RE-SIGNALING THE PARIS LINE 1:
FROM DRIVER OPERATED LINE TO DRIVERLESS LINE

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Siemens Transportation Systems
A very loaded line at any time, during week end and during summer time too. A lot of multimodal modes interchanges stations with buses, tramways, suburb and railways lines.
A line to satisfy passenger (customer) expectations.

PARIS Line 1

A 4.5 years project.
TO DAY PARIS LINE 1

Length: 16.6 km
Stations: 25 (23 underground)
Trains: 52 (6 cars, ~90 meters, third rail power supply)

Headway: 105 sec
Journey time: 76 min
Capacity: 23,500 pas./h/direction
Commercial speed: 27.4 km/h

Serve a lot of tourist, business and shopping places as well as interchanges stations with buses, railways and suburb lines.

Siemens ATP/ATO linear speed code type
Needs and choice for driverless operation

- Wet / dry track operation
- Parking anywhere on the line
- New jobs for passenger services
- Redefinition of operation staff jobs
- Fast adaptation, reactivity and flexibility to any event or transport demand on the line
- Positive feedback from Line 14

Why upgrading Paris Line 1 to driverless operation?

- Improve the quality of service
  - Increase throughput (85 s)
  - Reduce delays due to passengers
- Decrease LCC by reducing both operation and maintenance costs

without service disruption
What’s where the origin of the operational delay?

Delays origins (2003)

- Passengers: 72%
- Technical reasons: 13%
- Rolling Stock: 6%
- Operation causes: 5%
- Others: 4%

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ORIGIN OF PASSENGERS DELAYS

Delays distribution (2003)

- Serious accident (29%)
- Alarm signal (25%)
- Passenger on the track (8.8%)
- Objects on the track (3.9%)
- Short cut electrical alarm (1.3%)
- Passenger between train and platform (1.2%)

Manageable by PSD

Others:
- Suspicious objects
- Pickpockets
- Doors obstruction
Trainguard MT CBTC : A proven solution

1. Moving Block CBTC for driver-based and driverless train operation
2. Data Communication System based on free-propagation radio, operating at 2.4 Ghz and 5.9 GHz
3. Automatic Train Supervision for driver-based and driverless train operation

Other references: Lyons (Line D in 1992), Paris (Line 14 in 1998), New York City Canarsie in 2006, Budapest lines M2 & M4, Barcelona Line 9, Paris Line 1, Algiers Line 1