



MOBILE DEPOT BRUSSELS

TNT Express demonstration STRAIGHTSOL

Logistique urbaine
Quelles solutions pour la Région Bruxelles-Capitale
Sara Verlinde – VUB – Mobi Research Group

Mobile depot



- New concept for urban distribution by express delivery service provider TNT Express
- Will be tested in Brussels
- Supported by the EU funded project STRAIGHTSOL

STRAIGHTSOL aims

- Develop a **new impact assessment framework** for measures applied to urban-interurban freight transport **interfaces** (please help us by filling in our online survey which will take only 5 minutes of your time on www.strightsol.eu)
- Support a **set of innovative field demonstrations** showcasing improved urban-interurban freight operations in Europe
- Apply the impact assessment framework to the live demonstrations and develop specific **recommendations** for future freight policies and measures

STRAIGHTSOL demonstrations



- DHL Supply Chain's Urban Consolidation Centre in L'Hospitalet de Llobregat
- Oxfam's remote 'bring-site' monitoring
- Rail tracking and warehouse management – K+N
- Retail supply chain management and 'last mile' distribution by use of standardized information – GS1
- Night-time distribution in Utrecht – TNT Innight
- Loading/unloading operations management and regulations in Lisbon

Context



- Brussels
- 161,38 km²
- 1.145.292 inhabitants

Context



From TNT hub at
Brussels airport

To: BeNeLux



Context

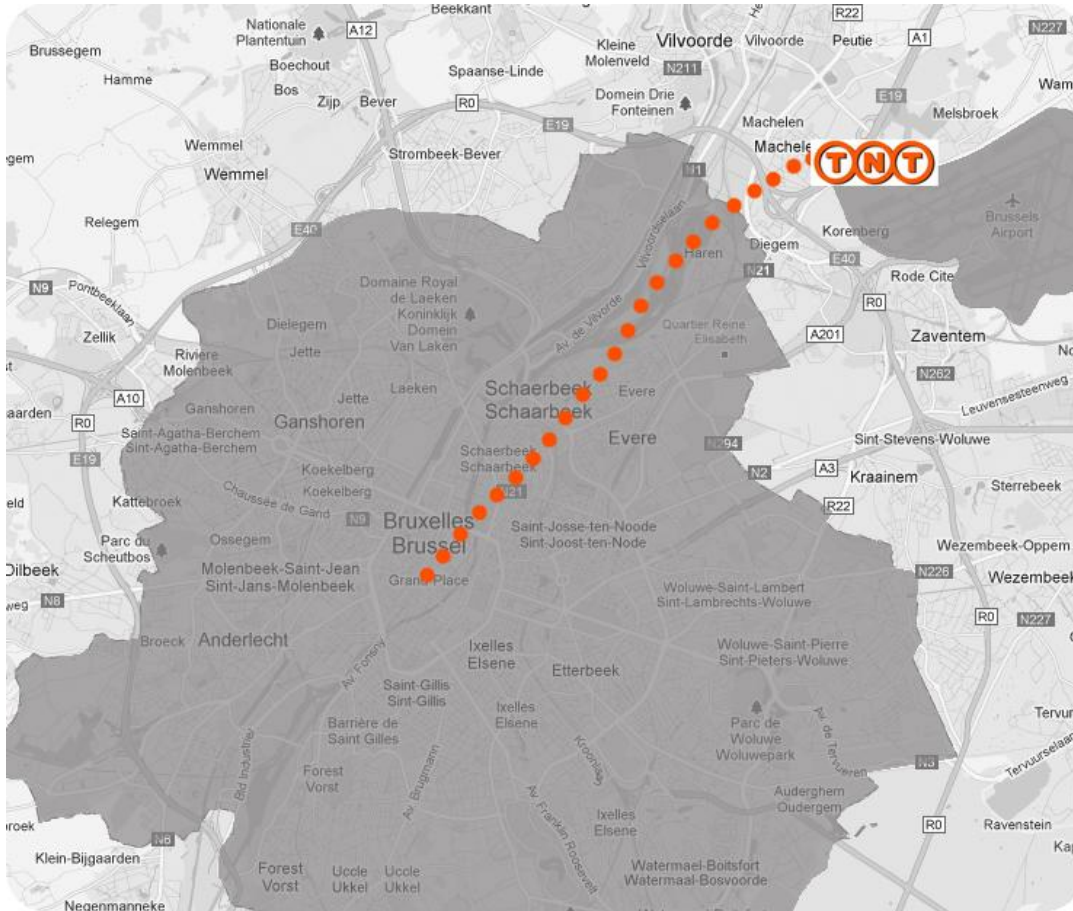


From TNT hub at
Brussels airport

To: Brussels



Context



From TNT hub at
Brussels airport

To: Brussels – 11,6km



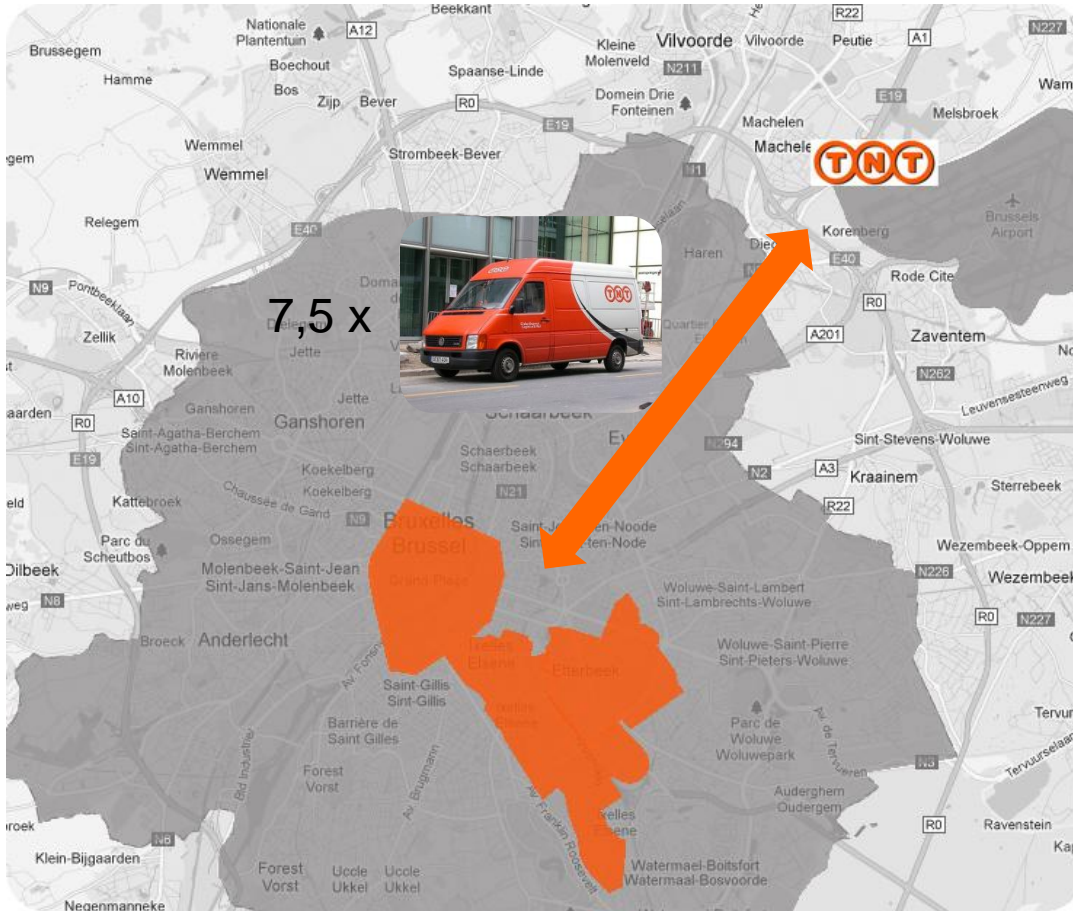
Challenges

- As in most larger European cities, deliveries in the heart of Brussels are slowed down by the omnipresent **traffic congestion**
- This makes it **expensive** for TNT Express to keep their inner-city deliveries (and pick-ups) **reliable and fast**
- Traffic congestion also makes distribution traffic **extra polluting** in times when there is a lot of environmental attention

