



METTIS – The BRT Project in Metz

The Operator's role

17

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Keolis at a glance

France : Keolis home market

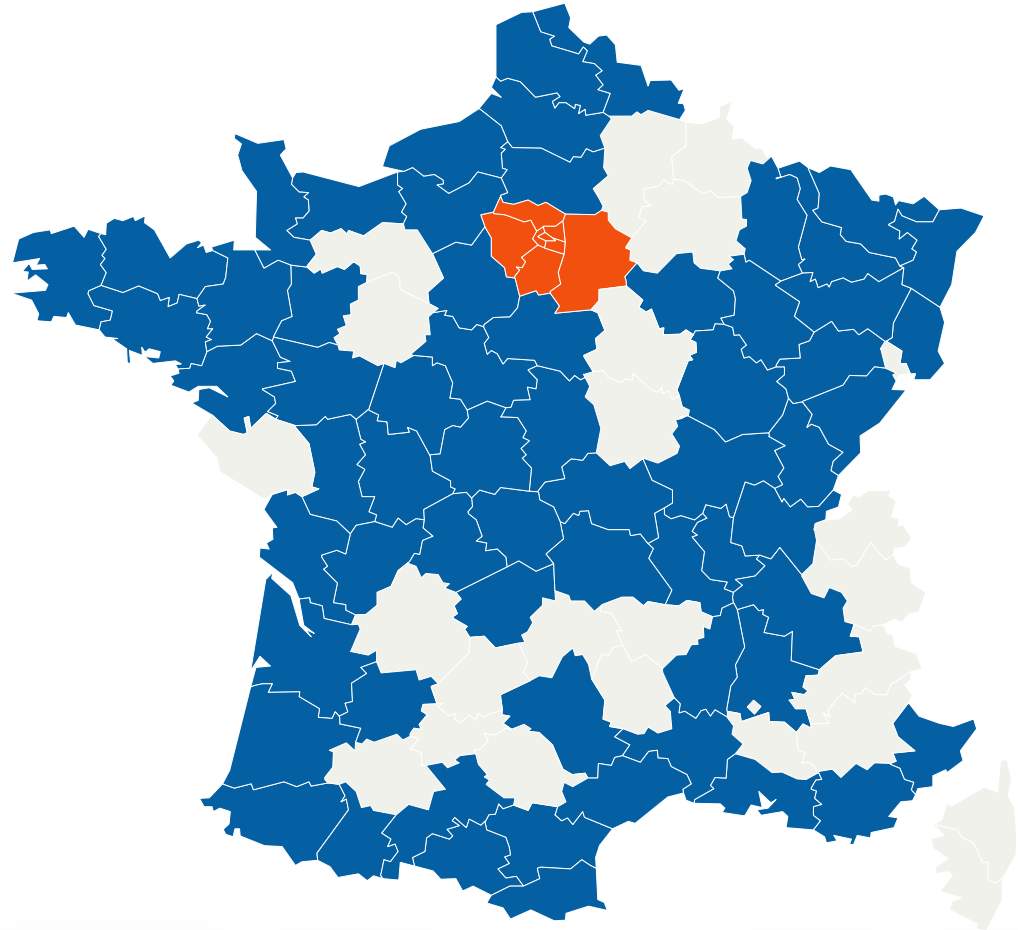
- 91 multimodal urban networks
- Contracts re-tendered every 5 to 8 years
- Keolis renewed 98% of its portfolio in 2013



