QUICK GUIDE TO BUS SECTOR MODERNISATION

UN HABITAT
FOR A BETTER URBAN FUTURE

ITDP

PEOPLE ORIENTED CITIES

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AFRICAN DEVELOPMENT BANK
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PEOPLE ORIENTED CITIES

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

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FOREWORD

Quality public transport is critical to the livelihoods of people and the economies of cities. Public transport is also necessary for alleviating traffic congestion and reducing local air pollution and greenhouse gas emissions. Unfortunately, public transport in the cities of many emerging economies is operated by individual investors who buy vehicles, apply for route licenses, and start operating. While these informal vans and buses provide a crucial service, customers often have to bear irregular, uncomfortable, and unsafe transport services.

Competition for passengers often leads to pedestrian and cyclist fatalities due to reckless high-speed driving. Vulnerable users have difficulty accessing crucial transport services. In the worst cases, violence has been known to break out as rival associations compete for market share. Drivers, conductors, and other workers are trapped in low-wage jobs with no benefits and little job security, while the owners contend with a high-risk, low profit business with little opportunity for growth. Indeed, efforts to achieve the SDG Target 11.2, which call for providing "access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons," can only succeed through a change from business as usual to a planned transformation of public transport services, particularly in the rapidly urbanising countries of the world.

This quick guide shows how some cities have broken out of this trap, creating high-quality bus services at affordable prices. A number of cities have demonstrated how a good public transport system can be developed by consolidating existing public transport service providers and by ensuring clear and transparent regulatory and oversight arrangements between public authorities and public transport service providers.

The road map to formalisation of the industry should involve existing owners and workers as full participants in the modernisation of public transport. At the same time, the government should have more control of the public transport sector through intelligent contracting, system monitoring, and enforcement. The process of modernisation supports the emergence of a safe, reliable, vibrant, and indigenous private sector, in a market managed by the public sector. The outcome of the reform process is a modernised bus sector that is able to provide mobility that is comfortable for citizens.

In the wake of the COVID-19 pandemic, it is particularly important to rebuild confidence in public transport by making it safe, affordable, reliable, and efficient and at the same time avoid growing dependence on the use of personal cars.

I hope that the Quick Guide to Bus Sector Modernisation will serve as a useful reference for decision makers in national and city governments as well as for public transport operators and citizen groups who are working to make public transport safe, efficient, affordable, and reliable for all.

Maimunah Mohd. Sharif

Executive Director, UN-Habitat and
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1 INTRODUCTION

Public transport is a basic and necessary public service for any city. In cities around the world, many people depend on public transport as the primary means of transport. However, while some cities have achieved international recognition for their world-class public transport infrastructure and excellent operations, other cities have poor-quality public transport services, pushing potential passengers to use personal motor vehicles instead.

Great public transport services require both intelligent government regulation and contracting robust and effective private companies. Government's role in public transport operation varies widely. In the best cases, governments decide which public transport services to provide, then tender out these services through competitive bidding to modern quality-oriented companies. These modern companies are profitable, competitive, and provide high-quality jobs with benefits.

In the worst cases, governments play little or no role in public transport operations, and informal organisations dominate individual vehicle owners and operators. This comes at the expense of the passengers, who face poor-quality services, and of the crew, who work long hours for low and unstable pay with no benefits. In many cases, an outmoded fleet results in heavy emissions of toxic pollution, and the poor operating environment leads to dire road safety risks.

A growing number of cities in the developing world are recognising the benefits of increasing government involvement in the provision of this crucial public service. Governments can determine the quality of public transport service their city needs without having to assume the burdens of operating the system. They can drive the modernisation of existing bus companies or the transition from entirely informal public transport operators into fully modern bus companies.

This guide is intended for governments that want to take more responsibility over the public transport services being operated in their cities: in particular, cities where the bus systems are currently informal and unregulated. The pillars of public transport regulation and business planning in this guide are based on the authors' experience with bus and BRT systems across both the developed and developing world. The guide provides the building blocks for governments to create a competitive market in which multiple modern bus companies provide high-quality public transport service.

This brief summary of best practices includes details drawn from the BRT Planning Guide 2017, especially Volume 4, Business Plan. For users interested in additional information on how to establish an administrative body to manage public transport, see the BRT Planning Guide, Chapter 12, Institutional Planning. Detailed information on public transport operating contracts is available in the Chapter 13, Business Structure. Details on how best to transition from informal operators to modern operating companies are included in Chapter 16, Informal Transit Transition to BRT. Information on how best to subsidise and finance urban public transport is available in Chapter 17, Funding and Financing.

Figure 1. Nyanza terminal in Kigali, Rwanda.


STANDARD
GAYAZA
TAXI
UAM 028C

2 THE PUBLIC TRANSPORT INDUSTRY IN DEVELOPING CITIES

Existing public transport services can vary from completely unregulated minibuses to sophisticated government public service contracts with internationally competitive, modern companies. When public transport services are not properly regulated, the following problems can result:

- Drivers speed to maximise revenue from passenger fares, leading to crashes.
- Vehicles wait to fill up before departing, resulting in delays for passengers.
- Informal organisations fight for territory.
- Services are over-supplied on main roads and under-supplied elsewhere. Inadequate vehicle fleets on some routes lead to long passenger queues during peak hours.
- Traffic officers extract bribes from vehicle crews.
- Minibuses stop on main roads, causing congestion.
- Drivers competing for passengers at bus stops kill pedestrians.
- Vehicle crews fail to give adequate consideration to disabled people, children, pregnant women, and others with special needs.
- Vehicles are often old, polluting, poorly maintained, and inaccessible for disabled people.

Many of these challenges stem from the underlying regulatory structures and business models that govern the existing public transport system. Unless these factors are addressed, temporary punitive measures aimed at achieving better regulatory compliance are unlikely to succeed. Better management of the sector requires attention to both the regulatory structure and the structure of the commercial entities operating public transport services.

2.1. REGULATORY STRUCTURE

The following forms of regulation are typical. More sophisticated regulatory systems require adequate institutional capacity on the part of the agency responsible for overseeing the public transport system.

COMMERCIAL OPERATING LICENSE ONLY

- Individuals, collectives or companies can operate anywhere.
- The market is regulated by informal associations.

ROUTE LICENSE ONLY

- Individuals, associations, or companies have licenses to operate specific routes.
- The company or driver collects all revenue.

SERVICE CONTRACT

- The bus company has a contract with the government to provide services.
- The contract lays out operational standards.
- Services may be route- or area-based.

Figure 2. Old Taxi Park in Kampala, Uganda.

2.2. ORGANISATIONAL STRUCTURE

Bus operations in the developing world have a range of organisational structures, from loosely organised individual owner-operators to fully formed companies. A number of intermediate structures are possible. In some cases, owners may be organised in associations, cooperative societies, or franchise structures that provide certain services to their members. A basic service provided by associations is the management of vehicle queuing at terminals. Often, associations tend to protect their market from other operators on certain corridors or within certain zones. Some associations have evolved into legal entities with formal governance and some features of a bus company, such as centralised fleet maintenance, dispatching, and taking on debt for fleet procurement.

INDIVIDUAL OWNER-OPERATORS

- Each vehicle is owned and operated by an individual.
- The owners are often organised into associations or cooperative societies.
- The fleet is usually maintained by individuals.

BUS OPERATING COMPANY

- The fleet is owned by the company rather than individuals.
- The company has formal fleet maintenance protocols and access to depot facilities.
- There are corporate governance standards.

Fully-formed companies can be either be public or private, leading to varied levels of service quality and operational efficiency. One way to inject public funds into bus services is through a municipal bus enterprise. However, in the developing world, publicly owned municipal bus enterprises have mostly floundered. Turning informal operators into formal private companies has been somewhat more successful than privatization of former municipal bus enterprises in the developing country context. This guide focuses on the former.

