentions, for example through programme or planning documents. Some sources will be available on the internet, but
- **Media and social networks.** Examination of local media websites is often very instructive in order to quickly grasp the way the population feels about the issue. They can also point to recent government actions or intentions that will help prepare for the interviews. Incidentally, identifying a few hashtags on Twitter or Instagram can also help to shed light on a subject, with all due caution.
- **Legislative and regulatory texts.** Collecting and analysing laws and regulations relating to transport in general, and to paratransit in particular, should be one of the first steps in the diagnosis, in order to shed light on the organisational framework and to be able to understand the distance between the legal situation and reality from the outset.
- **The "raw" files.** These will necessarily be transmitted by the local contacts. They may concern,

for example, the list of licences issued, statistical series on the population or the evolution of fuel prices, or the raw files of previous household surveys (particularly if the city has already been the subject of a such a survey implemented by a SUMP).

Interviews

Here again, there are three types of interviews:

- **Institutional actors** (civil servants and elected representatives) will give their vision of the problem, propose guidelines and may also allow for a better definition of the actors in the field to be met.
- The **actors in the field**: trade unions, bus station managers, law enforcement agencies, etc. will provide a variety of viewpoints on the problems encountered by paratransit.
- One of the particularities of the diagnosis of paratransit is that it seems essential to go as close to the grassroots as possible, namely to the **operators** themselves. An "in-depth" interview with a few operators will allow us to enter into the daily life of these professionals. But above all, it is the best, if not the only, way of gathering the elements needed to reconstruct at least the typical operating account of an owner and the typical operating account of a driver, if the two are dissociated.

These interviews can be conducted face-to-face or in groups of varying size. Depending on the case, it may be useful to create working groups, workshops for the joint construction of the diagnosis, round tables, etc., using participation management methods, and allowing divergent opinions to be discussed. However, in other cases, it may also be necessary to give priority to face-to-face meetings, as some participants may only be able to talk to each other in a two-way relationship. It is up to the consultants to assess, according to their initial analysis of the set of actors, the most appropriate mix of the different possible methods. In any case, individual meetings with a few operators seem unavoidable.

In this area, it is essential to bear in mind that **each actor will probably try to present their situation in the way that is most favourable to their interests.**

In particular, the reconstruction of the costs and revenues of the paratransit system may prove to be a complex exercise, as it will be based almost solely on the declarations of operators (or their organisations) who will obviously tend to maximise their costs and minimise their revenues. Only the comparison and cross-checking of points of view will enable the consultant to assess the reliability of the information received, and to formulate plausible hypotheses.

Surveys and field observations

In a context where data is generally scarce and not always very reliable, only field analysis can provide elements that are as objective as possible.

The range of actions that can be carried out in this field is wide, and we will not claim to be exhaustive here. They can be classified into three groups:

- **Field observations.** Of course, observing the operation of an assembly point over a sufficiently long period, talking to operators, customers, shopkeepers or mechanics, carrying out a photo or video report, or making one or more trips as an ordinary customer, are an indispensable introduction. In the case of regular services, it is also possible to carry out structured surveys or GPS tracking in order to map the network. In most cases, this involves systematic surveys using GPS-equipped surveyors who travel around the city in vehicles. In other cases, data is collected through collaborative sites involving passengers or operators, a system known as "crowdsourcing". 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, in the case of crowdsourcing, a critical threshold of users and contributors is needed for the data collected to be reliable and representative. Systematic surveys using surveyors equipped with GPS have been successfully carried out in Accra⁴ and in Nairobi the experience of crowdsourcing

4 Accra Mobile: <https://smartcity-guide.afd.fr/accra-mobile-une-cartographie-innovante-du-transport-artisanal.html?lang=fr>

has been implemented⁵. Other similar examples exist, notably in Cairo⁶, or in Managua⁷.

