Public Transport Integration and Sector Reforms: Global experiences and good practices

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Leonardo Canon Rubiano
Senior Transport Specialist
The World Bank
The World Bank’s Approach to integrated mass transit systems
Multimodal design elements
Integration and Reform
Discussion
THIS PRESENTATION...

Who is Leonardo?

Is not a lecture on transport planning, demand forecasting or corridor design

Is not a list of ideal best practices in engineering, technology or operations

Seeks to stimulate a discussion on the enabling environment for integrating transport systems

Welcomes your input and comments on how to overcome typical challenges to move forward with integration
MULTIMODAL NODES

- Combining improvements to major urban roads, dedicated facilities for PT and Non-Motorized Transport (NMT), with PT service improvements, traffic management, and safety measures to increase total person travel speed, reliability, etc.

- Aiming to make PT and NMT more attractive in medium-demand corridors, while willing to marginally affect general traffic.
PLAN
REALITY
WHAT’S HAPPENING?
WHAT’S HAPPENING?

- Who owns the land? Mass Transit Authority (TransMilenio)
- Who has the mandate to develop the integration node? Land Renovation Authority (ERU)
- Who is purchasing land in this area besides Transmilenio? Metro, Regional Rail
- Who authorizes the development plan? Ministry of Culture, City Planning Authority
- Who is developing the masterplan? Metro Company
- Is Metro currently designing an integration node? NO.
- Has Transmilenio designed one? NO
- Organizational, governance and market failures
THE WB APPROACH TO INTEGRATED PUBLIC TRANSPORT

Keywords:

• User Perspective
• Political Economy
• Social Benefits
THE WBG HAS VALUABLE GLOBAL EXPERIENCE IN PUBLIC TRANSPORT IMPLEMENTATION AND OPERATION
MAJOR SHIFTS IN RECENT YEARS

Internal and external catalysts towards more sustainable transport options

1. Heavy government investment in public transport and active mobility infrastructure

2. Increase in walking, cycling, and use of personal mobility devices for first-and-last mile travel

3. Technological Innovations have created more travel options

4. Evolving social context – demographic changes, shifting norms & expectations

5. Greener vehicles with lower emissions
Public transport users:

- Tend to have limited commuting options, make fewer trips and live further away from job centers and public services → **lower accessibility**
- The majority are vulnerable or poor (bottom 40% of income) → **high cost of transport**
- Women users in average have less access to vehicles, spend more of their time and/or a larger share of their income → **limitations to chained trips or non-work trips**
Public transport projects typically involve:

- Large capital investments (‘mega-projects’) → long waits, big expectations
- Large political-economy and sector reform issues → oscillating political and financial support
- Significant risks of cost overruns, optimistic demand forecasting, and poorly planned integration with land and transport → financial struggle, unmet expectations
- Far-reaching urban and metropolitan impacts (access), especially for disadvantaged populations → positive externalities and social returns
WB’S VALUE-ADDED: A HOLISTIC APPROACH TO PUBLIC TRANSPORT

Multimodal Integration and Accessibility

Urban Development/Renewal

Social Development and Sustainability

Operational and Institutional
Integrated public transport systems combine infrastructure and operational features configured and integrated according to the expected passenger demand and urban context.
INTEGRATED ELEMENTS → PERFORMANCE → BENEFITS

**Design Elements**
- Tracks/busways
- Stations
- Fleet
- Technology components
- Business, Service and Operations plans
- Marketing and Branding

**System Performance**
- Accessibility & Coverage
- System Capacity
- Operating Speed
- Productivity

**Benefits**
- Travel time savings
- Change in public transport operating costs & efficiency
- Change in traffic accidents
- Change in GHG and local pollutant emissions
WHAT WE WANT: HITS!

Hierarchically
- Metro corridors
- BRT corridors
- Feeder buses
- Buses in mixed traffic

Integrated
- Physical
- Fare
- Operational

Transit System
Good-quality public transport service that serves clients’ at minimum cost
INTEGRATION: ALL ABOUT INFRASTRUCTURE?