2.3. STAFF COMPENSATION

Many of the challenges associated with paratransit systems stem from the way that drivers are compensated. Informal public transport services typically operate on the “target” system, where the crew is required to pay daily rent to the vehicle owner. The crew receives the net revenue after paying for fuel, maintenance, and other expenses. Drivers and conductors operate at the will of the vehicle owner, with no workplace benefits or job security. Crews face constant pressure to maximise the number of passengers, leading to speeding, overloading, and risky driving behaviour. A change in the incentive structure for the crew is key if the system is able to overcome these undesirable outcomes.

VEHICLE CREW OPERATING UNDER THE TARGET SYSTEM

- Driver and conductor earnings are directly determined by the number of passengers carried.
- Little or no job security.

STAFF RETAINED IN SALARIED POSITIONS WITH FORMAL CONTRACTS

- Crew members earn a fixed monthly salary.
- Individual performance is incentivised through parameters such as driving safety rather than the number of passengers carried.

Figure 3. Existing public transport systems provide an essential service but experience a number of challenges, including overcrowding, dominance of cartels, frequent crashes due to the competition for passengers, and toxic pollution that harms passengers and crew members alike.


Embarque
5
Carabayllo
Metropolitano
Municipalidad De Lima
42055
A4A-789

3 REGULATING THE MODERN BUS COMPANY

The government's approach to regulating the bus industry is a crucial factor in determining the type of bus companies that emerge. The government must be a strong, consistent, and fair regulator of the bus market, with the interest of the travelling public in mind. Sophisticated government regulation and tendering influences improved quality of service, multiple successful competitive companies offering a high quality of service.

This chapter discusses how the government's activities as a regulator can provide the necessary conditions for a flourishing competitive market of bus services that ultimately provide high-quality service to the public. Additionally, this chapter provides guidance for the management of secondary elements of the bus service, such as fare collection, station services, and operations management.

3.1. HOW SHOULD BUS OPERATING COMPANIES BE REGULATED?

✔ **OPERATING CONTRACTS**

An operating contract defines the relationship between the government and the bus companies. It allows the government to control how much service is provided to its citizens, at what price, and of what quality.

✘ **BASIC LICENSES**

If the only regulatory requirement is for a bus company to have a commercial operating or route license, the government has no control over how the service is provided. The result is generally lower-quality service, poor maintenance, safety risks, and extra-legal control over the market.

The following sections discuss the optimal arrangement and scope of operating contracts.

3.2. WHAT IS A BUS OPERATING CONTRACT?

The basis for regulating a bus company lies in an operating contract, a legally-binding agreement between the government and a formal bus operating company. The operating contract defines the service to be delivered by the bus operator, the quantity of service, the geographic distribution of the service, the method of payment for the service, and any incentives and penalties.

Figure 4. Carabayllo terminal in Lima, Peru.

Figure 5. Multiple bus operators provide service within the TransMilenio BRT system in Bogotá, Colombia.

3.3. HOW MANY OPERATING CONTRACTS?

✔ **MULTIPLE CONTRACTS WITH DIFFERENT BUS COMPANIES**

With multiple bus operating companies, a government can more easily replace a failing operator, and have more leverage to use 'quality-of-service' contracting, where penalties for poor performance on one company can be given back to the industry as a whole as a reward for good performance by the other companies.

✘ **AVOID CONTRACTING SERVICE TO ONE SINGLE COMPANY**

It takes time for a bus operator to set up operations, and if a single monopoly operator fails to perform according to the contract, it is very difficult to replace it if there is not another bus company already on hand to step in.

3.4. WHAT SHOULD THE CONTRACT SPECIFY?

The bus service contract should incorporate the following elements:

- Specifications for the buses that will be used for the service.
- How the company will be paid (e.g., per kilometre, per passenger, etc.).
- Depots where the service will be based, and who is responsible for paying for what.
- Detailed explanation of quality of service bonuses and penalties.
- Process for settling disputes.
- Clear explanation of the company's responsibility versus the government's responsibility.
- Clear explanation of the assets the government is providing to the company, if any, and the terms of use.

3.5. WHERE WILL THE BUS COMPANY OPERATE?

If the government has the technical capacity, it should take responsibility for planning the routes and the level of service on each route, based on demand, need, and costs. As ridership changes, the contract should be flexible enough to allow for changes in the bus services.

✔ SERVICE CONTRACT

Operators are paid to provide bus service wherever the government directs them, for a specific fee (usually a fee per kilometre, but sometimes more complex formulas are used). The government typically assures a minimum level of revenue (e.g., through a guaranteed minimum number of kilometres). Operators do not have an exclusive right to operate on a particular route or in a particular zone. The government therefore retains the flexibility to adjust services in response to demand changes without requiring complex contractual renegotiations.

✘ ROUTE CONCESSION

The contract gives an operator an exclusive right to operate on a specific route or set of routes. It is generally very difficult to increase the level of service on one route owned by one operator and decrease it on another route owned by another operator in response to changes in demand. It is also difficult for the government to add a service integrating two routes.

✘ ZONE CONCESSION

The contract gives all services within a zone to a single company. Zone-based concessions are a major improvement on route concessions, but bus routes between zones are hard to implement and often result in passengers being forced to make inconvenient and costly transfers. There are often difficulties if the government wants to provide or change services between the zones because this requires negotiations among the operators.

Figure 6. BRT corridor in Guangzhou, China.

3.6. HOW SHOULD OPERATING COMPANIES BE PAID?

A gross-cost contract incentivises high-quality service by paying the operator for services provided, rather than having the operator simply collect and keep passenger fares. A small fee per passenger paid to the bus operating company can serve as another incentive to provide high-quality service and to actually stop and pick up all passengers.

✔ GROSS-COST CONTRACT

Government receives the fare revenue and pays the bus operating company based on a formula that is heavily weighted on a fee per kilometre of service provided. This creates a high-quality public transport service, as the bus company is incentivised to follow its assigned schedule and routes instead of waiting until buses are full. It also allows the government to withhold some funds if quality of service standards are not met. The formula may include a small fee per passenger in order to incentivise good service and stopping at the designated bus stops. A gross cost contract may necessitate the provision of subsidies if the service fee is greater than the revenue collected from passenger fares.

Payment to the operator = Kilometres operated x Fee per km +
Passengers x Fee per passenger + Bonuses – Penalties

✘ NET-COST CONTRACT

The bus operating company has a monopoly over a specific set of routes or zones and collects and keeps its own fare revenue. This gives the government a lot less control over the quality and quantity of service; makes it harder to redesign routes when necessary; and tends to result in a less reliable, unsafe service, with less service off-peak and on lower volume routes. The arrangement places more revenue risk on the operator.