Possible solutions

- Possible solution: the use of **electric vehicles** (green) or **tricycles** (green and not hindered by congestion)
- The weakness of these solutions is the cost factor:
 - **Electric vehicles** are **expensive**
 - **Tricycles** need **additional infrastructure** for loading and unloading close to the origin or the final destination of the goods
- **Objective** of TNT Express and the STRAIGHTSOL demonstration: **Implement a cost efficient and emission free operation**

Original way of working

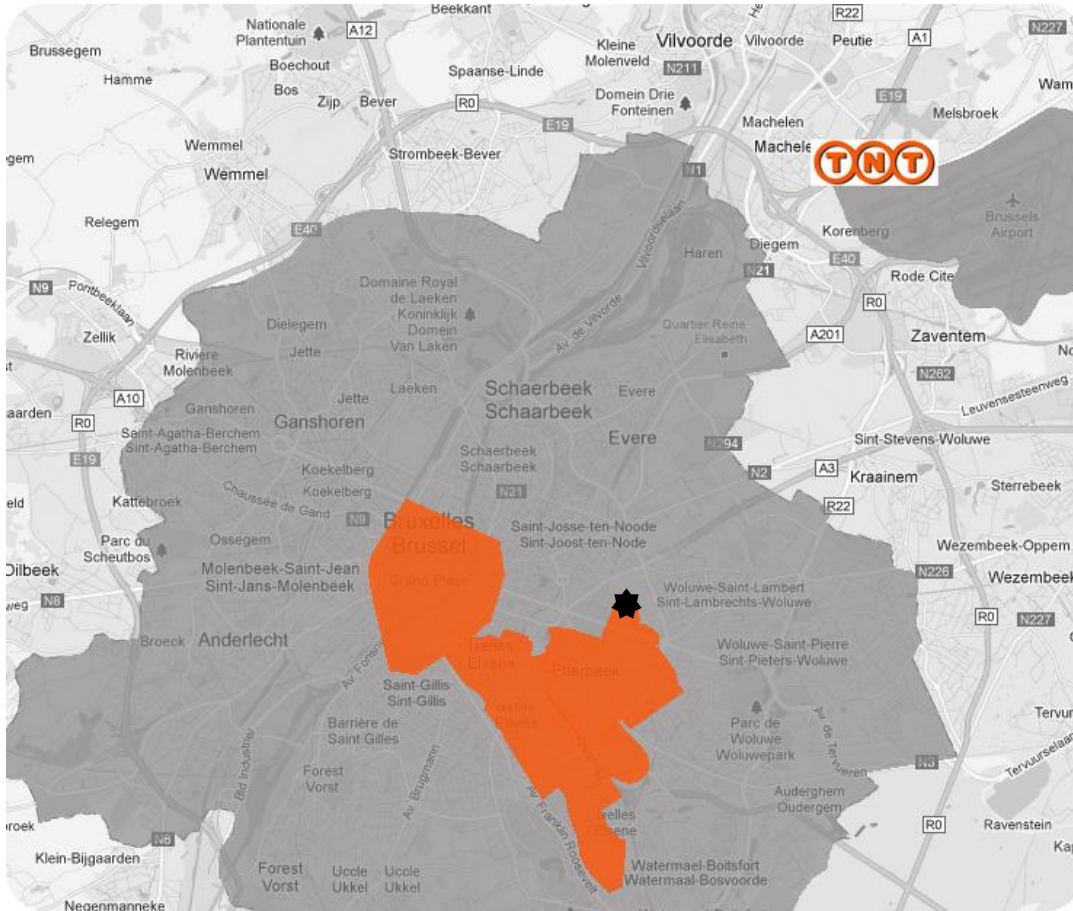


