



# Urban Freight

Innovation ideas

2 September 2021

**ALSTOM**  
• mobility by nature •

**75,000**

Employees worldwide

**17,000**

Engineers

Over

**150,000**

vehicles in commercial service

Over

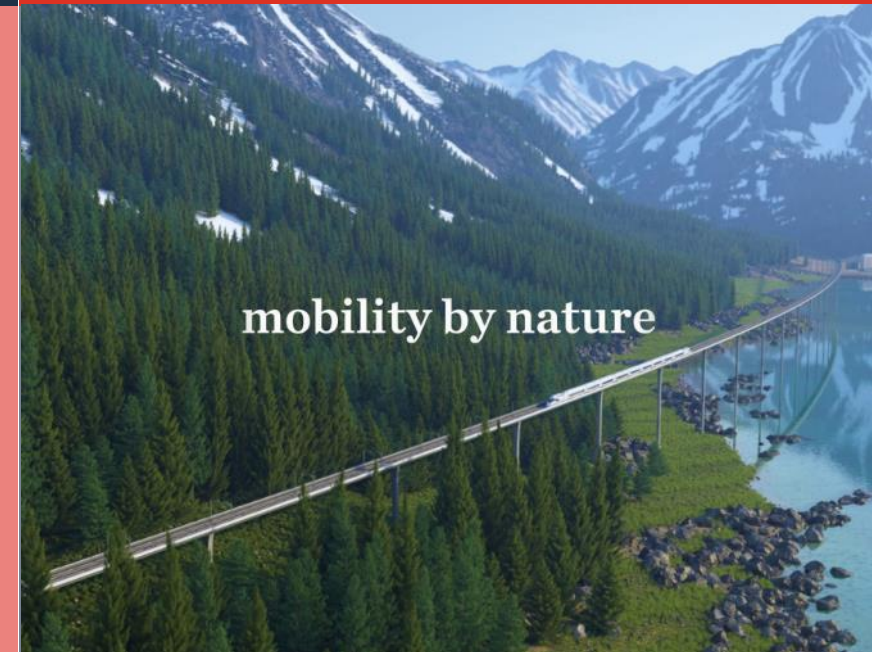
**10,000**

patents

Partner to over

**300**

cities



mobility by nature

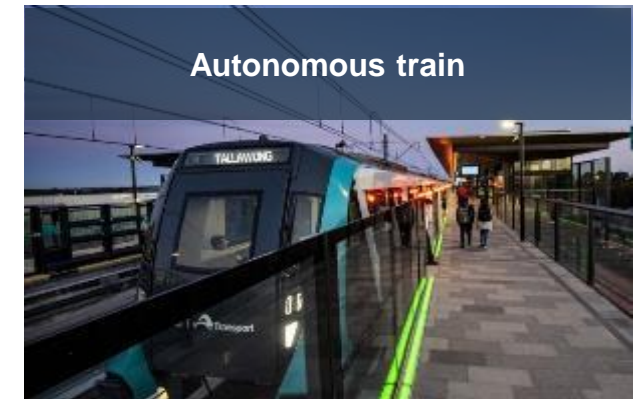
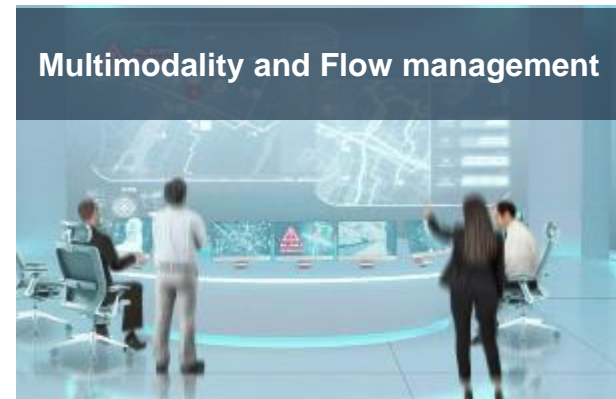
# A constant focus on innovation