Operator profit = Passengers x Fare per passenger – Licence fee – Operating costs

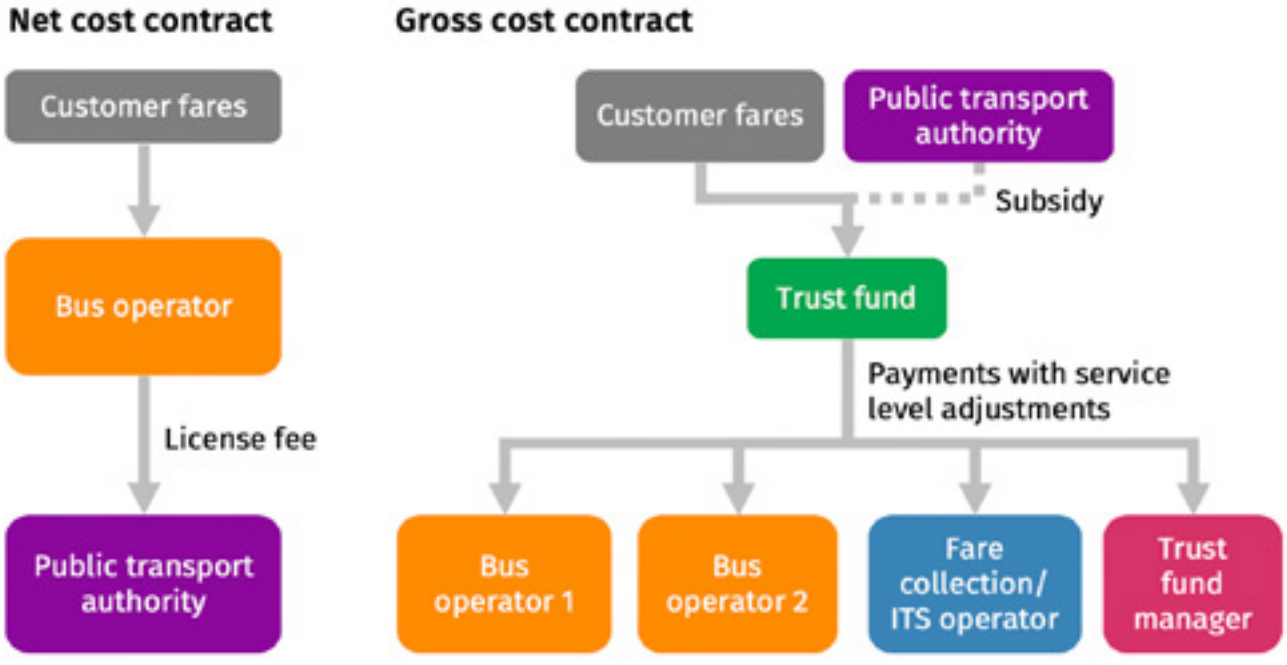

Figure 7. Under a net-cost contract, operators receive customer fares directly. Under a gross-cost contract, fare revenue is held in a trust fund and payments to operators are contingent on compliance with service level standards.

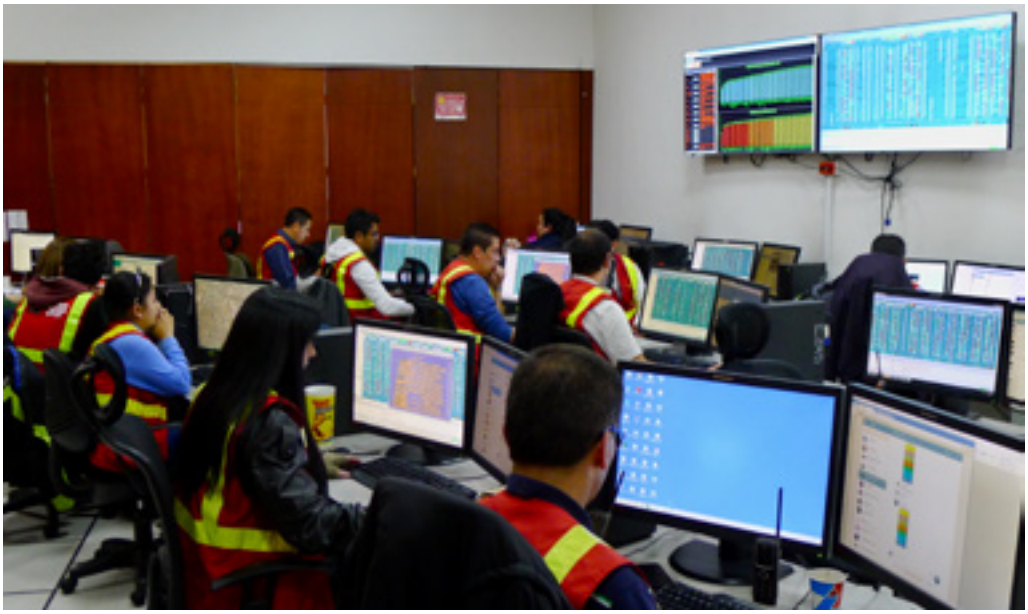

Figure 8. To manage a gross-cost contract, the government needs to have data from on-board GPS devices indicating the number of kilometres plied by each bus.

3.7. HOW SHOULD FINANCIAL RISK BE DIVIDED BETWEEN GOVERNMENT AND OPERATORS?

✔ MATCH FINANCIAL REWARDS TO FINANCIAL RISK AND PERFORMANCE

While the government would like to demand the highest quality of service and put all of the financial risk on the private operator, the private operator would like to put all the financial risk on the government and avoid accountability for service quality. Since the private operator is not fully responsible for changes in ridership, which can result from an economic downturn or a host of other reasons, the government will need to share some financial risk with the operator, and in exchange it can require the operator to maintain the level and quality of the service even during a downturn.

Usually, this financial risk is shared by having the operator primarily paid based on kilometres operated and partially paid based on ridership (amounting to 10-20 percent of the total payment), with some limits on how much the government can change the number of kilometres in the case of a downturn. Alternately, the government can calculate remuneration for operators as a fraction of the total revenue received, with the payment to each operator set in proportion to the number of kilometres plied by the respective operator. Government can also provide fixed payments to partially mitigate the investment risks associated with the procurement of fleet and other fixed assets if the system is not inherently profitable.

The government should take steps to prevent predatory competition, which can undermine the reform process by increasing financial risk for operators or the need for subsidies.

✔ PREVENT PREDATORY COMPETITION TO REDUCE FINANCIAL RISKS

- Regulate access to the market (i.e., cancel competing route licenses and prevent illegal operations through police enforcement).
- Facilitate an inclusive reform process so that all operators transition to the new system rather than compete with it.
- Introduce a physical barrier to entry in the form of a dedicated BRT corridor.
- Introduce a widespread, popular fare collection media only usable with the contracted operators.

3.8. MANAGING GOVERNMENT SUBSIDIES

Most developed countries with high levels of motor vehicle ownership have made the political decision to subsidise public transport services as part of a public service obligation. In the developing world, relatively few municipalities have put together the funding structures to subsidise public transport. Governments frequently have under-developed taxation regimes and face a host of competing demands from basic sanitation to health care to education. This situation is gradually changing. From Colombia to South Africa, a growing number of emerging economies invest government funding in public transport operations. Sometimes the funding is found through earmarking a portion of fuel taxation, parking revenues, or property taxation; other times it comes from general revenue.

Whether or not to subsidise public transport is ultimately a political decision—without it, quality of service could suffer. If a government does decide to support public transport, and decides to move towards gross cost contracting, there are best practices for how subsidy payments can be managed in a way that minimises the risk of creating open-ended unsustainable financial obligations.

✔ DESIGN THE SYSTEM FOR EFFICIENCY

If government plans to tender some new bus services, it should design the system to be efficient and it should determine in advance how profitable the system is likely to be. It can then sign contracts with operators where any required subsidy is known in advance. In a gross-cost contract, for instance, if demand falls, the government can retain the right to reduce the number of kilometres it asks the company to operate.

✔ INCREASE FARES IF OPERATOR EXPENSES ALSO INCREASE

Operating contracts usually allow for an increased payment per kilometre if fuel prices or other costs increase sharply. The public transport authority can insulate itself from financial problems by seeking agreement in advance from municipal authorities that if the fee per kilometre increases, the passenger fare will be increased to the same degree.

✔ LINK OPERATOR PROFITS TO SYSTEM PROFITS

Operators can be paid based, in part, on ridership. This can happen by simply programming more kilometres if ridership increases or through a modest fee per passenger. In this way, both the government and the private operator share a stake in increasing ridership. More ridership will mean lower government subsidies.

3.9. WHO SHOULD OWN THE FLEET?

✔ OPERATORS

Operators are more likely to maintain their buses well if they own them. Operators know better than government which buses and spare parts to buy from which manufacturers. If the operator buys the buses, and there are problems with the procurement, it cannot blame the government, making lines of accountability and financial responsibility clear. An operator that buys buses makes a significant investment into the business, giving the operator a big stake in whether the business succeeds or fails. It is, therefore, usually better to have the bus operator procure the buses, even if the government compensates for this cost. The length of the operating contract should be tied to the expected lifespan of the buses.