- Project area: within R20 and postal codes 1040 and 1050
- Deliveries and pick-ups are carried out by diesel vans (on average 7,5 vans a day to service the project area)
- These vans leave from the airport hub to make a round trip (making deliveries and doing pick-ups)

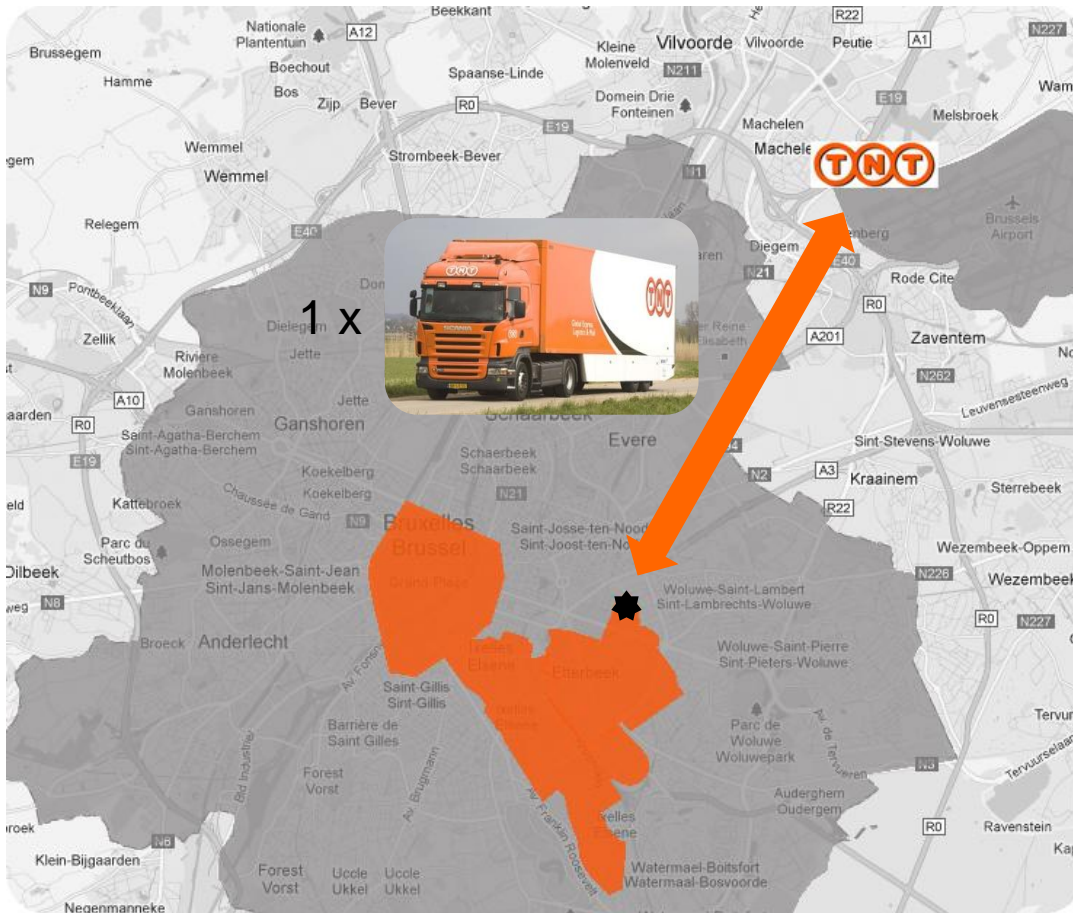
Challenges

- In order to make operations more cost efficient and emission free, TNT Express tried a new solution: carrying out deliveries **with electric tricycles**
- TNT Express subcontracts these deliveries to Brussels cycle courier Ecopostale