## Green Mobility



## Smart Mobility



# Alstom in the value chain

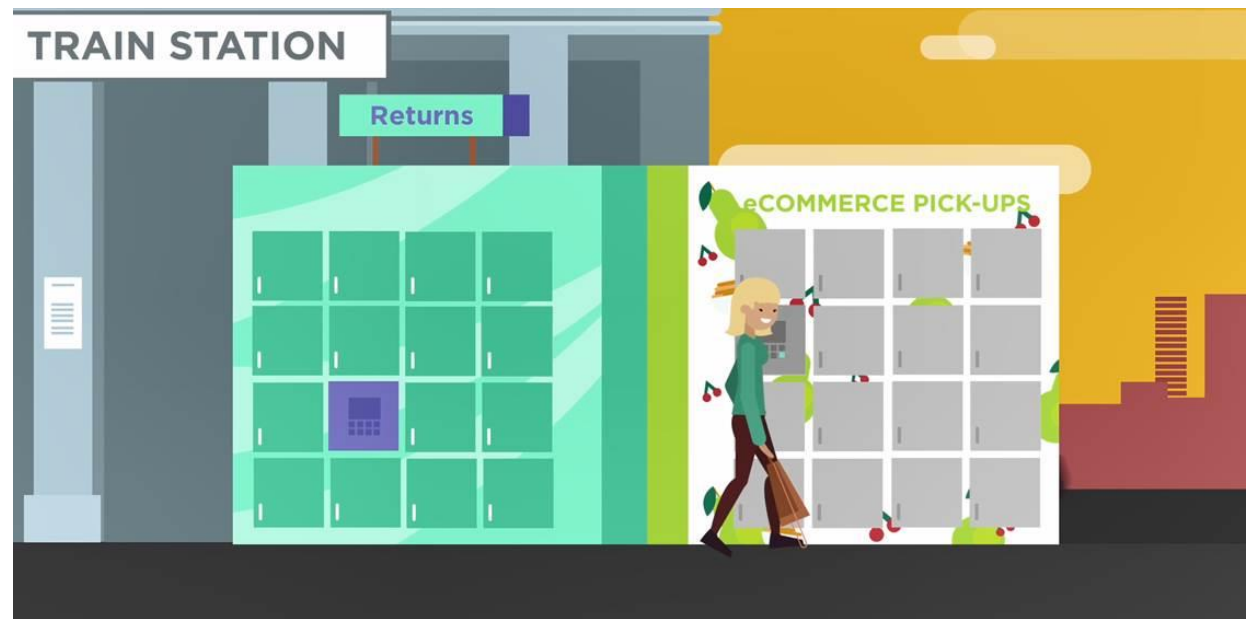
Alstom known by most as Train/Metro/Tram manufacturer

... but not the topic of today

Although we believe the stations  
are the best possible pick-up place

Dedicated train/metro/trams is  
NOT the answer

Logisticians need frequency rather  
than volume in urban context



# Past trials



Saint Etienne



Dresden



Zurich

# Urban Freight: A new paradigm!

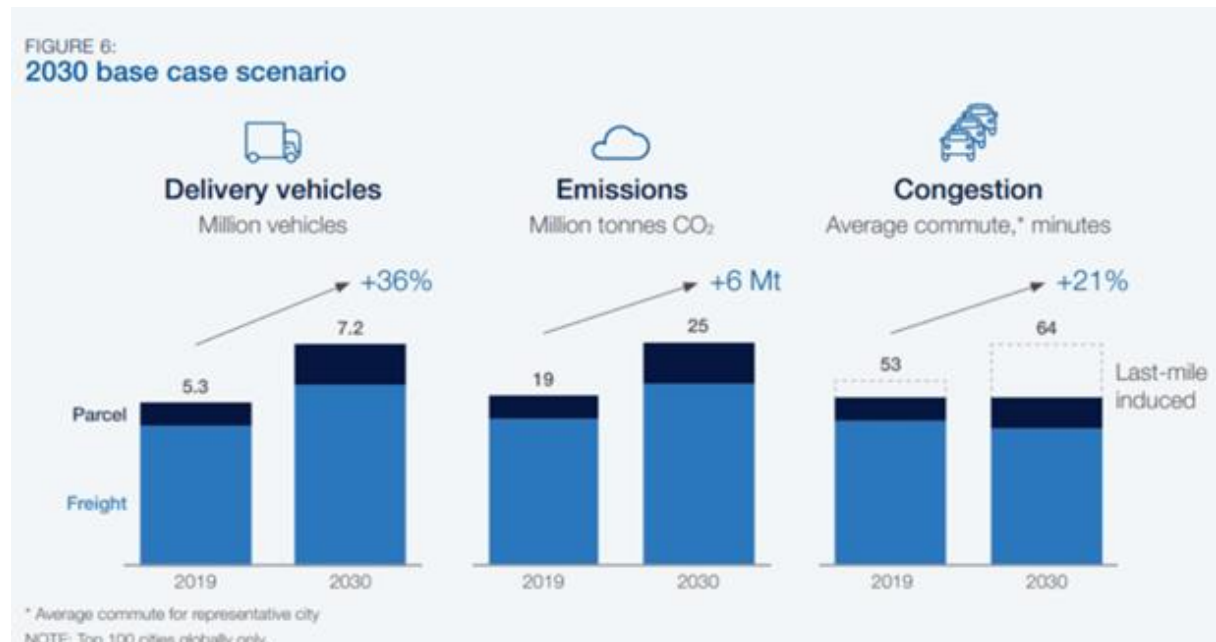
77,838,000  
parcels delivered in 2020\*.