GOVERNMENT

Governments are not generally skilled at buying and maintaining buses. Most governments lack experience in bus procurement and maintenance and lack any profit incentive to maintain the bus fleet properly. Unfortunately, governments are also easily influenced by political rather than operational considerations.

Under some circumstances, particularly if bus or BRT operations are not expected to be profitable, government purchase of the buses can be a solution. In such cases, problems with government bus procurement should be minimised through the following provisions: the private operator should be a co-signer to the bus procurement contract; full responsibility for fleet maintenance should be assigned to the private operator in the leasing arrangement; and the bus asset should be transferred from government to the private operator over time.

3.10. WHO SHOULD OWN THE DEPOTS?

GOVERNMENT

Owning the depots allows government to retain the depots in the case of a bus operator change. The depots become part of the government's concession to the private bus operator(s). The government builds and owns the physical structures and some of the heavy equipment, while the operator provides removable furnishings and supplies. Depots should be sited to minimise "dead kilometres," or the distance buses need to travel from their corridor of operation to the depot.

OPERATORS

If the government does not have the financing, it can ask the bus operators to provide their own depots, but if the depot is strategically located, the government may lose the depot if it needs to change operators.

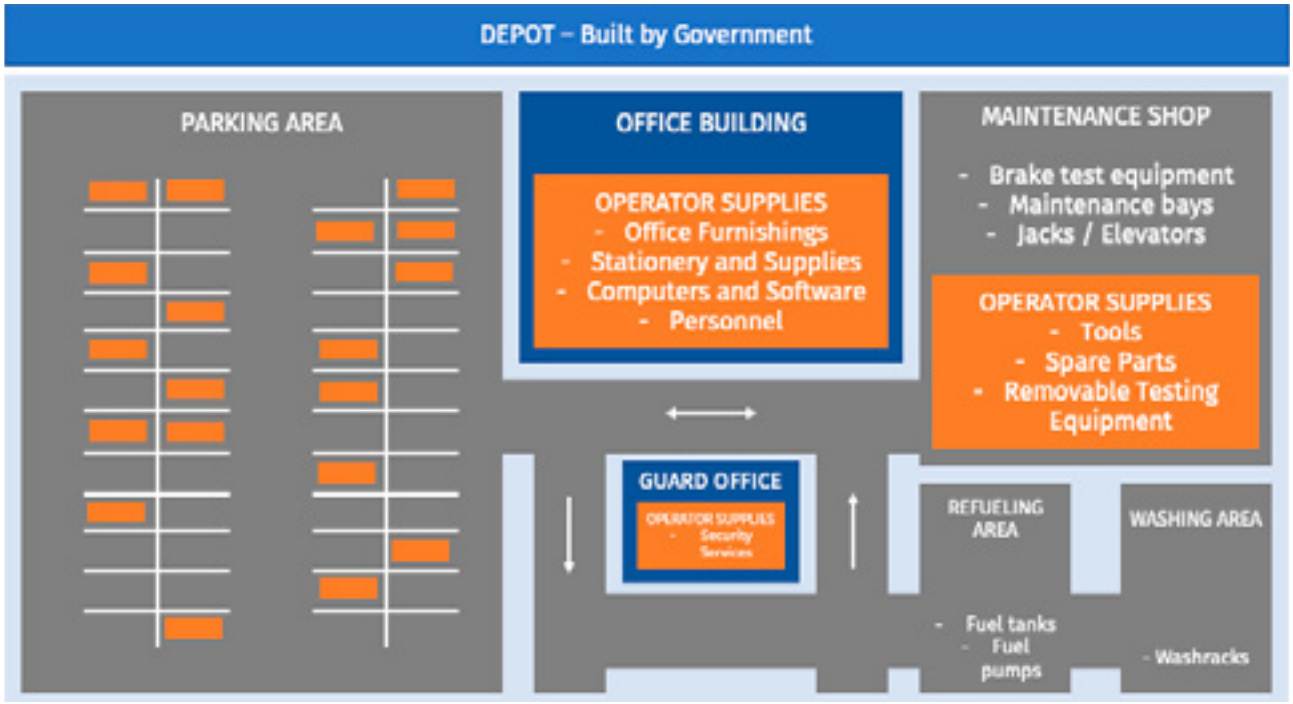

Figure 9. Basic depot facilities should be provided by government (blue, brown), while the operator can supply removable furnishings and supplies (orange).

3.11. HOW SHOULD THE GOVERNMENT MANAGE THE BUS SYSTEM?

It is critical to have a governmental body with clearly designated authority to manage the bus system. This is generally a responsibility of a municipal department of transport or a public authority established to manage the public transport system. In the developing world, and in smaller cities, these government authorities often have limited administrative capacity that must be built over time. Any government transport department with clear legal authority over the bus system can grow into the role of managing the bus system. In many cases, the transport agency's prior role may have been limited to issuing route licenses in exchange for a fee. Changing the way a department plays this role is often difficult and requires the intervention of the mayor, often facilitated by hiring outside consultants to help manage a tender and sign a good contract with good bus operators. The responsible department will need to learn some new skills. It also will need to take more responsibility for planning the needed services, hiring qualified operators, and supervising compliance with operating contracts. Once good private bus operators have been hired, the administration is responsible for making sure that the companies comply with the contract.

✔ **LEGAL AUTHORITY**

Give clear legal authority to a government department or transport authority to manage bus operations.

✔ **EXPERIENCED STAFF**

The government department should include staff with expertise in public transport planning and contract management.

3.12. HOW CAN THE GOVERNMENT ENSURE A HIGH LEVEL OF SERVICE?

Bus operating contracts should include a system of financial rewards and penalties based on the quality of service. These can include:

- Cleanliness
- Maintenance
- Service regularity
- Driver behaviour
- Passenger satisfaction

Each bus operator's performance within these metrics should be measured by the government through random inspections and operational control monitoring. The government then issues financial bonuses or penalties depending on the observed quality of service. With multiple operators, penalties can be paid into a penalty account that is paid out to the operator with the fewest penalties at the end of each month.

3.13. WHAT ACTIVITIES SHOULD BE OUTSIDE OF THE BUS OPERATING CONTRACT?

Beyond the service a bus company operates, various ancillary services are vital for the functioning of a modern bus company. One of the most fundamental steps in bus industry regulation is for the government to separate the farebox revenue from remuneration to operators. The following points discuss how the government should manage these ancillary services.

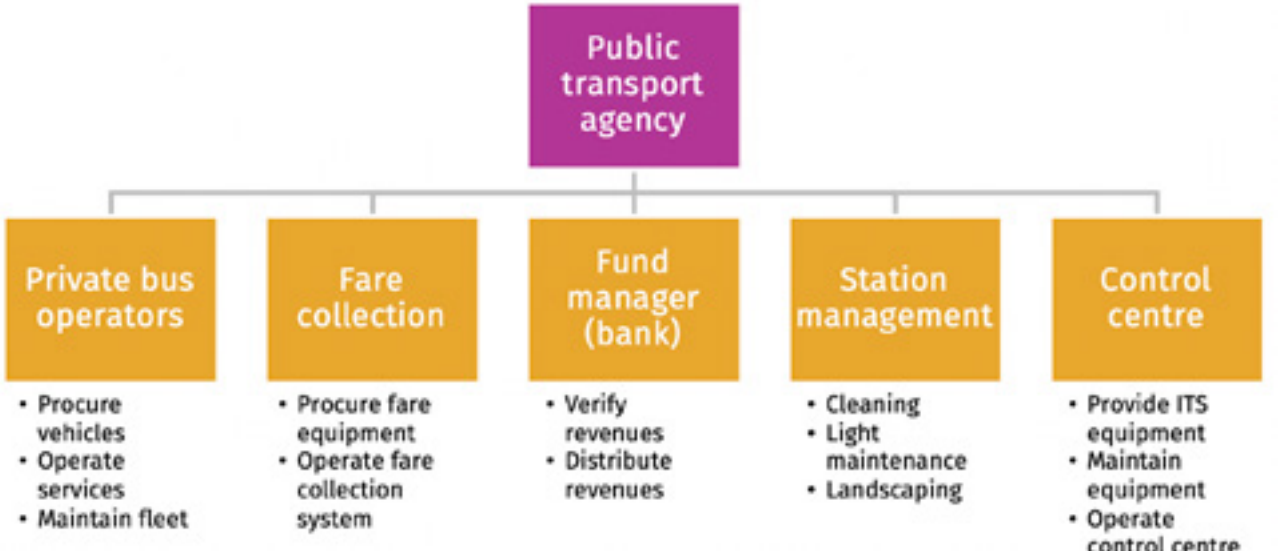

Figure 10. Relationship between the public transport agency and service providers.