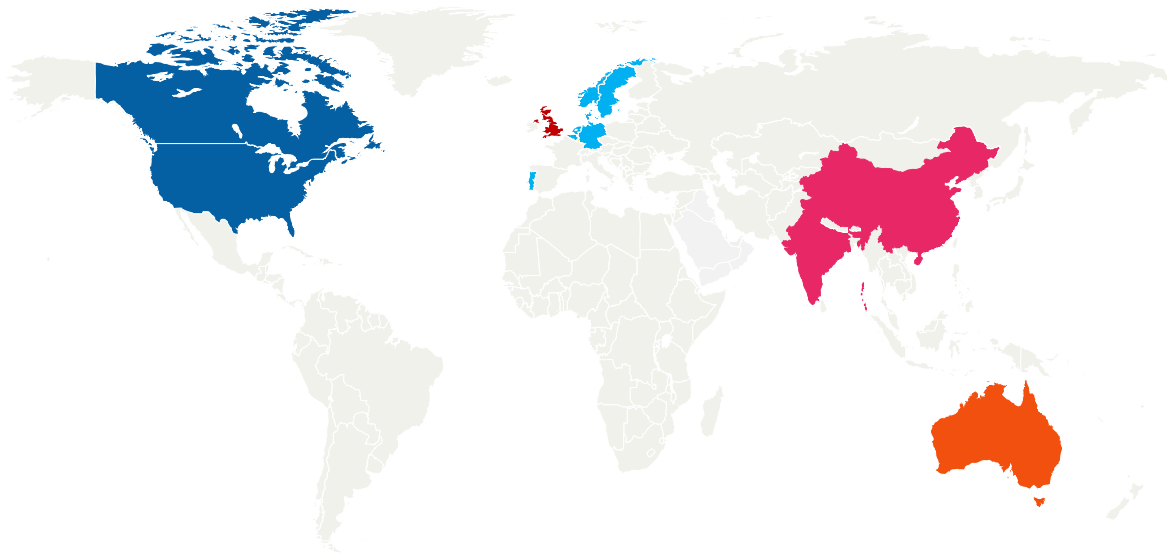
Interurban services



In Greater Paris, 11 transport hubs and 26 car parks



An International Leader in Passenger Transport



- ◉ Expert in operating and maintaining transport networks in total safety
- ◉ Four key regions: UK, Continental Europe, North America, Australia/New Zealand
- ◉ Emerging territories: China, India, UAE
- ◉ Present in 15 countries

Key Figures

- ◉ €5,1 billion revenue in 2013
- ◉ 55,000 employees
- ◉ 2,5 billion passengers carried each year
- ◉ 23,650 buses and coaches
- ◉ 87 km of metro (including 70 km driverless)
- ◉ 646 km of tram networks
- ◉ 5,300 km of regional rail networks
- ◉ BRTs
- ◉ 260 car parks and 115,000 spaces
- ◉ 18 cities with bike sharing schemes



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The METTIS Project

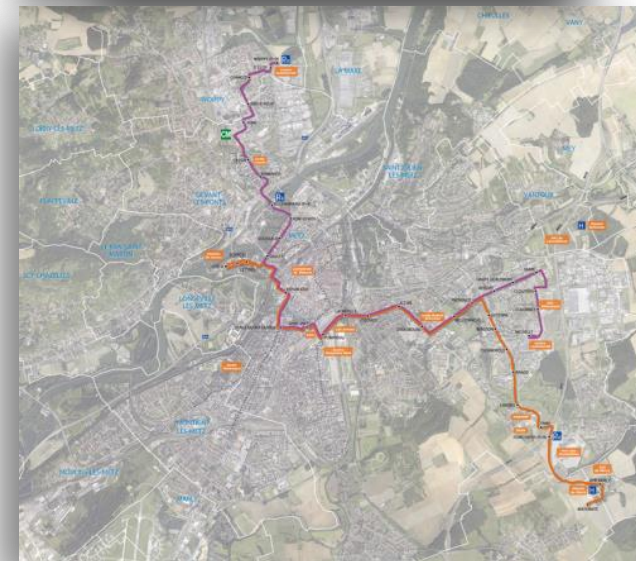
The system approach is essential

The Context

Metz Métropole

- ◉ 44 municipalities. 235 000 inhabitants
- ◉ Metz Métropole strives daily to the growth and sustainable development of the urban area for better life:
 - New housing
 - Development of economic activities
 - Reorganization of the hospital sector
 - Increasing cultural life
- ◉ This territorial dynamics can only be sustainable with an efficient public transport system.
 - Gas emissions, global warming... but also traffic congestion, uncertain bus regularity, poor accessibility, inadequate transport network ...
 - It is with a real desire to finish with this situation Metz Métropole decided to reorganize its entire public transport network.
 - The backbone of the network is built with two main lines with high level of service called METTIS, providing to passengers a comfortable, punctual, efficient and environmentally friendly transport system.

