Advancing integrated transport in Latin America cities


High Quality Transit in Latin America

Citywide Integrated Transit System in Cali, Colombia

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Inertial Future (everybody already knows…)

fewer passengers on Public Transport…

Modal Split Trend in Brazil (%) – similar to others

↑ Income, ↓ Prices

↑ Congestion

↑ Fare

↓ Speed

Source: ANTP
congestion, productivity loss, mobility reduction, and...
impacts on Public Health!

1.3 million deaths

1.2 million deaths

Noise: stress, cardiovascular diseases, analytical capacity problems

3.2 millions of deaths
Urban Public Transport NEEDS Urgent Improvements
The Latin-American Association of Integrated Systems and BRT (SIBRT) works for the development and quality improvement of urban transit.
64% of the world demand for BRT/Exclusive Bus Corridors are concentrated in 50 Latin American cities.
Rio de Janeiro: Primer BRT 2012
Transoeste: 40 km

New in 2012!

Foto: Mariana Gil/ EMBARQ Brasil
BOGOTA: Transmilenio Third Phase
Portal El Dorado

New in 2012!

MEXICO DF: Metrobus Line 4

New in 2012!

Photo: CTS EMBARQ Mexico
Since improvements are urgent, how can we improve quality? How can we accelerate modernization?
SIBRT – EMBARQ – BRT CoE

General Secretariat

Cooperation Agreement

BUS RAPID TRANSIT
ACROSS LATITUDES AND CULTURES

Cooperation Agreement

- SIBRT
- EMBARQ
- BRT CoE

- PUC - Chile
- Massachusetts Institute of Technology
- Technical University of Linbon
High Quality Urban Transit for All

- SIBRT is a Benchmarking Association
- Public Transit Agencies committed with improvement
- A capacity building process based on collaboration
- Learning from other’s experiences and mistakes
SIBRT Data

Support the GLOBAL BRT Data: www.brtdata.org

Produced by

SIBRT Datasheets: www.sibrtonline.org

- Basic Information
  55+ data from each associated system, with complementary information and links.

- Photos
  800+ photos with descriptions, showing the characteristics of each system.

- Maps
  Maps of corridors and routes of each system.
Introduce the **Performance Indicators and Complementary Information** monitored to **Identify Best Practices** and the aspects that we can be improved comparing to other agencies.

* The indicators are divided by topics and are monitored online by the associates, respecting the **confidentiality agreement**.

![Graph showing performance and cost/other attribute improvements](image)
Benchmarking and Innovation

Main Topics

- Quality of Service and User Satisfaction
- **Road Safety** for urban buses
- **Financing** of Integrated Transport Systems

Current Road Map:

- Technical Datasheets
- Benchmarking Indicators System
- Conferences and Workshops
- Terms of Reference studies contracting
- Studies + Guides of best practices

In cooperation with:

![EMBARQ](image1)
![Bus Rapid Transit](image2)
![SIBRT](image3)
I Workshop SIBRT on Quality of Service and User Satisfaction
SIBRT is working for a broad alliance of main urban transit stakeholders

**Academia and Research**
Center of Excellence BRT, Universities, Consulting

**Government**

**Operators**
Associations and Companies (NTU, AMTM...)

**Industry**
Vehicles, services and technology

**Public agencies**

**Banks**
Private, Multilateral and Development

**Users**
Press / Media
Transmilenio’s Model (Mexico, Colombia, Ecuador, Peru, ...)

- **Build BRT Corridors/Network** (trunk-fed high capacity system in parallel to conventional buses)
- **Need to eliminate competition** with conventional buses and extend better quality to the whole city
- **Create an Integrated Transport System**

*In process, difficult...*
Santiago’s Model (Brasil, Chile)

- Replace with **Citywide Transport System** (some BRT, most bus corridors)
- Low Investments, Insufficient Transit Priority, ↑Congestion, ↓Speed, ↓Passengers
- Optimize with **BRT corridors**, Increase speed, reliability and efficiency (in process...)

Foto: Luis Antonio Lindau/EMBARQ Brasil
Target: Integration y Optimization

Modal, fare, institutional, and management integration in Metropolitan Areas
Citywide Integrated Mass Transport System in Cali, Colombia

MIO

Outline

• Context

• Project description and progress

• Challenges and lessons learned
Context - Cali

- 3rd largest city in Colombia
- 2.3 million people in the urban area
- 2.9 million in the metropolitan area
Context - Transportation in Cali

- Conventional third world transit system
  - Privately owned buses
  - Public agency providing route permits but lacking service control

Mode Distribution in Cali

- 3.179.283 trips/day

- Public Transp 40%
- Auto 10%
- Moto 7%
- Bike 11%
- Tax 7%
- Walk 35%
- Jeeps 1%