3.14. HOW SHOULD FARE REVENUE BE COLLECTED AND MANAGED?

A fare collection system collects fares from each passenger and deposits them in a bank. There are several advantages to separating fare collection from the bus operator. The government has much more control over a bus operator when it has control of the fare revenue, and only pays the bus operator when it has met its contractual obligations.

✔ **THE FARE COLLECTION SYSTEM AND TECHNOLOGY SHOULD BE MANAGED INDEPENDENTLY FROM THE GOVERNMENT AND THE BUS OPERATORS**

Private-sector companies specialising in fare collection tend to manage fare collection technologies more cost-effectively than government and avoid the conflict of interest inherent to bus operator-led fare collection. The fare collection firm collects fares through its payment platform and provides them to the fund manager.

Figure 11. On-board smart card reader in Kigali (left) and off-board fare collection in Dar es Salaam (right).

✔ **PERMIT THE USE OF MULTIPLE PAYMENT MEDIA LINKED TO A SINGLE CLEARING HOUSE**

Fare collection systems can improve ease of use for passengers by offering several modes of payment, including smart cards, credit cards, debit cards, QR codes, smart phones, and regular phones, all connected to a central clearing house.

Some fare collection companies deposit fare revenues directly into a government account. However, private bus operators do not always trust the government to be transparent about the fare revenue received. Therefore, they are more comfortable having a third party (usually a bank) receive the funds and provide transparent information about the amount of funds received to both the government and the operator.

✔ **THE FARE REVENUE SHOULD BE CONTROLLED BY AN INDEPENDENT FUND MANAGER, TYPICALLY A BANK**

Independent management of funds means greater transparency, reduced pilferage, and better contract compliance. The fund manager, usually a trustworthy financial institution, disburses regular payments to the bus operator, all related contractors, and the government, based on previously agreed-upon terms.

3.15. HOW SHOULD THE OPERATIONS BE CONTROLLED?

Operational control systems tell the bus driver to speed up, slow down, skip stops, or change routes if the driver is not following the schedule, or if there is an incident. The operational control system also documents the degree to which the operator is complying with some of its quality of service metrics. Dispatchers in an operational control centre access the entire network on live maps using Global Positioning System (GPS) data and use automated computer assisted dispatching to make decisions about service adjustments and communicate them to drivers.

A third-party company should maintain operational control under contract to the

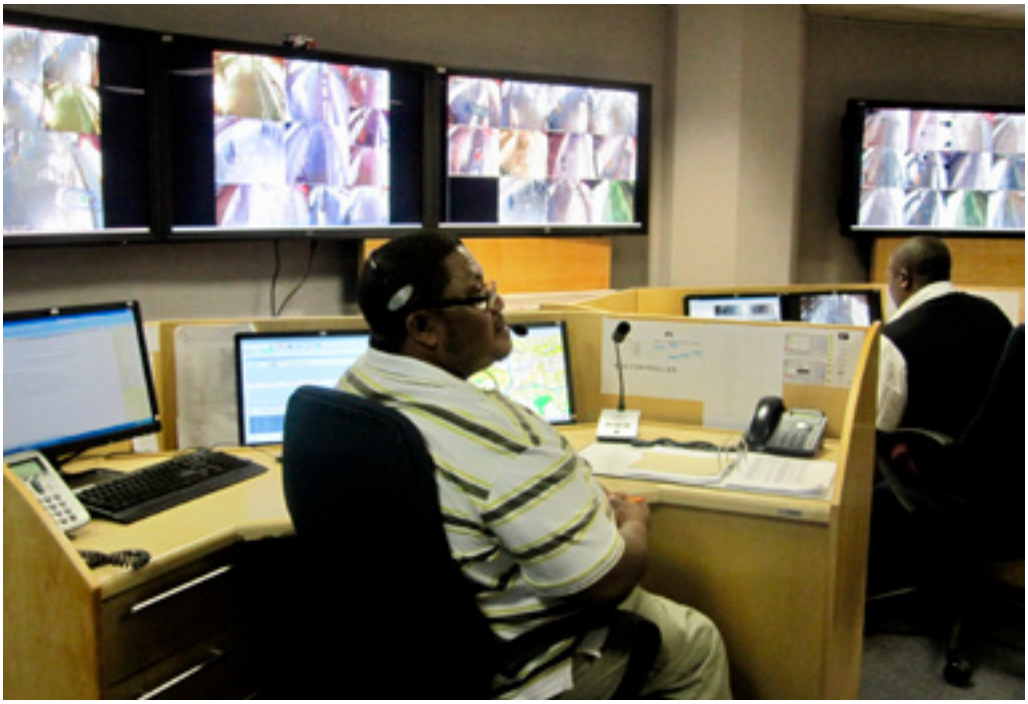

Figure 12. Control centre in Johannesburg, South Africa.

government. Private-sector companies specialising in operations technology are likely to manage operational control more cost-effectively than government agencies. The operational control company monitors operators' compliance with the services laid out in the bus operating contract and report to government. All data are provided in a real-time feed to the government. A private company specialising in operations technology provides ITS equipment. If the buses do not come equipped with GPS or radios, the contract should include procurement and installation of this equipment.

✔ **SINGLE OPERATIONAL CONTROL FOR THE ENTIRE SYSTEM**

In an environment where there are multiple bus operators, particularly on the same corridors, it is necessary to coordinate these multiple services in order to ensure adequate frequency.

✘ **EACH OPERATOR MANAGES ITS OWN OPERATIONS**

Requiring bus operators to have their own operational control systems is a reasonable second-best option, but it is a missed opportunity to manage all the operators with a single system.

Figure 13. On-board console for managing bus headways.

3.16. HOW SHOULD STATION SERVICES BE PROVIDED?

Simple bus stops tend to be managed by government agencies or by advertising companies in exchange for the right to use the station for advertising. As bus systems evolve into BRT systems, the functions of the station get more complex. BRT stations generally validate fare payment off-board the bus. They also provide real-time bus arrival information, purchasing or refilling a fare card, passenger information, and wayfinding.

✔ COMBINE PASSENGER INFORMATION SERVICES AND BUS OPERATIONAL CONTROL INTO ONE CONTRACT

Operational control and customer information systems are related and can be included in the same contract to simplify tendering and contract management.

✔ FARE COLLECTION CAN BE TENDERED SEPARATELY FROM PASSENGER INFORMATION SERVICES AND BUS OPERATIONAL CONTROL

Fare collection services, including fare card purchase and refill, fare validation, and clearing house management, should be contracted to a firm that specialises in fare collection technology.