- **“Light” surveys:** These are surveys that involve direct questioning of a sample of operators or passengers, using conventional, low-cost methods (interviewers administering paper or tablet questionnaires). These surveys can be combined with counts at assembly points and vehicle occupancy surveys. This type of survey and count may be appropriate for recording the main origins-destinations and reasons for travel, for understanding the volume of flows, for assessing the level of passenger satisfaction with the service provided, or for finding out how crews perceive the conditions under which they do their job. This type of survey should preferably be carried out at points where services are concentrated and at bus stations. They can become more complex to organise if the points of concentration are very scattered. Of course, the main issue is **representativeness**. Sufficiently large samples must be taken. The more we try to stratify the sample and cross-reference the responses, the larger the sample will have to be. However, this type of investigation, which in the end is relatively inexpensive, can yield valuable material as long as the methodology adopted is free of bias. We do not generally consider it appropriate to use self-administered surveys (distribution of questionnaires filled in by respondents), for two main reasons: the lack of control over the representativeness of the sample, and the impossibility of ensuring that the respondent has understood the question correctly. However, in some contexts, this type of method may remain an option.
- **“Heavy” surveys** are surveys aimed at reconstructing an entire travel system, particularly with a view to modelling it. This type of survey, known as ‘household travel surveys’ (HTS), requires considerable resources and very rigorous methods. They do not only concern small-scale transport, but all types of travel. They are often carried out as part of the preparation of the SUMP. When such surveys are possible, they are an irreplaceable

able tool for obtaining an overall view of the system, in particular the market shares of each mode, the origins and destinations, the reasons for and frequency of travel, and the mobility rate.

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

It is therefore necessary, at the stage of consultation with the service providers in charge of the diagnosis (or before the launch of the study if it is carried out on a contract basis):

- **The Organising Authority must define its expectations, needs and budget** with sufficient precision for the consultants to be able to propose a data collection system adapted to the situation. In particular, it is strongly recommended that a precise list of available documents and documentary sources be drawn up, and even that they be attached to the consultation or that samples be presented.
- **That the consultants draw up a data collection programme** that is both sufficiently defined to enable the Organising Authority to judge the relevance of the proposed methods, and sufficiently flexible to adapt to field contingencies that could not be assessed beforehand.

The expected results of the diagnosis

Based on the information collected, it is possible to construct analysis tools that will make it possible to represent the state and functioning of the sector. Thanks to these analysis tools, it is then possible to construct the diagnosis.

The main products of the diagnosis can be summarised as follows:

⁵ Digital matatus: <http://digitalmatatus.com> and <https://www.ma3route.com/>

⁶ TransportforCairo: <https://transportforcairo.com/>

⁷ Mapanica: <https://rutas.mapanica.net>

	Expected results
Service offer	<ul style="list-style-type: none"> Number of vehicles by type Age of the fleet by type Quality of service (passenger information, vehicle/stop comfort, reliability, etc.) Distribution of companies and number of vehicles per company Number of direct and indirect jobs Operating and service principles (taxi, fill and go, timetable, etc.) Mapping of lines or service areas (routes, stops) Mapping of assembly points (location, capacity, operating mode, land ownership, etc.) Maximum number of services per route, place per kilometre offered (PKO) if possible, frequency, time span Kilometre output by type of service
Demand	<ul style="list-style-type: none"> Customer volume by route Type of customers Main origin-destination Frequency of use Market share of paratransit in trips Reasons for choosing/not choosing paratransit or official public transport
Business model	<ul style="list-style-type: none"> Applied rates Ticketing Reconstituting the operating accounts (OA) of the main actors (at least driver and owner): revenue hypotheses and breakdown of expenses (personnel, consumables, fuel, maintenance, purchase/renewal of the vehicle, rents, licences, commissions and bribes, etc.) Estimating drivers' and companies' income and position in relation to average income Estimating positive and negative externalities for public authorities
Internal and external structures	<ul style="list-style-type: none"> Mapping of public and private actors Structuring of the professional environment: companies, paratransit organisations, trade unions, vehicle owners. Management methods for assembly points Legislative and regulatory framework Number of licences or authorisations and estimate of the volume and proportion of illegal activity Existence of contracts, agreements between the public authority and owners and drivers Contractual relationship/arrangements between owners and drivers Transport reform and modernisation initiatives and the role of paratransit in these initiatives Existence of professionalisation and capacity building measures for the transport sector Any public investments

The main characteristic of a diagnosis of paratransit is that **it is constantly confronted with a lack of data, or problems of reliability or interpretation of data**. In this sense, the diagnostician's work does not only consist of processing the data that he/she has been able to collect, but also of **establishing hypotheses and evaluating the margins of error** in

relation to the elements that he/she has not been able to describe precisely.

The aim of a diagnosis of small-scale transport **is not therefore to be precise or exhaustive**; it is to **define the levers** that the Organising Authority can use to develop the system, in consultation with the

operators. In this sense, and as has already been said, the **absence of data is to be considered as a data item**, as an element of the diagnosis that makes it possible to outline action objectives, and not as an obstacle to understanding the system and formulating recommendations.