## Opportunities...

Parcels from online shopping increased by some 48% in 2020.



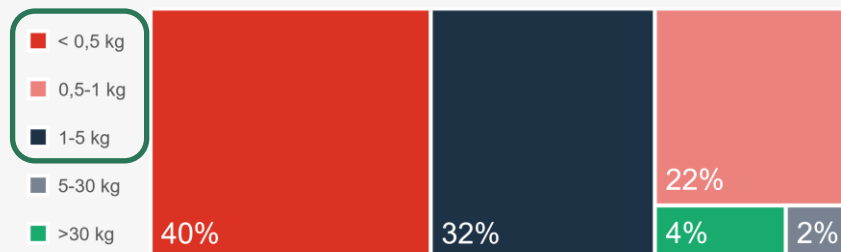
## and challenges



\*Source: Posten Annual and Sustainability Report 2020 | Capgemini

# The Market Size and Business Opportunities

## Parcel Typology & Size:



## Business Case:

94% of parcels less than 5kg  
22 M parcels per year in Oslo

## Potential Green Impact:

Assumptions:

- 30% of the market capture
- 180 g of CO<sup>2</sup> emission avoidable per parcel

**1,180 t CO<sup>2</sup> avoidable in 2020**

## Benefit for the cities

Congestion



Pollution



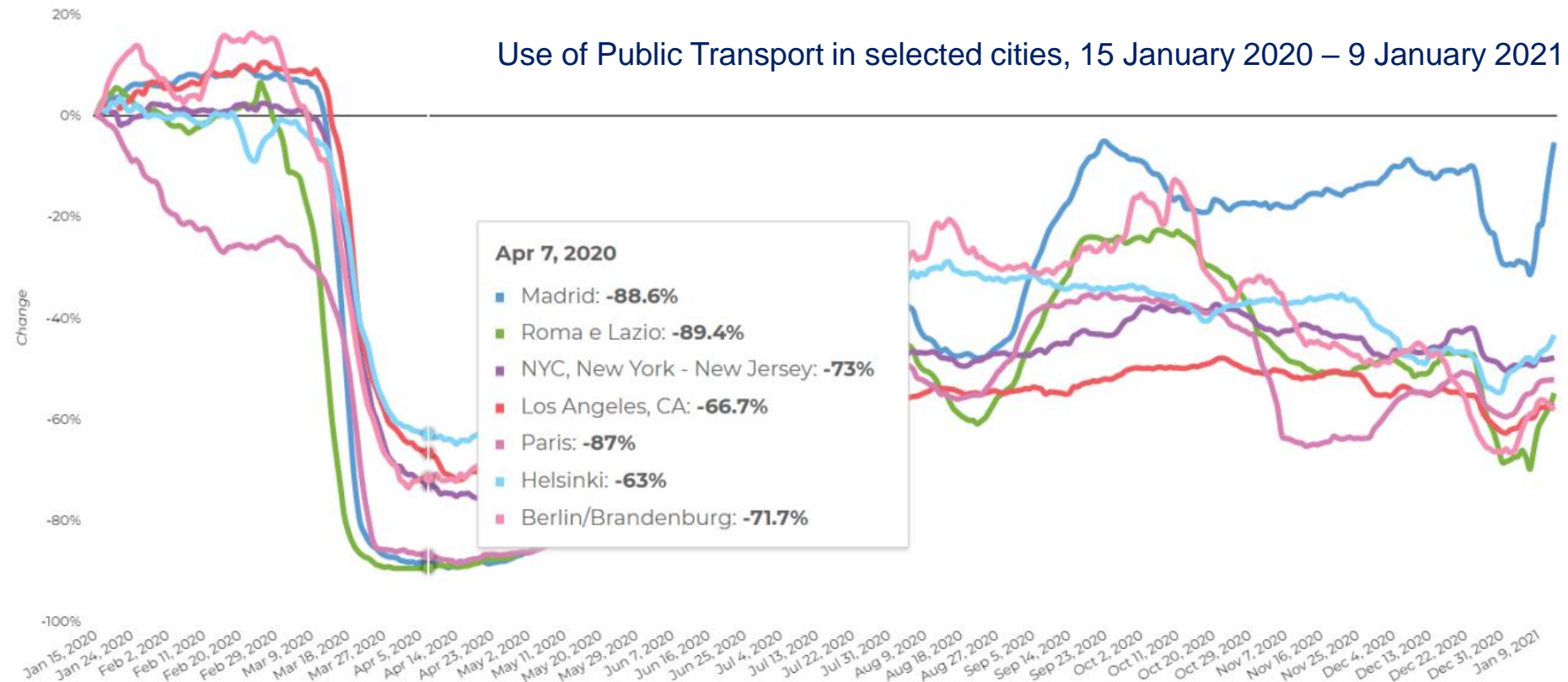
ROI on Asset



**Urban Freight = Sustainable Parcel Delivery Solution**

# Transport operators and cities

## Coronavirus a revelator: less passengers but exploding packages



**Urban Freight = Rebalancing the utilisation of assets**

Source: Moovit Global Public Transport Report 2020

© ALSTOM SA, 2021. All rights reserved. Information contained in this document is indicative only. No representation or warranty is given or should be relied on that it is complete or correct or will apply to any particular project. This will depend on the technical and commercial circumstances. It is provided without liability and is subject to change without notice. Reproduction, use or disclosure to third parties, without express written authorisation, is strictly prohibited.