➔ **Let's take a tour in METTIS ! a public transport network among the most innovative and most modern in Europe**



The Major BRT Elements

Vehicles

24 m, four wide doors, accessibility

Passenger Circulation Enhancement

Aesthetic Enhancement

Hybrid Propulsion

Running way

17,8 km of dedicated line,
5,6 km shared line A and B.

Line A: 12 km

Line B: 10,9 km

Service Level

Frequency: 10 min; 5 min in the shared line A and B

From 05h00 to 00h30 every day

Stations

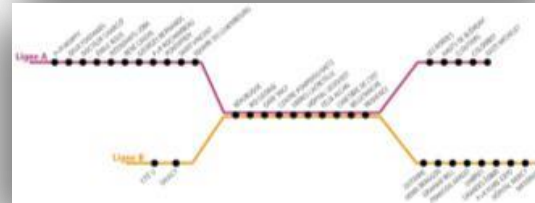
Recognizing, getting access, being informed and choosing, waiting, boarding the vehicle, being guided until the final destination. 37 stations in total

Intelligent System

Automatic vehicle location, Transit signal priority, Operational Control Centre, Passenger information system, On-board video monitoring

Fare Collection at the platform.
Smart Cards

Transportation



Branding

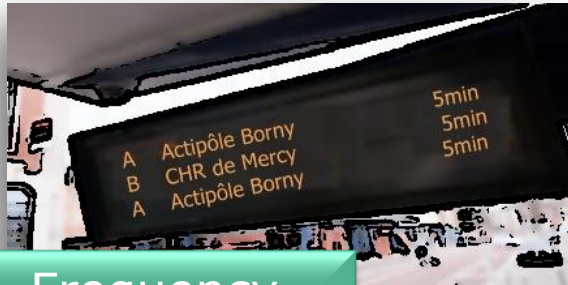
Brand names
Logos
Color palettes



The BRT Performances



Travel Time



Frequency

Reliability



Image and identity

METTIS for the Passengers



Accessibility



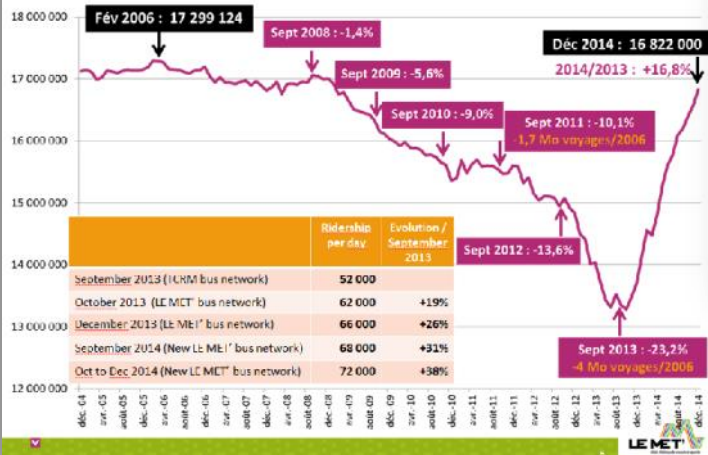
System Capacity



Security and safety

The Benefits of the System

Ridership Trends (2004 – 2014)



Higher Ridership
for the whole network



Operating efficiency



Transit-supportive
land development



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The Operator Role in the Project