FOUR Design Elements

of a BRT Project

- Running Ways / Busways
- Stations
- Vehicles
- Technology:
  - Fare Collection, Fleet Management, User Information Systems
- Business, Service and Operations Plan
- Marketing and Branding

Integration of Elements

Image: MDP
INTEGRATED URBAN MOBILITY TOOLKIT

- Prioritizing people movement and universal accessibility
- Mobility as a Service (MaaS) and other emerging trends

- Integrated Corridor Management, including safe systems
- Appropriate pricing for vehicle ownership, use and parking

- Clean technologies (electric mobility)
- Integrated transport-land use plans, resilience considerations

- Transit-Oriented Development
- Mass Transit with Land Value Capture
INTEGRATION: FOCUSING IN REFORMING THE PUBLIC TRANSPORT SYSTEM, NOT JUST INFRASTRUCTURE

Network & Fare system
- Integrated Route network to match demand
- Integrated fare system
- Passenger Information
- Ensure quality by Operating Contracts

Industry Operations
- Formalization of individual / small operators into companies
- Access to capital for fleet
- Management expertise for operations

Government Management Agency
- Capacity to plan routes, prepare-, procure-, monitor- and manage operating contracts.
- Manage and distribute fare revenue
PHYSICAL INTEGRATION: INTERCHANGE TERMINALS IN MADRID
OPERATIONAL INTEGRATION: HIERARCHICAL PT NETWORK

Moving from point-to-point services to trunk-feeder system along high-volume corridors

Bus Routes in Lima, Peru

El Metro de Lima - Línea 1 y sus alimentadoras tiene también el esquema operacional de Sistema Integrado de Transporte

El Metro de Lima - Línea 2 y sus alimentadoras tiene también el esquema operacional de Sistema Integrado de Transporte

El Metropolitano y sus alimentadores tiene el esquema operacional de un Sistema Integrado de Transporte
FARE INTEGRATION: POLICY AND TECHNOLOGY

Interoperability options:
- City-owned mapping
- Multiple payment media
- Closed vs open
- Account based
- Centralized accounting and clearing house

Funding and Fare Policy
- Integrated fares, discounts
  - Fare levels and structure
  - Targeted subsidies, i.e. pro-poor
- Funding and revenue allocation
- Financial sustainability of system
TRANSIT-ORIENTED DEVELOPMENT

Developing land use plans around a transit core

**Land Use**
- Optimize and intensify land-use
- Diverse mix uses and services
- Vibrant public spaces for social interaction

**Transport**
- Maximise access to public transport
- Convenient transfer hub for public transport
- Increase location efficiency by allowing people to walk, cycle and take transit at the same location

**Economic**
- Access to more employment opportunities
A Bold Vision for Users, Industry and City

**Bus Industry**
- Strengthened, capable, innovative and future ready bus operators
- Stable labor conditions for crews

**Users**
- High % of satisfied users
- Reliable, quick, safe & secure service wins over private or 3-wheelers
- The user at the center of the public transport system

**City**
- Improved public space
- Friendly, accessible transport for locals and visitors
- Reduced traffic-related accidents & pollutant emissions
- Transit is the quickest way to move around
- Targets set for % of trips in public transport & average travel times

MODERNIZATION

BUS SECTOR
WHERE WE WANT TO GO: OBJECTIVES OF BMI

What is the objective of supporting bus reforms?

• Is it to have newer, better bus fleet?
• Is it to reduce transport-related emissions?
• Is it to reduce oversupply, or optimize capacity?
• Is it to improve performance of the bus operators?
• Is it to improve user satisfaction?
• Is it to improve travel times, accessibility and integration?
• Is it a combination of these?

The **user perspective** is fundamental for a bus reform. Focusing on buses, stations or technology solely might lead to unexpected results and negative effects on users (travel times, cost, satisfaction).