Of the four main aspects of the diagnosis, two will pose slightly less difficulty: structures and transport offer.

- Understanding the **structures** should not pose any major problems in relation to data collection. The main point of attention will be to decipher the differences, sometimes major, between the mapping of actors as it appears in legislative, regulatory or even contractual texts, and the one that actually exists. For example, some bodies may have broad powers to intervene and monitor, but may not have sufficient resources to perform their role. In other cases, certain professional structures may be subject to power struggles or internal power struggles, making the links between actors and the competences/roles of each one unclear. Conversely, some peripheral bodies may play a much more important role than their official remit. Examples of short circuits in decision-making are also likely to be frequent. Thus, the actual functioning of professional structures may be difficult to identify. This notion of mapping the actors is therefore essential, and the consultant should try to draw it up as soon as possible, correcting and completing it as he or she goes along. In some cases, it might be edifying to present two maps, one “official” and one “real”. If there are contracts or agreements between the Organising Authority and operators, it is also important to identify the degree of application and control of these documents, and to give an opinion on the quality of their drafting.
- The characterisation of the **transport offer** will undoubtedly pose certain methodological problems, in order to define and quantify a service that is often shifting and protean in nature. Unless “heavy” projects can be launched, such as the collection of GPS tracking, the objective of this collection can be limited to understanding the logic behind the production of the offer, identifying over-served or under-served areas, constraints on the definition of routes, operating principles (taxi, fill and go, pre-set timetables, etc.), and making assumptions about the production of kilometres, which will always be subject to a margin of error. In many urban areas, the only reliable sources will be the pragmatic knowledge of public officials, interviews with operators and their representatives, and customer surveys. In the last two cases,

one will be confronted with a major difficulty: the ability of these information providers to locate themselves on a map, to provide a usable description of their route, is not always proven. Ensuring that the person you are dealing with is able to find their way around and read a map is a prerequisite for identifying the routes taken by the drivers. In some cases, the use of schematic representations of the proposed services is preferable, without necessarily seeking to go into unnecessary and unreliable detail. The diagnostician should also make an effort to characterise the quality of the service provided, by establishing a list of simple parameters or criteria (comfort on board vehicles, age and condition of the vehicle, reliability of the service, passenger information, etc.) by carrying out observations either by sampling or randomly. It should also seek to qualify and, if possible, quantify the negative externalities usually associated with small-scale transport: road safety, pollution and noise, congestion of public places in particular.

The other two parts of the diagnosis are the most exposed to the hazards of data collection:

- The characterisation of the **usage of paratransit** will be confronted with the probable absence of passenger counts. Ideally, household and travel surveys will provide reliable and complete data. In the absence of such surveys, visual counts can be made. These are sometimes difficult to carry out and can fluctuate from one day to the next. In this case, the methods can be adapted: counting vehicles at the exit of stations and assembly points, fieldwork over several days. In addition, other methods can be envisaged when data are available or possible to collect:
 - From revenues: if a plausible estimate of revenues (see below) and a fare is available, it is possible to estimate the volume of customers. However, the method will only allow an estimate of the clientele for each operator, without any geographical or temporal characterisation.
 - From the capacity of the vehicles: if the number of journeys made and the average load observed per vehicle and, if possible, per route can be estimated, the volume of customers can be approximated by multiplying the number of journeys made by the average load.

Both methods are subject to considerable uncertainty, but they can nevertheless be used to identify the major patterns.

Only a survey of users (see above) will make it possible to obtain data on the sociological composition of the clientele, the frequency of journeys, the reasons for travel and the choice of paratransit services compared with other possible modes, and the origin-destinations.