Transition to Operations

The Operator Role in the Project

Transition to operations

- ◉ Transport Agency support
- ◉ Project Manager support
- ◉ Prepare plans and specifications
- ◉ Training
- ◉ Operations
- ◉ Maintenance
- ◉ Perform integrated test
- ◉ Perform security and safety tests
- ◉ Network design, marketing and communication



Transition to Operations

Transport Agency support

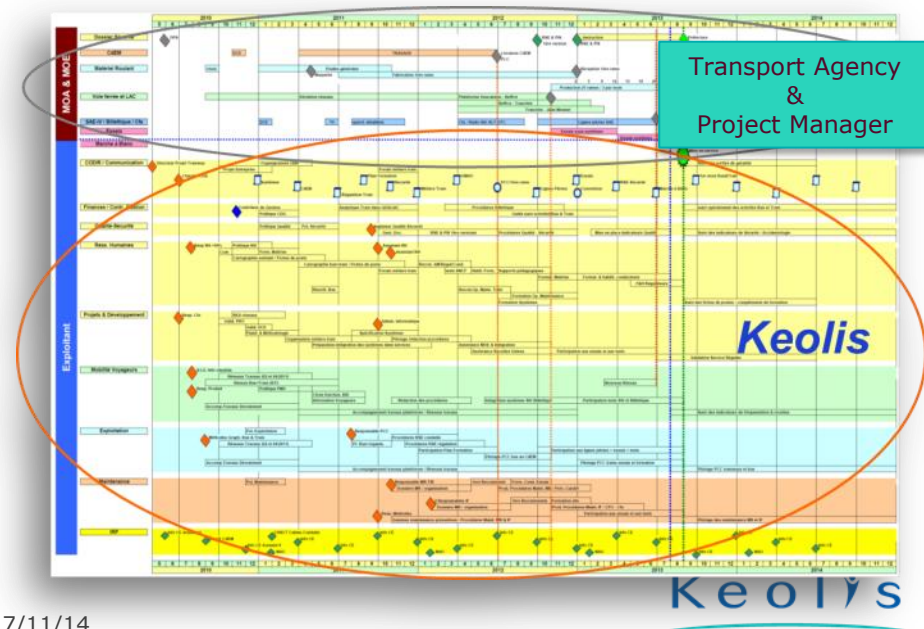
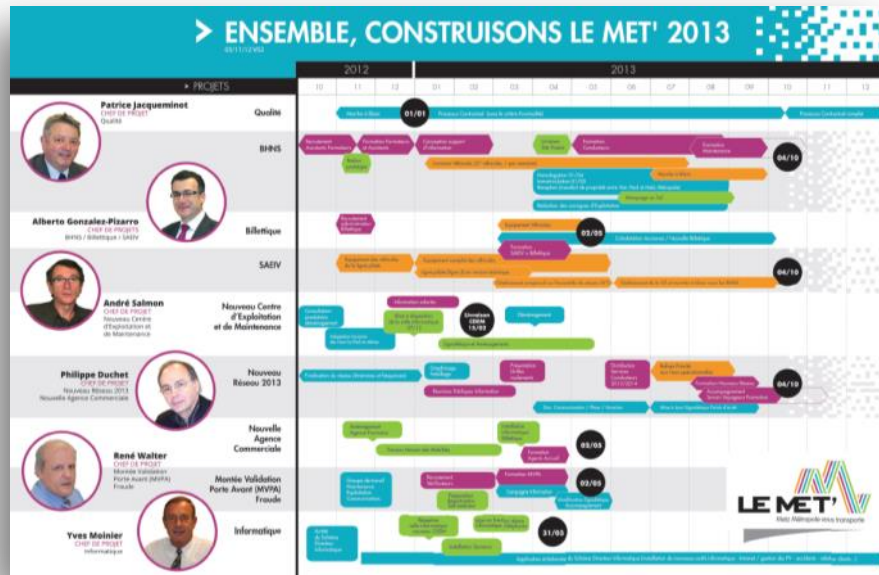
- Keolis advised the Public Transport Authority and Project Manager with the tasks needed for a best in class operation solutions, with the correct planning for a better integration in the project.
- Metz Métropole engaged a comprehensive systems approach in designing the METTIS, with the goal of providing a comfortable, punctual, efficient and environmentally friendly transport system.



