"Intelligent mobility strategies in major cities: new approaches, new policies?" - Leipzig

Round table:

Innovative local mobility strategies for public urban transport in Lyon

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The transport authority's capabilities:

**The Rhône-Alpes region:**
Passenger rail service

**Rhône County:**
Interurban and school coach services.

**SYTRAL:**
Urban transport in the Lyon metropolitan area.
Revenue: €684 M

Spending: €684 M

Revenue:
- Customers: €165.7 M (24%)
- Local authority contribution: €141 M (21%)
- Miscellaneous revenues: €29.9 M (4%)
- Transport tax: €244.1 M (36%)
- Loans: €103.3 M (15%)

Spending:
- Operating expenses: €333.1 M (49%)
- Spending on equipment: €200.6 M (29%)
- Loans: €141.3 M (21%)
- Administrative expenses and miscellaneous: €9 M (1%)
The TCL system today:

- Dense coverage and connections between the public transport system and roadways thanks to park & ride facilities on the outskirts of town

- 70% of all service is electrically powered

Every metro station, tram and C1 trolleybus is accessible, with the exception of Croix-Paquet station.
The mains lines of the urban mobility policy since 1997

- To provide a place for all types of transport in the municipality for both passengers and goods.

- To make the city accessible to everyone, including the mobility impaired and low income people.

- Reduce the negative impact of traffic, to improve the quality of life in the city, to travel safely around the city.

- To inform, communicate and make the population aware, because replacing the car with clean, public transportation and can only work if the inhabitants accept it.
The 2008 > 2014 Development Plan

Prolongement Trolleybus Cristalis C1 mise en service en 2011
Prolongement Trolleybus Cristalis C2 mise en service en 2011
Cité Internationale Centre de Congrès
Vaux-en-Velin La Grappepine
VAULX-EN-VELIN
Ligne (Conseil Général du Rhône) mise en service de 2010
LA HOSPITALET
Aéropot International Lyon - Saint Exupéry
Tram T3 desserte Grand stade

DP investment: €342 M
Recurring investment: €292.3 M
### Trends: Progress over the last 10 years

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>1995</th>
<th>2006</th>
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<tbody>
<tr>
<td>Marche à pied</td>
<td>32.2%</td>
<td>33.6%</td>
</tr>
<tr>
<td>Deux roues</td>
<td>1.1%</td>
<td>2.2%</td>
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<tr>
<td>Transport collectif urbain</td>
<td>13%</td>
<td>15.3%</td>
</tr>
<tr>
<td>Autres transports collectifs*</td>
<td>1.1%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Voiture</td>
<td>51.9%</td>
<td>47.4%</td>
</tr>
<tr>
<td>Autres modes de transport</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
</tbody>
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* comprend l'utilisation des trains, cars interurbains, transports scolaires et transports de personnel. On sait, par d'autres enquêtes, que la seule utilisation des TER est en forte progression.
The challenge: connect with the rail network…
Build closer to stations to dissuade people from using their cars.

Today 80% of the population lives within a 5 km radius of a station.

**Urban planning objective:** 60% of new housing is either built in existing urban areas or near stations.

Example: new Jean Macé station:
The challenge: to establish an inter modal system

REAL: a multimodal system

**Trains + interurban coaches + urban transport**

- Since December 1, 2007: TER (regional trains) + TCL (Lyon public transport)
- Since January 1, 2008: Rhône coach + TCL
- End of 2009: STAS (Saint-Etienne urban transport) + TER + TCL
- End of 2009: TAG (Grenoble urban transport) + TER + TCL

For use on the Lyon public transport only (TCL system)

For use on both the Lyon public transport and the regional trains system TER and/or TCL
The challenge: develop park & ride services

- 20 TCL park & ride sites
- Over 6500 spaces
  A high fill rate in most of the park-and-rides (from 90% to 100% of the spaces used).
The challenge: provide dense coverage
Before the tramway:
50,000 vehicles/day
Noise = 72 dB / day