Source: O-D Matrix – Bikeways Master Plan 2005
Context - Transportation in Cali

• Up to now
  – Started to implement a modern, integrated transit system

• We still had to
  – Create a sustainable multimodal mobility plan: recognizes all modes of transport but focuses on maintaining mode share for transit, bike, and walk trips
    • Invest in infrastructure for walk and bike trips
    • Integrate bike, walk, and taxi trips to transit effectively
    • Integrate regional transit to the city’s MIO system
    • Improve quality of service in MIO system
    • Discourage use of private cars and motorcycles
    • Create educational programs to reduce accident rate in motorcycles
Project Description – Integrated System

- Objective: replace conventional old bus system with new modern integrated transit system
  - Create new Transit Authority
  - Concession out operations to few companies and buy out old buses
  - Create new card-based payment system
Project Description - Corridors Map
## Project Description - Operations

<table>
<thead>
<tr>
<th>Item</th>
<th>Planned</th>
<th>Done</th>
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</thead>
<tbody>
<tr>
<td>New Transit Authority - Metrocali</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fare Collection System</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AVL System</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Bike Sharing/Renting System</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Transit Demand Coverage</td>
<td>100%</td>
<td>53%</td>
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<tr>
<td>Daily Trips</td>
<td>960,000</td>
<td>510,000</td>
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<tr>
<td><strong>Spatial Coverage</strong> (300 mt buffer)</td>
<td>100%</td>
<td>90%</td>
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<tr>
<td>Routes</td>
<td>100</td>
<td>90</td>
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<tr>
<td>New Buses in Operation</td>
<td>911</td>
<td>858</td>
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<tr>
<td>Old Buses out of Operation</td>
<td>4931</td>
<td>3228</td>
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</table>
# Project Description - Infrastructure

<table>
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<tr>
<th>Item</th>
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<tbody>
<tr>
<td>Trunk corridors</td>
<td>38 km</td>
<td>36 km</td>
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<tr>
<td>Terminal Stations</td>
<td>5</td>
<td>2</td>
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<tr>
<td>Medium Transfer Stations</td>
<td>4</td>
<td>1</td>
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<tr>
<td>Stations</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Aerial Cable Line</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Bikeways</td>
<td>50 km</td>
<td>19.6 km</td>
</tr>
<tr>
<td>Bus Garages</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
Project Description - Infrastructure

- **Trunk Corridors**
- **Future Trunk Corridors**
- **Built Transfer Stations**
- **Future Transfer Stations**
- **Cable System**
Challenges and Lessons Learned

• Replacing old system – balancing act
  – Implementation schedule
    • Too fast (Santiago, Chile) – chaos
    • Too slow (Bogota, Colombia) – process may never finish
  – Who buys out old operators and bus owners?
    • Government
    • New operators
    • No one
  – Political will is absolutely necessary to enforce all necessary measures to replace old system while having a fair process
    • Difficult social process – impact on bus owners, drivers, other informal workers in the industry
Challenges and Lessons Learned

• Integrated Network Design
  – Usually, the conventional system in developing countries is a privately operated over-supplied system, which results in good level of service for users regarding access and waiting time, and no transfers
  – Generally, Integrated Network Systems introduce transfers to trips, which is perceived as poor level of service

• A rationalized Integrated Network System may be efficient from a supply point of view but it may deteriorate the Level of Service perceived by users
  – Number of buses and route design is crucial
Challenges and Lessons learned

• Cultural change
  – Fare collection system
    • Learn to use and trust a fare-card system instead of cash is difficult for typical lower-income user of transit in developing countries
  – Understanding maps and way-finding signs
  – Vehicles stop only at designated stops

• Institutional and Organizational Capabilities
  – Implementing an organized system requires many trained professionals – Authority, operators, designers
  – Being part of SIBRT has helped to train Metrocali’s staff
Challenges and Lessons learned

• Fare Collection System
  – Contact-less rechargeable card
  – Enough points of sales and recharge
  – Has become No. 1 deterrent for people to use the MIO system
Challenges and Lessons learned

• Economic Model
  – It was designed to cover all operational costs
  – The MIO system is not there yet
  – Operators are still injecting money every month into their operations
  – Demand has to increase to reach breaking point

• In a citywide integrated system, there will be low-performing routes, that are a social service
  – Can it be sustained without operational subsidies?
III SIBRT Conference on Best Practices

June 4-7 of 2013

Organized by
Spatial Coverage

[Image of a map showing spatial coverage with various zones and percentages]
Trunk Corridors – 5th Street
Trunk Corridor – Downtown
Trunk Corridor and Stations
Menga Transfer Station
Aguablanca Transfer Station
Garages
Aerial Cable System
Green Corridor