Transition to Operations

Project Manager support

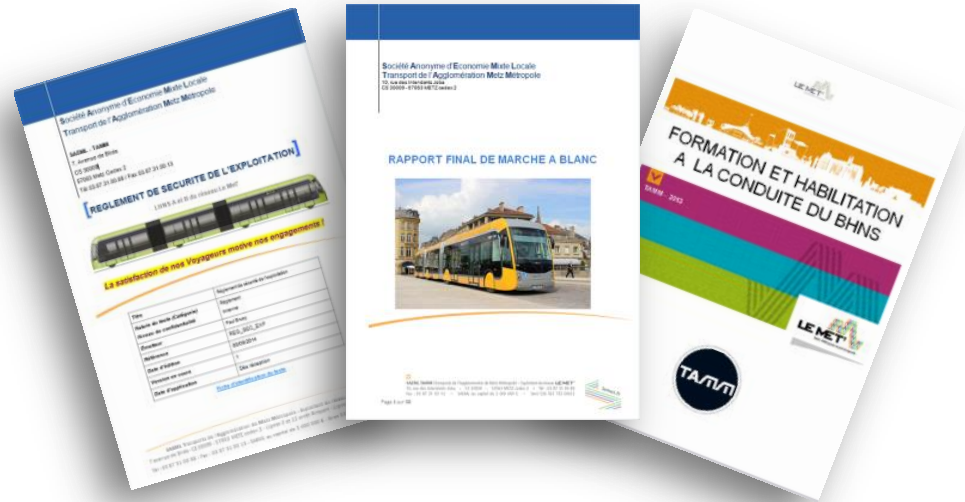
- ⦿ Make the recommendations from an operator's perspective
- ⦿ Project Planning (internal and external)
- ⦿ Help the operator in the internal organization for testing, commissioning and future operations
- ⦿ Structure link operator with all stakeholders
- ⦿ Analyze and provide specific expertise



Transition to Operations

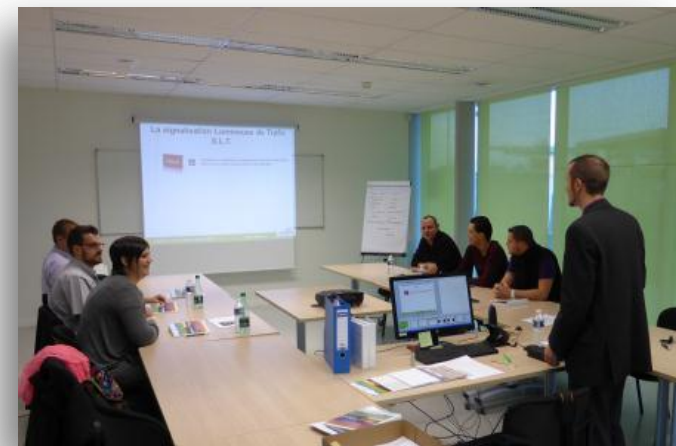
Prepare plans and specifications

- Operations Plans
- Maintenance Plans
- Recruitment Plans
- Training Plans
- Safety Plans