# Logisticians: key players looking for new solutions

## Challenges: The urban delivery

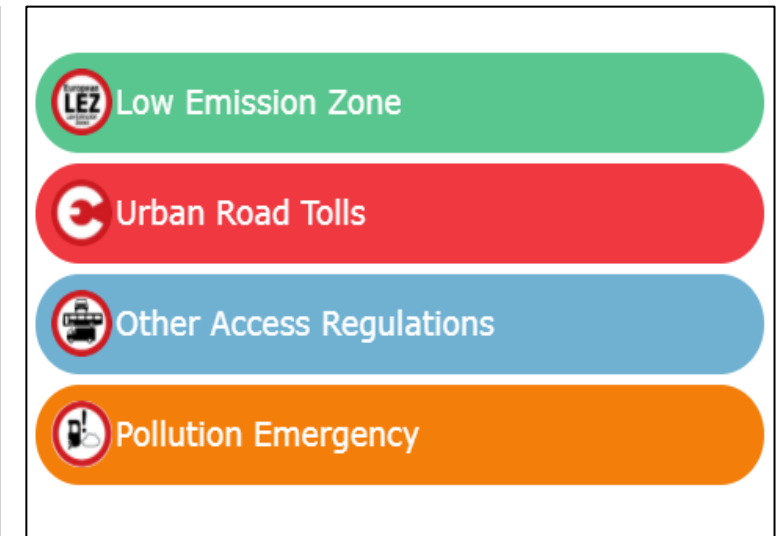
### Cost driven



### Time constraint



### Urban access regulation



**Logisticians need frequency on top of volume = Great fit with Metro/Tram/Shuttle services**

Source: [Report-Digital—Last-Mile-Delivery-Challenge1.pdf \(capgemini.com\)](#) | [Zones à faibles émissions : les voitures polluantes bientôt bannies des métropoles de Montpellier et Toulouse \(francetvinfo.fr\)](#)

© ALSTOM SA, 2021. All rights reserved. Information contained in this document is indicative only. No representation or warranty is given or should be relied on that it is complete or correct or will apply to any particular project. This will depend on the technical and commercial circumstances. It is provided without liability and is subject to change without notice. Reproduction, use or disclosure to third parties, without express written authorisation, is strictly prohibited.

# MASTRIA

Orchestrator over many different public transport:

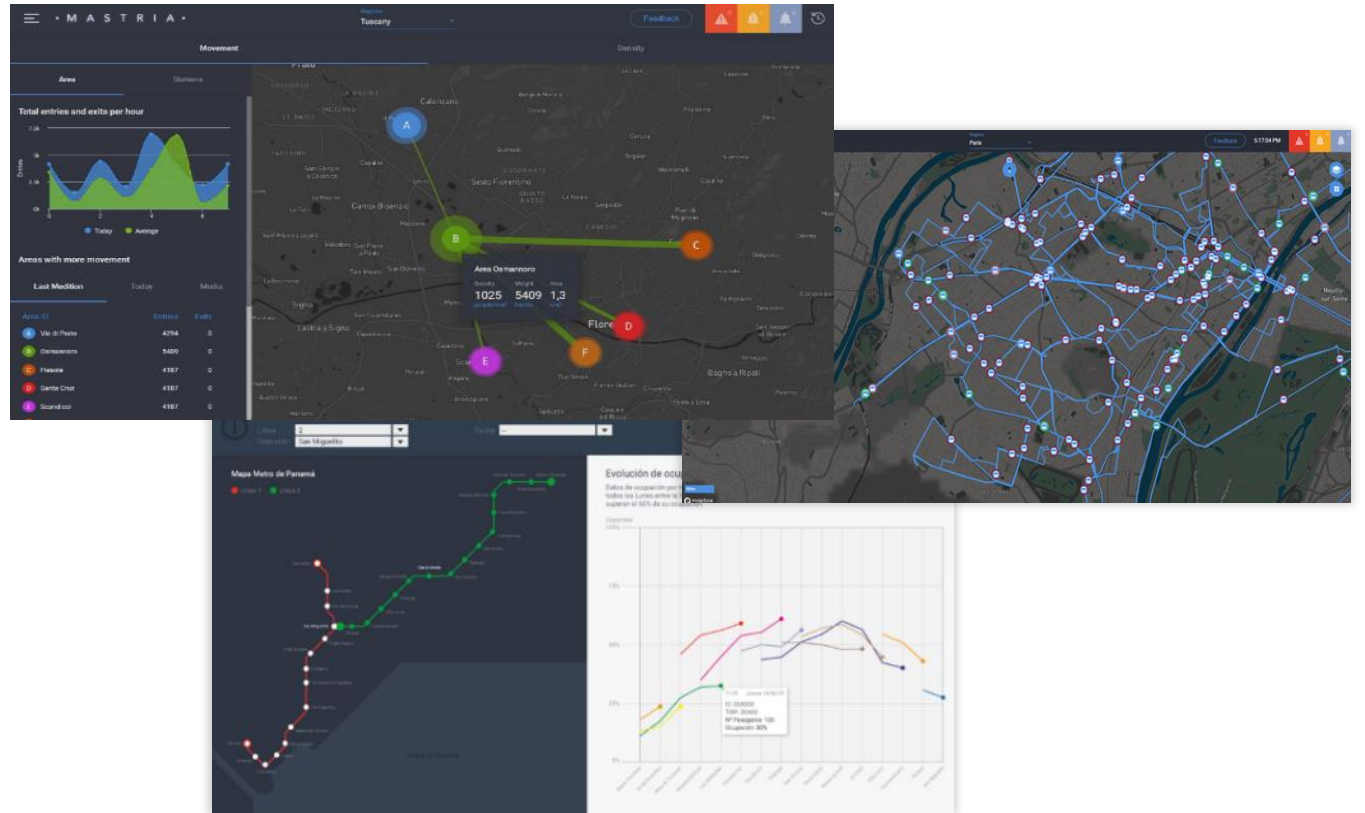
Tram

Metro

Railway

Police / Blue light service

...