✘ AVOID TURNING TO ADVERTISING COMPANIES FOR STATION SERVICES

Numerous cities have turned over the provision and maintenance of bus stops to advertising companies. This has often worked well for standard bus stops but has not worked as well for BRT systems where there is a highly specialised station design and customer information is paramount.

CASE STUDY: BRT BUSINESS MODEL IN DAR ES SALAAM

The city of Dar es Salaam, Tanzania, launched its first-phase BRT system in 2016. Prior to the start of BRT operations, public transport in the city of over 5 million inhabitants was provided by an network of daladalas, or minibuses, which operated with route licenses. Over 5,000 daladalas plied the streets of Dar es Salaam, and over half of these were expected to be affected by the new BRT system. Effects ranged from re-routing existing daladala routes to cancelling over 70 routes.

Consultants recommended a competitive tender to secure an operator, but the role that would be played by incumbent operators was not clear. Fearing they would lose their businesses, the two daladala owners' associations made a deal with a businessman who purchased a moribund former state bus enterprise that retained an ambiguous legal right to a monopoly over public transport services in Dar es Salaam. This new joint venture was awarded the contract without a tender on an interim basis and has been operating the Dar Rapid Transit (DART) service since 2016.

The BRT operator provides services on a net-cost basis, resulting in shortcomings in service quality, including overcrowding, irregular headways, and insufficient off-peak service. To address these challenges, the DART agency launched a process to secure a permanent operator through a competitive tendering process. Under the new contract, the bus operator will be remunerated on a gross-cost basis, with per-kilometre payments.

Figure 14. BRT corridor in Dar es Salaam, Tanzania.


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4 TRANSITIONING TO A MODERN BUS SYSTEM

Owners of the current bus services are key stakeholders with deep roots in their communities and should be part of the new system, under a different business model.

4.1. HOW SHOULD THE GOVERNMENT PREPARE FOR THE TRANSITION?

A bus industry modernisation tends to work best when paired with other changes to the bus system. This is because usually it is easier to entice operators to modernise when there is some incentive to do so. Among the possibilities are:

- Fleet renewal
- New service plan
- BRT system

Whether or not a new service plan is made (see the BRT Planning Guide, chapters 4 and 6, for more information on service plan design), the government can tender for the operation of a set of routes. As these routes will be the same or similar to routes already provided, they will receive the following designations:

FULLY AFFECTED	PARTIALLY AFFECTED	NOT AFFECTED
• The full route or more than half of its initial length is included in the tender. • The route is cancelled completely.	• Less than half of its total length is included in the tender. • The route is relocated onto a parallel corridor.	• The route and frequency are not changed at all. • The route is changed minimally, such as adding or removing a handful of stops.

Each operator on an 'affected' route will be designated as an 'affected' operator and each operator on a 'partially affected' route will be a 'partially affected operator.'

4.2. INVOLVE AFFECTED OPERATORS IN NEW CONTRACTS

Governments and sometimes the incumbent operators themselves do not see the potential for transformation into modern bus companies. In this case, the government may try to bring in a new operator from outside, and the incumbent industry may try and block the reform process all together. Experience sharing by successful operators who have gone through the process can help convince both the government and the incumbent operators that modernisation is possible. Social outcomes are generally better when the incumbent operators see the long-term potential of formalising their businesses and become constructively involved in the process. The following factors support the inclusion of existing operators:

- **Operational reasons:**
  - The affected operators know the system: who are the best drivers, the best local mechanics, how the industry is structured, the routes with the best demand, the best places to buy parts and fuel, and have relationships with passengers.
- **Legal reasons:**
  - Existing route licenses and contracts grant existing operators permission to operate.

Figure 15. BRT station in Dar es Salaam, Tanzania.

Figure 16. Bus terminal in Dakar, Senegal.

- Including such license holders will minimise the need to pay them compensation.

- **Political reasons:**
  - Many bus operators are politically active. They may initiate strikes that impact the entire Public transport system.
  - Many bus operators are politically connected. Their influence could impact government support of bus company modernisation.
- **Financial reasons:**
  - If existing operators are not involved in the new service, incumbent operators may continue to operate in competition.
  - The new companies, if successful and competitive, can become engines of economic development that can expand to operate service in other cities.
- **Social reasons:**
  - Existing operators are a major source of employment for local communities.
  - Integrating existing crew members into a modern bus company improves their job security and provides better employee benefits.

4.3. HOW DOES THE TRANSITION TAKE PLACE?

The government must initiate the transition through regulatory changes and a tendering process. This is a five-step process, as shown below.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Define the service to be tendered	Issue a prospectus of the business	Stop renewing Licenses on affected routes	Identify & register affected operators	Issue tender with incentives to include affected operators

4.4. WHO ARE THE AFFECTED OPERATORS?

The government should compile a registry of affected operators. Operators wishing to be included on the list must hold a license for a route designated as an “affected route” in the service plan. Those registering must appear in the government offices and leave a copy of

Figure 17. Bus terminal in Kigali, Rwanda.

the valid route license. They must indicate details of their vehicles, their name and address, how they can best be reached, and name and address of their driver. They must also indicate if they wish to participate in the new bus operations; if and how they are willing to form a company for that purpose and with whom; and who should represent them.

The registry should be reviewed by any organisation whose membership includes operators that are among the potentially affected operators. License holders who are not currently actively operating will not be included. License holders who have outstanding criminal warrants, moving violations, or have otherwise been engaged in illegal activity will be excluded.

4.5. MANAGED COMPETITIVE TENDER OR NEGOTIATED CONTRACT?

✔ **MANAGED COMPETITIVE TENDER**

An open tender is held. The bidder will be selected based on the highest quality proposal with the lowest price. However, some experience points will be awarded to bidders that include among their shareholders and employees, people whose names appear on the “affected operator” list. In this way, the new operator will likely include many former operators, while retaining an element of competition in the selection process. Additional experience points will be awarded to bidders that bring in a management team with international bus or BRT operating experience.

Often times, successful bidding companies will be a joint venture between local operators and an existing larger company with public transport or logistics experience. An outside company is going to need experienced staff anyway. Following are the advantages of an open tender:

- An open tender is more transparent.
- The selection process can follow a clear timeline.
- The bidding price will be lower due to competition.
- Minimum qualification criteria (e.g., capital reserves, presence of competent managers, and corporate governance standards) can be enforced.

✘ **NEGOTIATED CONTRACT**

Sometimes the government may not want to risk confrontation with the existing operators. The government may choose to negotiate with the operators if they form themselves into a modern company and sign a new contract.

However, negotiated contracts come with the following risks:

- Government has weak leverage in the negotiation.
- It is hard to control the timeline, and negotiations can drag on for years.
- Government will pay a very high price for the services.
- The company may never agree to quality of service penalties in the contract.
- To mitigate these risks, the government can pursue the following measures:
- Set a timeline for negotiation, whereupon if they fail, the government will move to a managed competitive tender.
- Negotiate with more than one group for more than one contract for leverage.

4.6. UPHOLDING LABOUR AND GENDER INCLUSION STANDARDS IN NEW CONTRACTS

✔ PRIORITY HIRING LIST

Government should create a priority hiring list that includes all bus drivers, conductors, and maintenance staff from affected and partially affected routes. Bus operating contracts should require that some percentage of drivers and maintenance staff be hired by the bus operating company.

✔ WORKPLACE BENEFITS

The bus operating contract should ensure that companies in turn offer benefits such as defined work hours, paid sick leave, and paid parental leave to their staff.

✔ GENDER REPRESENTATION

Bus operating contracts should ensure that gender inclusion is followed in hiring for different aspects of the bus operating business, including drivers, mechanics, and management.