Training

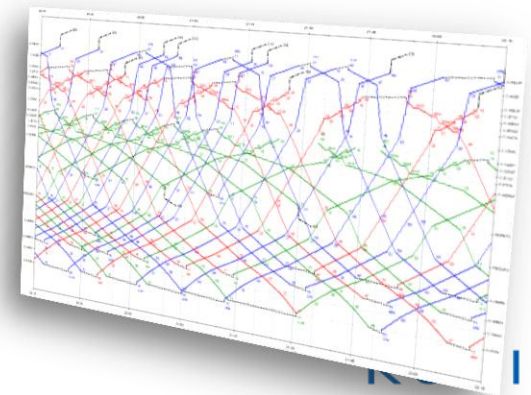
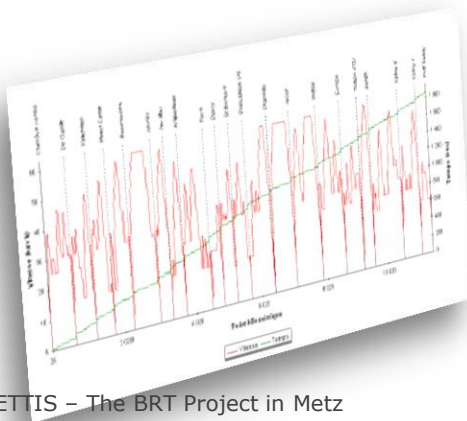
- 132 drivers trained
- Driving authorization issued after a driving test
- Traffic controllers trained on scheduling, ITS and driving



Transition to Operations

Operations

- General operation organization
 - Service planning, working timetable, scheduling, consolidation of the driving staff
- Writing safety regulations and operation documents
- Drivers training (precision docking, transit signal priority, safety, reliability...)
- Participation in testing and commissioning phase
- Management of all the interventions over the running way (protocol for the technical services of the city, the cash-in-transit security services, the winter maintenance...)



Transition to Operations

Maintenance

- ⦿ General maintenance organization
 - Transition from a bus organization to a BRT organization
 - Scope of intervention with the maintenance services of the city
 - Resources coordination and around-the-clock staffing through rotating on road-call duties
- ⦿ Assure the availability of the fleet (peak of 24 vehicles)
- ⦿ Application of 5S program as part of TPM program
- ⦿ Implementation of a computer-aided maintenance management tool, coordination with operations to following system failures



Transition to Operations

Perform Integrated Tests

- ⦿ Physical verifications (crossing, docking...)
- ⦿ Transit signal priority
- ⦿ System Performances (travel time, accessibility, comfort, safety)
- ⦿ Verification of the subsystems (fixed installations)
- ⦿ ITS / Radio
- ⦿ Fare collection



Transition to Operations

Perform Security and Safety Tests

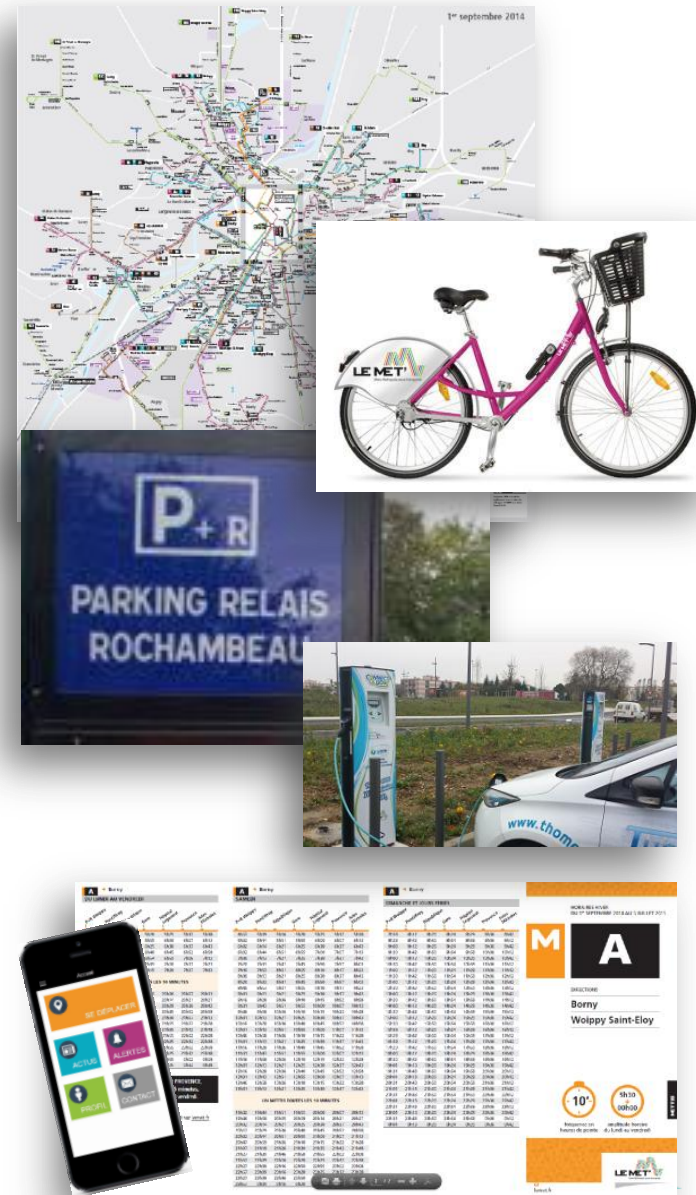
- ③ 3 scenarios tested
 - Fire in the engine compartment
 - Accident with a pedestrian
 - Accident with a car
- ③ Positive results of the tests, with a very good reactivity of the participants