**Mastria tuned to manage parcels, not only passenger load**

# Implementation on existing lines

## Connecting existing Freight Hubs to the City Center

### Intermodal Logistic Standard Unit



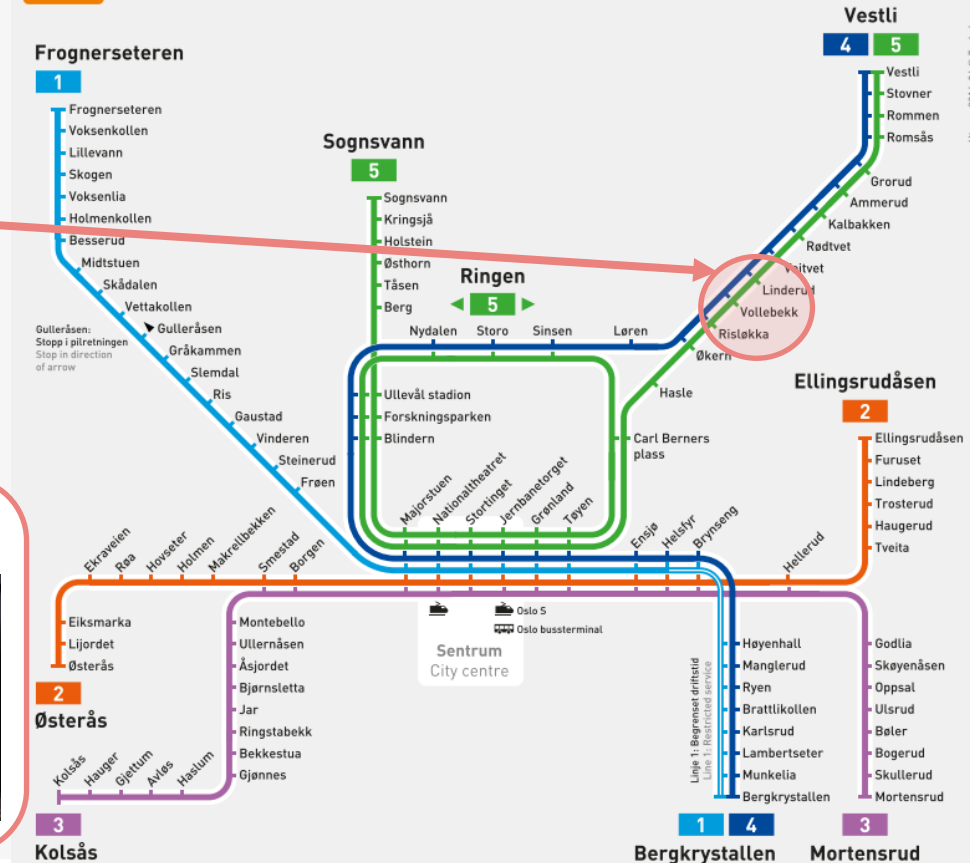
Bag: 23 kg including 16-18 parcels



### Lockers to collect and/or send parcels



## T-bane Metro



The opportunity to scale-up the model without any modification of existing asset

# Solution: Alstom Parcel Orchestration Services

## Connecting Mobility Players

### Municipalities (PTA)

- Origin-destination matrix
- Density information



### Operators

- Coach, train weight & position
- Doors events & technical data



### Smartphone Apps

- Trip planning
- Crowd sourcing



## Now Adding New Players

### Logistics companies

- Real-time flow monitoring
- Predict capacity evolution



## MASTRIA™



### Powered by:

- Cross-data analytics
- Artificial Intelligence



## Dedicated to your Control Room



## Capacity Management



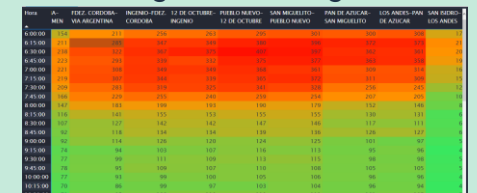
### Monitoring & Predicting

- Analyze passengers/parcels flow
- Real-time flow monitoring
- Predict capacity evolution
- In trains and at stations safety tracker (same as airline industry)



### Monetizing your capacities

- Integrated capacity marketplace
- Link to third-part ecosystem
- Link to logistic tracking tools



The enabler to visualize your capacity and sell it to the logisticians

# Benefits of a “Mastria” approach

**For Operators: optimization of asset, “always full”, No modification of RS**

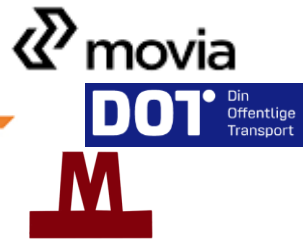
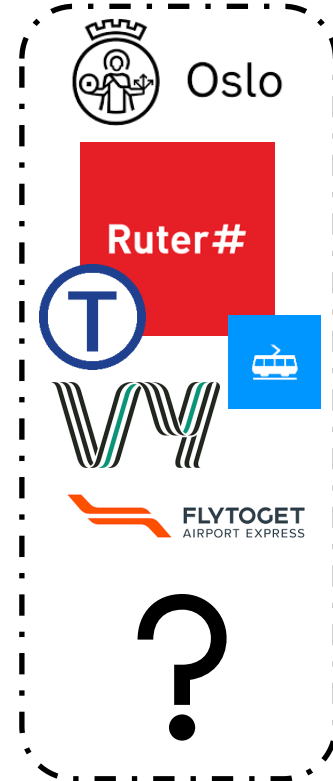
**For Logisticians: frequency, reduced cost**

**For PTA: no addition of pollution/congestion**

**For Oslo inhabitants: city even greener,  
parcels delivery in stations (as natural as supermarkets)**

This can also include the parcels return flow (~ 10%)

# Alstom's approach: Collaborative Innovation



# MASTRIA: Digital Kombibuss





**Tusen takk**