With the tramway:
26,000 vehicles/day
Noise = 68 dB / day

The T2 tramway - Avenue Berthelot

Share the roads and reduce car traffic
Serving all the districts: a city policy
Example:
The T4 tramway

- The opening of the T4 tramway from Minguettes to Vénissieux is part of the city's major development project with:
  - The construction of 93 homes
  - The renovation of public facilities (cinema, school of music, designated development area etc.).
  - Renovation of a shopping center.
- Green spaces:
  The renovation project also aims to balance out urban functionality (tramway, cycle paths and roads) with green areas that are suited to the area.
Giving priority to electric modes of transport

SYTRAL seeks to develop environmentally-friendly modes of transport by developing the tramway, the trolley bus and metro networks.

Example: decision to extend the B line of the metro

Distance: 1.8 km line, of which 300 metres under the riverbed.
Budget: €222 million
Travel time: less than 15 minutes between Oullins station and Part-Dieu (5 km).
Passengers: currently 135,000 per day on the B line.

Thanks to the extension, **15,500 fewer cars will commute in the urban area (i.e. 4000 tons less of CO2 emissions per year)**.
Giving priority to electric modes of transport

Examples: the trolleybus, electric minibus shuttles …

The main Cristalis and trolleybus lines:
- yesterday: C3 and C1
- today: C1 and C2

Electric minibus shuttles on the Presqu’île:
Current experiments with these fuel-cell vehicles are proving to be pertinent and may lead to an increase in the vehicles' range from approximately 120 km to 300 km.
Reducing Energy Consumption
Example: a protocol agreement with AREVA

September 18, 2008:
- A protocol agreement was signed between SYTRAL and AREVA for the efficient energy supply and consumption of Lyon's public transport system.

The main lines of this agreement:
- energy-efficient rolling stock,
- the recovery, storage and distribution of electric energy,
- the production and storage of hydrogen and its use in fuel cells...
Improving the quality of electrical modes
Example: a new automatic piloting system of the metro

**Objective:** to optimize the operation in order to keep energy consumption to a minimum.

To swap the traction and breaking mode for a *coasting* mode which means a slower but longer acceleration (thus the train breaks slowly).

**Implementation:**
The metro line D runs entirely on automatic pilot and uses this 'coasting' mode. This mode will be implemented on the A and B lines during the replacement of the automatic pilot systems.
Example: adapt the operating schedule of the metro

- Careful planning of the number of trains in service by measuring the onboard load:
  => Better loading of trains.

- Reduce dwell time by automatically detecting the end of passenger exchange by means of video cameras:
  => Fewer trains in service to handle the same transport capacity.

- Synchronise schedules of lines when they are interconnected.
Reducing Energy Consumption

A few examples:

Measures implemented in the name of sustainable development:

- Installation of photovoltaic panels (on the Visulys information panels, park & rides...).

- Installation of catalytic converters and particle filters on our fleet of heat-engine buses.

- Drivers trained to drive smoothly to consume less fuel.

- Development of electrical modes both in terms of quantity and quality.
Adapting the service to meet the demand
Example: renovating the wagons on the metro line D

- A new interior design of the wagons to increase passenger capacity:
  - Increase passenger capacity from 12 to 15%
  - Currently: 270,000 passengers / day i.e. 9000 passengers/
    direction/hour
  - Forecast for 2010: 10,000 passengers/direction/hour
  - Better distribution of the passengers within the train,
  - Improving ease of access and exit,
  - Reduced stop times at each station.
Prioritizing public transport

Example: the trolley detection device at traffic lights

- This device reduces the circuit times by 10 to 15%.
- Adapts the traffic light cycle to the vehicle.
- Traffic light automatically turns green as the trolleybus approaches.
Improving energy performance
Example: local authorities produce and share electricity

- **Trend:**
  While electricity cannot be stored, the rush hour creates peaks in demand. This is costly.

- **The project:**
  To group together various public actors and produce electricity based on the principle that their individual peaks in consumption are not liable to occur simultaneously.
  This would enable these different actors to pool their resources and make financial savings.

- **Examples:**
  Public lighting at night in communities, rush hour traffic on Lyon's public transport system (TCL) etc.