Intermediate solution: tricycle couriers



Intermediate solution: tricycle couriers



- Once a day a truck takes the parcels destined for the area to the cycle courier depot
- Since October 2010, constant expansion since then

Intermediate solution: tricycle couriers



- Once a day a truck takes the parcels destined for the area to the cycle courier depot
- From there, deliveries are carried out making use of electric tricycles

Intermediate solution: **tricycle couriers**

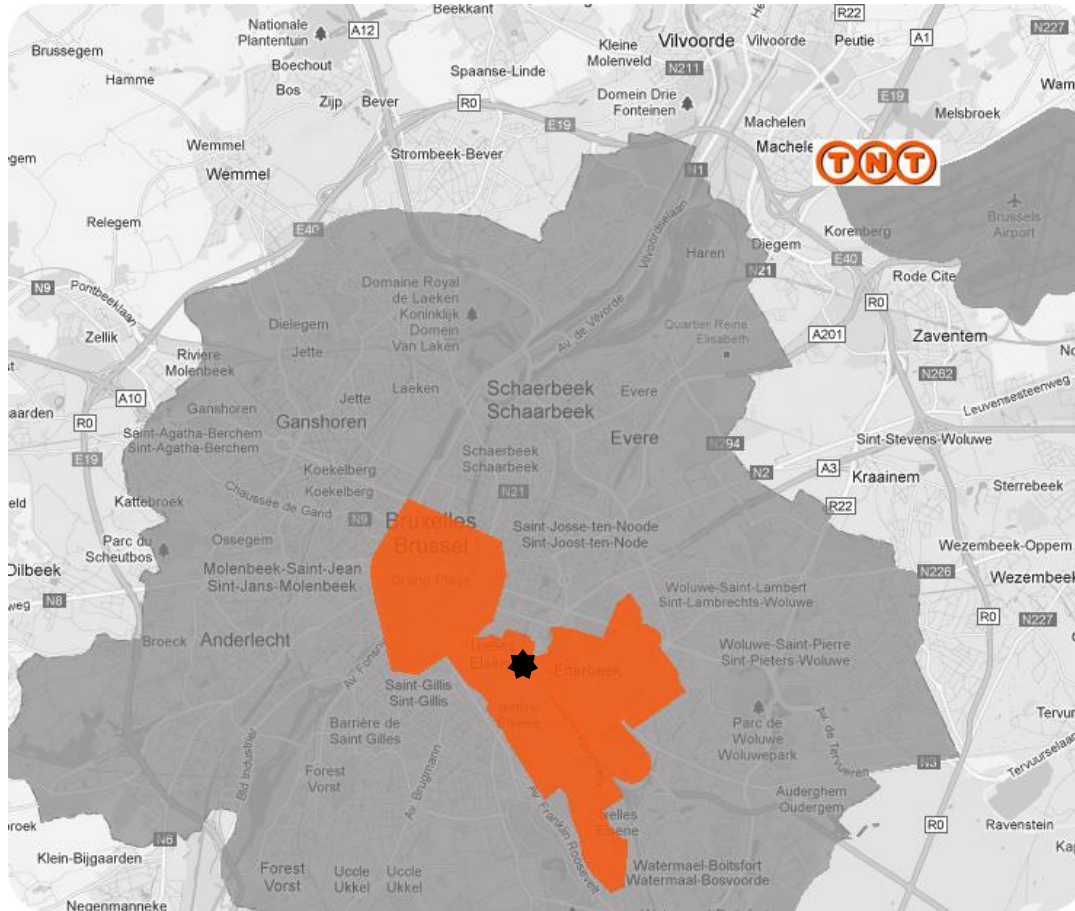
- Advantages:
 - **Environmentally friendly**
 - **Not hindered by traffic congestion** because tricycles have the same status as a normal bike
 - **Cost per stop is lower** than in the baseline scenario
- Disadvantages:
 - **Additional handling:** parcels and packages have to be sorted a second time at the tricycle courier's depot
 - **Lack of volume of the tricycles:** often they are too full to also do pick-ups. Therefore, TNT has to do additional pick-up rounds (3 diesel vans a day)