Transition to Operations

Network design, marketing and communication

- Complete redesign of the bus network with Keolis guidelines (Neolis)
 - Hierarchy
 - Simplicity
 - Legibility
 - Direct links between the main riders generators (hospital, university, shopping malls...)
 - Built for operational performance
 - Intermodality between all modes
- Reshaping all communication tools with the new branding : New network map, new timetable leaflets, new website, mobile application, ...
- Implement passenger real time information at the Operational Control Center

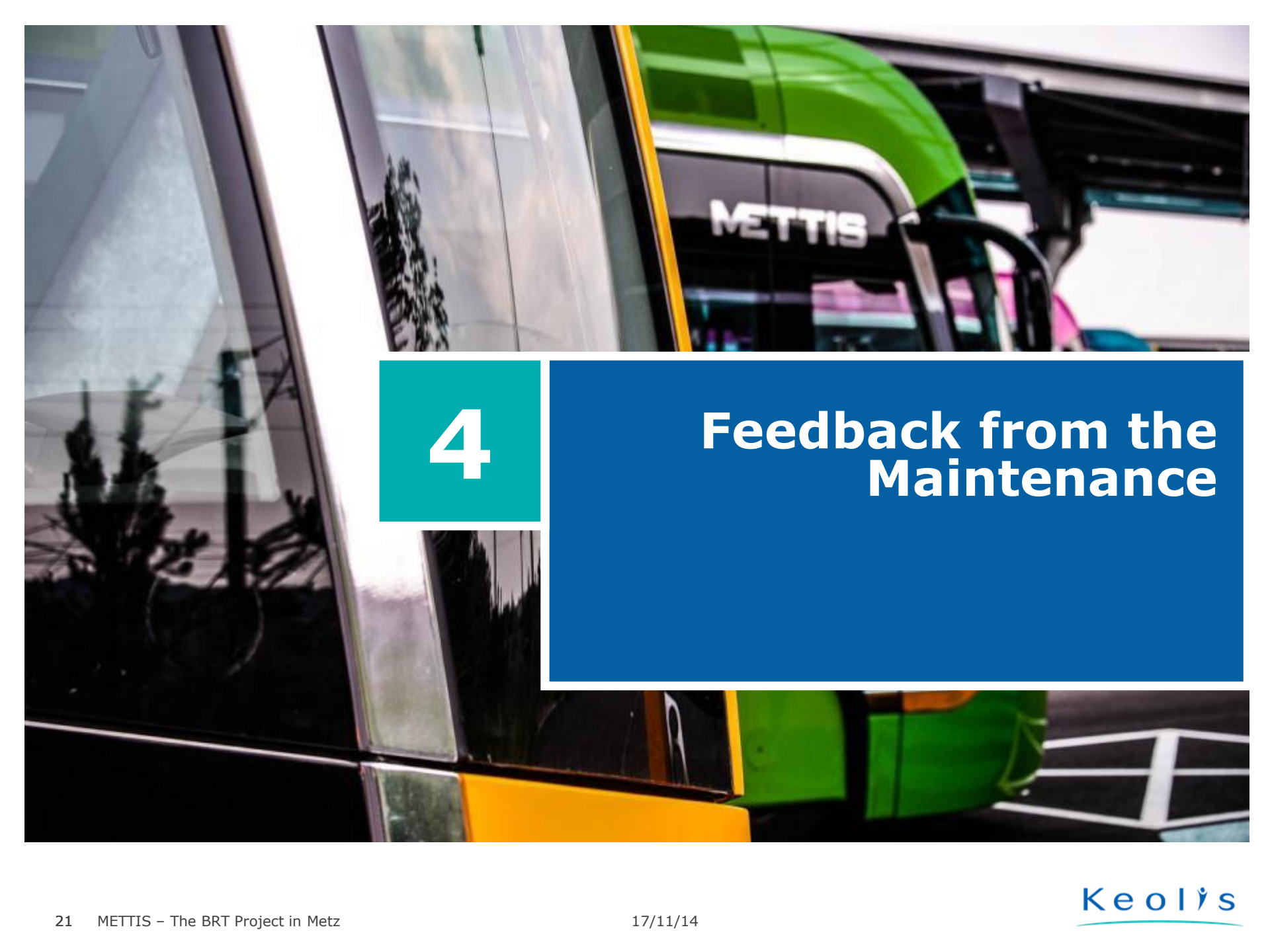


Transition to Operations

Marketing and communication

- ⦿ New ticketing system with new fares
- ⦿ New customer service office
- ⦿ Preparation of the Communication campaign and of the Inaugural Day and...the week after and...the following years





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Feedback from the Maintenance

Feedback from the Maintenance

Availability and reliability of the vehicles are not yet under control