- Establishing the **business model** of paratransit is probably the most difficult chapter to write, and yet it is probably the most fundamental. For each type of transport service offered, an “average” operating account should be drawn up (for the owner and for the driver when they are separate), making it possible to assess the main expense items, a likely estimate of revenue, and therefore the driver’s income (and that of other actors such as vehicle owners or licence holders, for example). Of course, not all drivers have the same volume of activity, and it will be desirable, as far as possible, to assess several cases, or to reason in terms of ranges. Here, as elsewhere, the aim is not to establish precise data, which can fluctuate greatly, but to identify trends: depending on whether the activity is substantially profitable, justly balanced or insufficient to ensure a decent income for the paratransit worker, the whole definition of the mobility policy will be different. The question of vehicle renewal should be isolated, so as to be able to assess the economic equilibrium of the activity with and without taking account of vehicle depreciation (or provision for renewal). It is known that in many cases, the income generated by the activity does not allow for the renewal of the vehicle, which largely contributes to the negative externalities that the Organising Authority will seek to reduce. The diagnosis should also make it possible to identify any additional costs linked to poor governance of the sector (police/public authority corruption, racketeering of associations, wear and tear on funders, etc.) or to the non-optimisation of the operation of the services (non-optimal competition between operators, poor maintenance of vehicles, additional fuel costs linked to the obsolescence of vehicles, etc.). The diagnosis should also identify any under-expenditure in the operation of the sector: for example, labour costs that are too low (due to unacceptable working conditions or failure to comply with local labour regulations), or poor tax and para-fiscal collection. In preparation for a reform, these “extra costs” and “sub-costs” need to be well assessed to get a complete picture of the sector’s business model and its potential room for improvement.
- The diagnostician will also try to get as broad a picture as possible of the pricing of services: is there a logic based on the distance to be travelled or the time taken, or does each driver

set their own prices? How do customers react to price changes? What is the rate of effort made by households? What is the transport budget of households in relation to the general standard of living of city dwellers (price of an average daily return trip in relation to median income)? Is there a regulatory effort on the part of the Organising Authority or the internal organisations of the sector?

Shaping the results of the diagnosis

Once the information has been collected and analysed, the results of the diagnosis must be formatted. As the aim of the diagnosis is to present an overview and provide precise knowledge, the results must be presented in a neutral and comprehensible way for different types of audience. The diagnosis must also ensure that it **never deals with subjects “in silos”**, but rather establishes all the relationships between the different subjects and constantly cross-references the points of view of the Organising Authority, the paratransit worker, the customer, and even the resident who is the victim of negative externalities, in a systemic approach.

One of the main expected results is the identification of the strengths and weaknesses of the paratransit sector, in order to orientate the reforms that will allow it to be integrated into the mobility system by building on its strengths and reducing its weaknesses. However, due to the complexity of the sector, the diversity of actors and their interests, the diagnosis can be concluded not with a SWOT matrix (Strengths Weaknesses Opportunities Threats), **but with at least three SWOT matrices** corresponding to the point of view of the Authorities, the driver and the customer.

Finally, it is essential to **present the results of the diagnosis to the actors involved** in the paratransit sector and its potential reform pathways. The various SWOT matrices generated from the diagnosis are relevant tools for leading consultation meetings and for involving operators, who are not always used to being involved in this type of process.

Conclusion: the diagnosis, and then what?

As explained above, the diagnosis is an essential prerequisite for the implementation of an urban transport reform, whether or not it takes place within the framework of a SUMP. Based on the results of the diagnosis and the analysis of the strengths and weaknesses of the paratransit sector, it becomes possible for the actors to envisage the general direction of the reform and the main actions to be implemented.

The diagnosis must therefore conclude by:

- Identifying **the levers** on which the Organising Authority can and must act upon as a priority in order to integrate paratransit into the overall public transport offer and reduce negative externalities;
- Identifying the possible obstacles and blockages, and in particular the **conditions for the buy-in** of regulatory measures on the part of operators;
- Proposing an initial expression of the priority objectives that can be set by the Organising Authority.

The conditions of buy-in on the part of the operators, the priority objectives determined by the Organising Authority, and even its desire to change the situation more or less thoroughly, are specific to each context. However, an increasing number of cities of the South have implemented innovative and sometimes ambitious actions to improve the conditions under which small-scale transport is carried out, both for the operators and for their customers and residents. The levers for action are many and varied, and can correspond to all levels of intervention.

Today, few cities still consider that informal, small-scale or even illegal transport is only a nuisance that needs to be dealt with. Most actors now agree that this form of transport, often the only form of public transport available, is both an asset in terms of mobility and an indispensable provider of jobs and activities. The challenge now is, with often limited means of action and control, to make the positive aspects of these activities flourish by containing or even reducing their negative aspects.

There are many ways of doing this, and they lie at the intersection of transport, social and economic issues. However, they all have one thing in common: the need to rely on a detailed, impartial and complete knowledge of the local conditions in which these activities are carried out.