CASE STUDY: BUS REFORM IN KIGALI

Kigali, Rwanda, has made substantial progress in public transport reform since 2008. Reforms were initiated by the government of Rwanda and the mayor of Kigali as a means to respond to the city's growing population and the need for better coordination of public transport services. The available minibuses, known as Twegerane, had a carrying capacity of 18 passengers and were old and dilapidated. The minibuses were run by individuals, and owners could decide at what time and in which routes to operate. Minibuses were often overcrowded, and at times the rush led to chaos at bus stops and terminals. Women, children, disabled people, and elderly could not adequately access public transport.

The minibuses were grouped into an association, the Association des Transports en Commun (ATRACO), in a bid to improve coordination. This however proved ineffective, and service remained inadequate. The government requested the intercity and upcountry public transport operators, Office National de Transport en Commun (ONATROCOM) buses, and other private bus services such as Volcano Express and Tebuka to support the city's public transport operations during peak hours. In order to address the frequent chaotic scenes witnessed at bus stations and stops, the government also introduced a queueing system. Insecurity in bus stations abated and vulnerable groups were able to access public transport more easily. This culture of waiting queues is still practiced today.

In 2011, the Ministry of Infrastructure initiated the development of the first public transport policy and strategy for Rwanda. A committee to draft the policy was composed of technical staff from the Ministry of Infrastructure (MININFRA), the City of Kigali, and the Rwanda Utilities Regulatory Authority (RURA). The policy was approved by the cabinet in October 2012 and became the guiding document for the formalisation of public transport in the city of Kigali. It was implemented actively by the City of Kigali Council and RURA.

The public transport formalisation process was led by the City of Kigali through the mayor's office, coordinated by MININFRA, and overseen by the Office of the Prime Minister. A steering committee comprised of government institutions and private sector operators was formed to plan and design solutions to address public transport challenges and expedite the formalisation process.

The reforms included forming cooperatives and companies in place of the former associations. However, implementation of the new guidelines faced strong resistance from minibus owners, since they did not understand how they would benefit from operating within cooperatives. The public transport steering committee played a major role in convincing them to form cooperatives and companies. Bus owners could get credit and loans from banks and would have the ability to bid for government tenders for public transport operations. The cooperatives formed by the minibus owners later united to form the Rwanda Federation of Transport Cooperatives (RFTC), currently the largest bus operator in the City of Kigali. Other individual minibus owners formed companies such as Royal Express and the Kigali Bus Service (KBS). Minibus owners under RTFC have equal shares and earn profits based on equity. Royal Express and KBS operate as companies with individual owners run by appointed management teams.

Through a competitive tendering process, RFTC, KBS, and Royal Express won tenders to operate the Kigali public transport system. The process took approximately six months and the five-year public transport contracts were signed between RURA and the bus operators in August 2013. The government of Rwanda spearheaded the reforms by helping cooperatives build capacity by training cooperative members. Some of the drivers and conductors joined the revamped modern system. They received regular training and were offered licenses and certificates of good conduct. Importation taxes on the high capacity buses were waived and the government facilitated access to loans for the companies. Large capacity buses tended to operate on major trunk routes while minibuses operated on feeder routes. Over time, the smaller 18-seat minibuses were phased out entirely. The quality of public transport improved due to the increased routine inspections by the steering committee. Smart card payment technology was introduced on a pilot basis on designated routes in 2014, and officially replaced conductors in 2015. Due to the increased profits and the improved operations, the initial resistance slowly faded over time.

Drivers were among the major beneficiaries of the revamped system. Prior to the reforms, drivers did not have salaried pay. Minibus owners would set minimum returns and the drivers' wage would then depend on the remaining balance. Under the new reforms, these working conditions have improved and drivers are offered salaried contracts from RWF 110,000 to 180,000 and universal medical insurance. The working hours were also drastically reduced. Each bus is expected to have two drivers, each working fifteen days a month. A driver typically works for eighteen hours each day, every other day. Apart from having stable jobs, these drivers and conductors also have access to bank loans from the RTFC microfinance and additional job opportunities in stations, bus depots, and garages owned by RTFC.

Rwanda is currently working on the second phase of the public transport reforms, which aim to include strict bus scheduling and real-time monitoring of buses. RURA also hopes to improve coordination of public transport routes based on data collected from the automated fare collection system.


Rea Vaya

5 THE MODERN BUS COMPANY

With a well-written contract and a strong government partner, a bus operating company should be able to flourish. A modern bus operator should maintain the triple bottom line:

- **Profitable**: Private bus companies provide a public service but operate at a profit.
- **Socially responsible**: Modern bus companies draw their employees and shareholders from former informal operators and provide stable incomes and with benefits. Modern bus companies operate safe and comfortable services.
- **Environmentally responsible:** Operating contracts require the use of clean vehicles.

Government can ensure these outcomes through good contracts with bus operators. A company that achieves these outcomes is considered a successful modern bus company.

5.1. MEASURING A BUS COMPANY'S DEVELOPMENT

Great bus companies can evolve in any number of ways. Companies can be formed by minibus associations, or by their members, or through government intervention, or be amalgamated from smaller existing companies, or joint ventures with bigger companies. The more developed and consolidated the industry is, the easier it will be for the government to take the next steps towards industry modernization. Usually the company formation process is greatly accelerated by the tendering process. The ownership structure of a bus company is not that important, so long as there is a clear management structure with a competent management team. A bus company's level of corporate development can be measured by ten factors included in the Bus Company Modernisation Metric (BCM²).

- Fleet owned by the company.
- Fleet secured in a depot.
- Services regulated by operational control system.
- Drivers are salaried employees.
- Modernised fleet.
- Modern fully equipped depot.
- Optimised operations.
- Good corporate governance.
- Optimised maintenance protocols.
- Sufficient reserve fleet (i.e., at least 6 percent).

Company	Fleet ownership	Depot capacity	Bus emissions	Salaried drivers	Depot facilities	Operational control	Maintenance optimisation	Fleet & staff deployment	Reserve fleet	Corporate governance	Overall score
A	7.0	4.0	4.0	9.0	5.0	10.0	0.0	10.0	10.0	0.0	59.0
B	10.0	8.4	8.5	10.0	6.0	10.0	10.0	10.0	10.0	10.0	92.9
C	4.0	8.0	3.0	0.0	3.0	0.0	0.0	0.0	10.0	0.0	28.0
D	4.0	5.0	8.0	5.5	4.0	10.0	10.0	10.0	7.0	10.0	73.5
E	10.0	10.0	10.0	8.0	9.0	10.0	0.0	0.0	2.0	10.0	69.0
F	6.0	6.6	4.5	7.0	2.0	10.0	10.0	0.0	0.0	0.0	46.1
G	3.0	4.4	5.4	0.0	4.0	10.0	0.0	10.0	3.5	0.0	40.3
H	5.0	2.2	9.0	0.0	3.0	0.0	10.0	10.0	10.0	0.0	49.2

Figure 18. Sample evaluations of bus companies based on the BCM².

Figure 19. Bus depot in Johannesburg, South Africa.

Each of the ten metrics in the BCM² is measured out of ten points, with the final score a total of all metrics. A bus company scoring 100 is a fully modernised company.

CASE STUDY: ASSESSING OPERATORS IN YANGON

In Yangon, Myanmar, there are over a dozen private bus companies in the market with varied levels of formality. Following valiant efforts by the government to reform the industry, a few stronger companies emerged with reasonable capitalisation, central fleet ownership, modern depots, sophisticated maintenance protocols, digital operational control systems, salaried drivers, advanced crew scheduling, and fleet deployment software. Other bus operators remain more like associations, where individual owners, some of whom directly drive buses and some of whom hire drivers, pay the association a flat fee for the right to operate on one of its routes. In these cases, the vehicles are simply stored and maintained in insecure locations on the side of the road at night. The associations dispatch manually at the route termini. The rest of the companies fall between these two extremes. In Yangon, the BCM² was used to assess the modernisation levels of each bus operator and provide a roadmap to inform the government's efforts to formalise the bus industry.

Figure 20. Bus stop in Yangon, Myanmar.