- ⦿ Overall increase in all indicators
- ⦿ Shortcomings in the organization and resources
- ⦿ Quality defects
 - Finish, assembling differences, tightening control...
- ⦿ Design defects
 - Technical solutions unsuitable for urban buses

**Action Plan
from Van Hool
already launched**

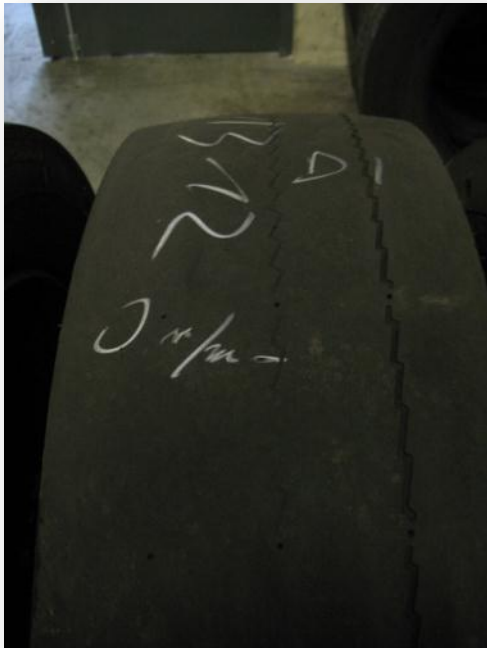
➡ **Example: The recovery braking energy joypad**



Feedback from the Maintenance

Hybrid System

- ⦿ Extreme wear tires on 2nd axle (traction axle)
- ⦿ Causes:
 - High torque of the electric motor (only one traction axle for a 24 m vehicle)
 - Tires pressure recommended by the bus manufacturer different from the tires pressure recommended by the tires manufacturer



Feedback from the Maintenance

Hybrid System

⦿ Action Plan

- “pressure vs charge” campaign accomplished by the tires manufacturer
- Optimization of the electric motor torque to satisfy performances, comfort and tires wearing





**Thank you for
your attention**

Questions / Answers