Not just travel times, but affordability, reliability, other aspects of the user experience.
CONTEXT OF BUS OPERATIONS

Many cities around the world with performing urban bus networks manage their bus services through two-tier model:

1. **Public sector** is responsible for infrastructure development, network and service planning, regulating and monitoring (managing) of operations,

2. **Private sector** operates bus services according to specifications and standards set in performance based or quality-incentive contracts
SERVICE CONTRACTING AS AN INDUSTRY TRANSITION MECHANISM

Implementation strategies to transition a pre-existing bus industry into an efficient mass transit system with Public investment in Infrastructure

- **Takeover and public provision of service**
  - Quito – Trolebus
  - Medellin BRT

- **Automatic grandfathering of existing operators into the new system**
  - Seoul, Leon
  - Johannesburg
  - Mexico City Lines 1 & 2
  - Lagos
  - Dar es Salaam

- **Arbitrarily awarding contracts to selected newcomer companies**
  - Santiago, London

- **Approach (Competitive tender only if existing operators decline to participate in the new system)**
  - Guayaquil

- **Competitive tendering with preference and advantages to existing operators**
  - Bogota, TransMilenio

- **Fully competitive tendering**
  - Mexico City Lines 3 & 4

Adapted from Flores, Dewey & Zegras, 2012
CURRENT STRUCTURE: BUS CREW AS THE MAIN FINANCIAL AGENT

Under the current fare collection scheme, passengers pay directly in cash when boarding buses.

It is responsibility of bus crews to store, count and handle cash for bus owners (for private operators) or for SLTB.

Cash flows are not directly supervised by WPRPTA, and private bus owners do not pay taxes on the collected proceeds.

Since bus crews handle cash and are not required to provide support of revenues and tickets sold, there are no formal rules or guidelines on remuneration to bus crews or on leakage tracking.
Bundled Procurement & O&M, public or private (fraction or complete bus system):

- **Case 1:** Private sector procures, operates and maintains bus fleet (one contract or multiple contracts, examples: Chile, Colombia, Mexico, Nigeria, Tanzania)
- **Case 2:** Public sector constitutes an operating company which procures, operates and maintains (Barcelona, Boston, Colombo, Jakarta, Medellin)
Unbundled fleet Provision, bus O&M:

- Separate contracts for fleet provision (private or public) and fleet operation (public or private), who is responsible of operating and maintaining (i.e. management contracts: most common in Europe, includes London TfL new Routemaster)
Lessons learned from Integrated PT Corridor Projects

• Work with a project “champion” e.g., Mayor, city council chairperson, minister, managing director.

• Create “leading groups” with active participation of all direct players:
  • Construction, communications, planning bureaus
  • Public transport company and transport bureau
  • Traffic police

• Get all stakeholders involved (especially users, merchants & operators) through two-way “multi-media” communications

• Understand issues and objectives (more than congestion, move people efficiently)
  • Provide input to planning process
  • Citizen engagement, especially new interventions

• Use integrated PT/TM/Safety consultant teams with experience and expertise in all relevant technical specialties

Sources: Fang Ke (2015, World Bank) and Sam Zimmerman
Conclusions

• There is a range of approaches to set up a successful urban transport authority

• The most successful mass transit systems in have evolved through significant institutional reform and innovation:
  • Recent Metros and BRTs were created by new authorities or management agencies to fill an administrative vacuum.
  • In rare cases existing institutions successfully contracted out efficient bus operations.

• Managing authorities are not created in one day. Most of the best practices began as offices with 4 technical staff.

• Persistence and step-by-step growth and strengthening is key
DISCUSSION

Deploying solid public transport projects takes time. Have you been able to speed up implementation? How?

Can land policy keep up with public transport implementation? How?

Should more cities implement congestion charging to fund public transport? What prevents authorities from doing it?

What successful policies can be replicated to balance supply and demand

Public or private operators? Does the unbundling of contracts contribute to improving service delivery?

Should Federal/National Governments develop funding programs for mass transit infrastructure?