5.2. HOW SHOULD A MODERN BUS COMPANY COMPENSATE BUS DRIVERS?

Many of the problems of informal public transport systems relate to the insecure status of bus drivers, who often operate a vehicle all day, working long hours with uncertain income. Formal labour arrangements and organised scheduling can improve driver well-being and contribute to improved safety on the road.

Figure 21. Drivers with the Janmarg BRT system in Ahmedabad, India.

Figure 22. Bus depot in Bogotá, Colombia.

✔ **BUS DRIVERS SHOULD BE SALARIED**

Bus drivers should receive a consistent salary and/or a consistent and transparent hourly rate, which increases in regular increments based on experience. Drivers also should receive health insurance and a pension.

✔ **BUS DRIVERS SHOULD BE DEPLOYED BASED ON A SCHEDULE**

Bus drivers should know their schedules well in advance, detailing which routes they will drive, and for how long. Their work hours should conform to all applicable laws and should not exceed ten hours per day.

✘ **BUS DRIVERS SHOULD NOT BE COMPENSATED PER PASSENGER**

This incentivises bus drivers to compete dangerously to carry the maximum number of passengers or to delay a bus's departure until it fills completely. It also creates income uncertainty.

5.3. HOW SHOULD THE OPERATOR CHOOSE THE FLEET?

The fleet is a vital asset of the modern bus company. A comfortable and well-chosen fleet is just as central to the passenger's experience as it is to the company's bottom line.

Most buses should be purchased new, directly from the manufacturer. This ensures they are in the best condition and can provide service for the longest amount of time. The government can issue the specifications for the bus fleet and issue an RFP for bus manufacturers to build the fleet. In some cases, the contract may allow some of the fleet to be used buses. The government's contract with the modern bus company should specify when this is appropriate.

✔ BUY THE BEST-QUALITY BUSES WITH THE LOWEST LIFE-CYCLE COSTS

Purchasing high quality buses from a reputable manufacturer generally results in lower costs over the life cycle of the bus and can facilitate lower cost financing.

✘ BUY THE LOWEST PRICE BUSES

While it can be enticing to purchase cheap buses, the fleet is likely to wear out more quickly and will be more expensive to maintain in the long run. The operator would need a larger reserve fleet and would need to replace the buses within 6 to 7 years as opposed to within 12 to 14 years.

Table 1. Sample life cycle analysis for a low-quality vs. high-quality bus.

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Life cycle cost
Low-quality bus	$50,000 purchase	$9,000 to maintain every year						$50,000 to purchase replacement	$9,000 to maintain every year							$217,000
High-quality bus	$150,000 purchase	$3,000 to maintain every year														$192,000

5.4. HOW DOES A MODERN BUS COMPANY'S DEPOT SUPPORT SUCCESSFUL BUS OPERATIONS?

A state-of-the-art depot is the foundation of a modern bus company. It is an operational centre for the fleet, a professional centre for employees, and an unseen component of every passenger's journey. As discussed in chapter 2, it is better if the government builds and owns the depot, with the modern bus company responsible for equipping and operating the depot.

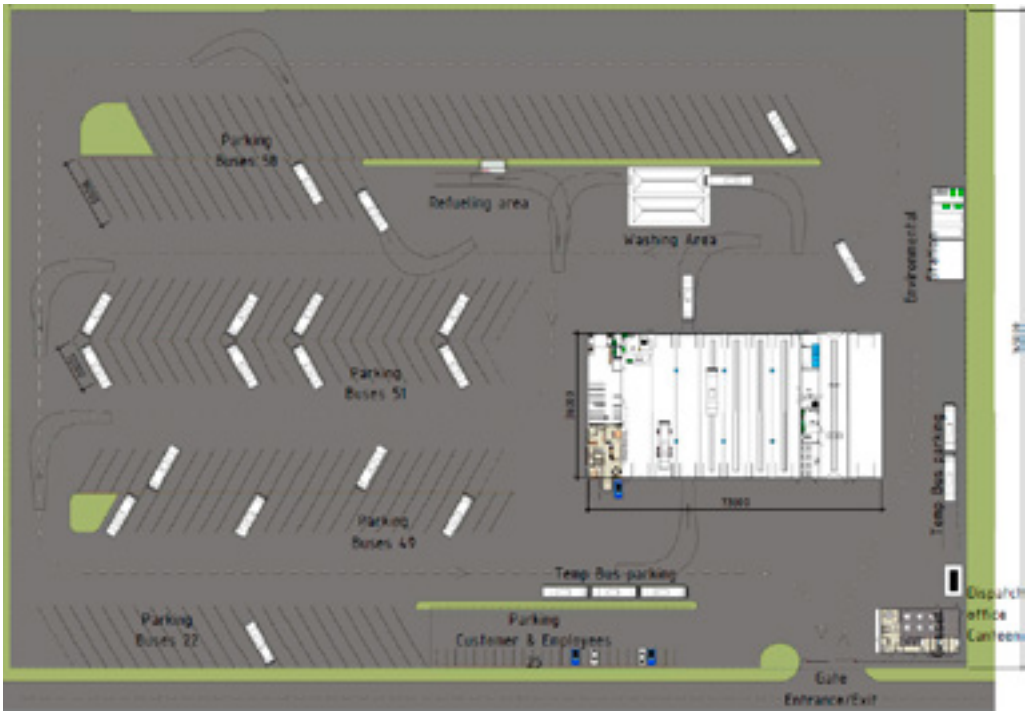

Figure 23. Typical bus depot layout.

Figure 24. Bus maintenance in Bogotá, Colombia.

5.5. HOW SHOULD THE DEPOT BE EQUIPPED?

A well-equipped depot should contain, at minimum, space for following:

- Fuelling activities.
- Cleaning facilities.
- Dedicated maintenance areas.
- Driver rest and relaxation areas.
- Administrative centres.
- Spare parts storage.

The government should tender depot advisory services to a professional depot design firm with experience designing modern depots.

5.6. HOW SHOULD THE FLEET BE MAINTAINED?

✔ **INITIALLY BY THE MANUFACTURER UNDER CONTRACT**

The bus manufacturer should provide maintenance and technical assistance to bus operators, for approximately 2 to 5 years.

✔ **STRUCTURED AND ROUTINE MAINTENANCE REGIMES**

Modern bus companies fix problems before they occur through scheduled preventative maintenance work as recommended by the manufacturer and regular inspections at defined intervals. The government should regularly inspect maintenance practices for compliance.

Costs can be cut when a company knows which parts it can purchase from sources other than the manufacturer. Maintenance tracking software can help monitor when to replace certain components of the bus, in line with the manufacturer's recommendations and best practices.

5.7. HOW CAN BUSES AND DRIVERS BE EFFICIENTLY DEPLOYED?

✔ **OPTIMISED DEPLOYMENTS**

Modern bus companies have software that assists them in allocating drivers to specific routes at specific times and in the deployment of vehicles to specific routes to fulfil a required schedule.

✘ **SCHEDULING ON PAPER**

While many bus companies in the developing world schedule their operations by hand, this practice is extremely inefficient.

5.8. HOW SHOULD THE COMPANY BE GOVERNED?

State-of-the-art bus companies are well-governed model companies. Standards established by the International Standards Organisation, known as the ISO 9000 series, benchmark corporate governance and include the following requirements:

- Legal incorporation.
- Annual audits and accounting procedures in accordance with industry norms.
- Secure filing and document management.
- Accountability to shareholders.
- Regular board meetings that are properly recorded.
- Necessary insurance.

These standards and the certification processes cannot always be fully met in a timely manner for a new project, but contracts can specify that ISO 9000 certification or its equivalent in the host country must be achieved within an agreed upon time frame.

Figure 25. Bus driver in Ahmedabad, India.

Figure 26. Bus depot in Dar es Salaam, Tanzania.

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