STRAIGHTSOL concept: **Mobile Depot**



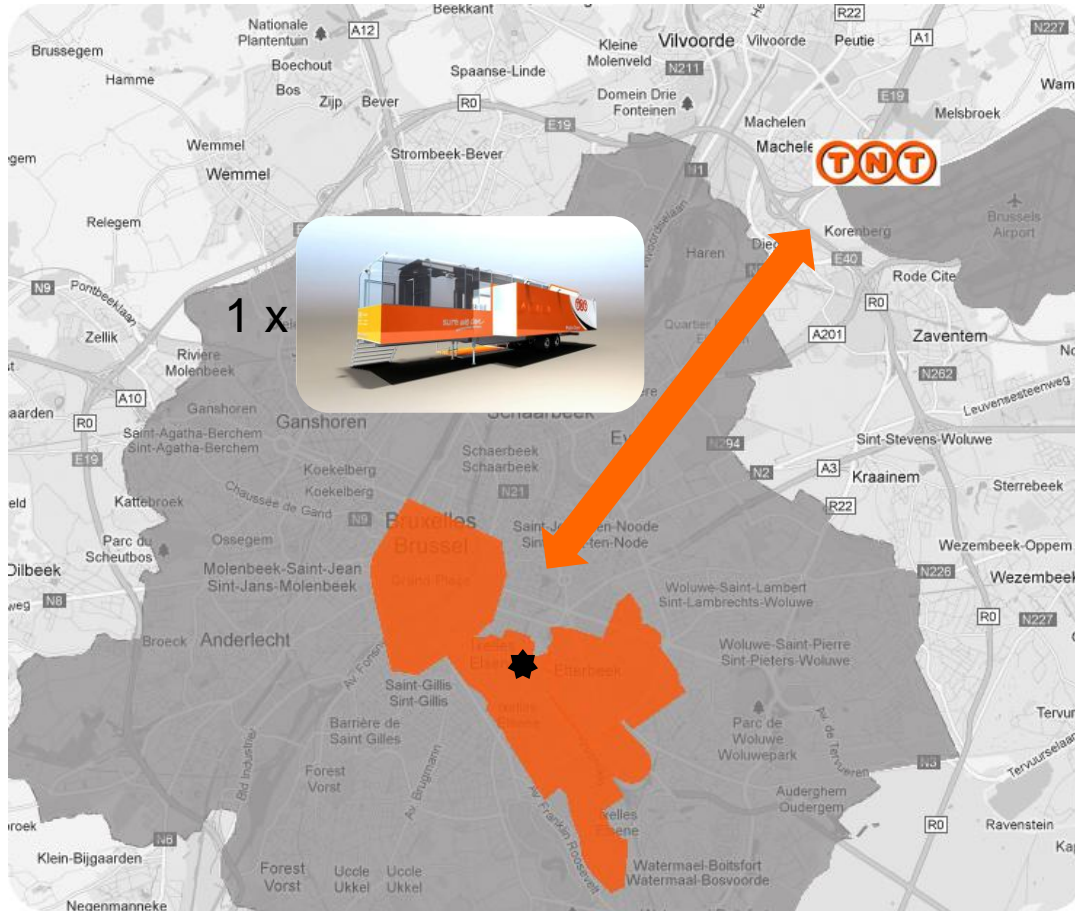
- A truck/trailer which is **equipped with all depot facilities** (i.e. loading docks, labelling, data entry, etc.)
- The depot **also contains the electric tricycles** which will be delivering the last mile

STRAIGHTSOL concept: Mobile Depot



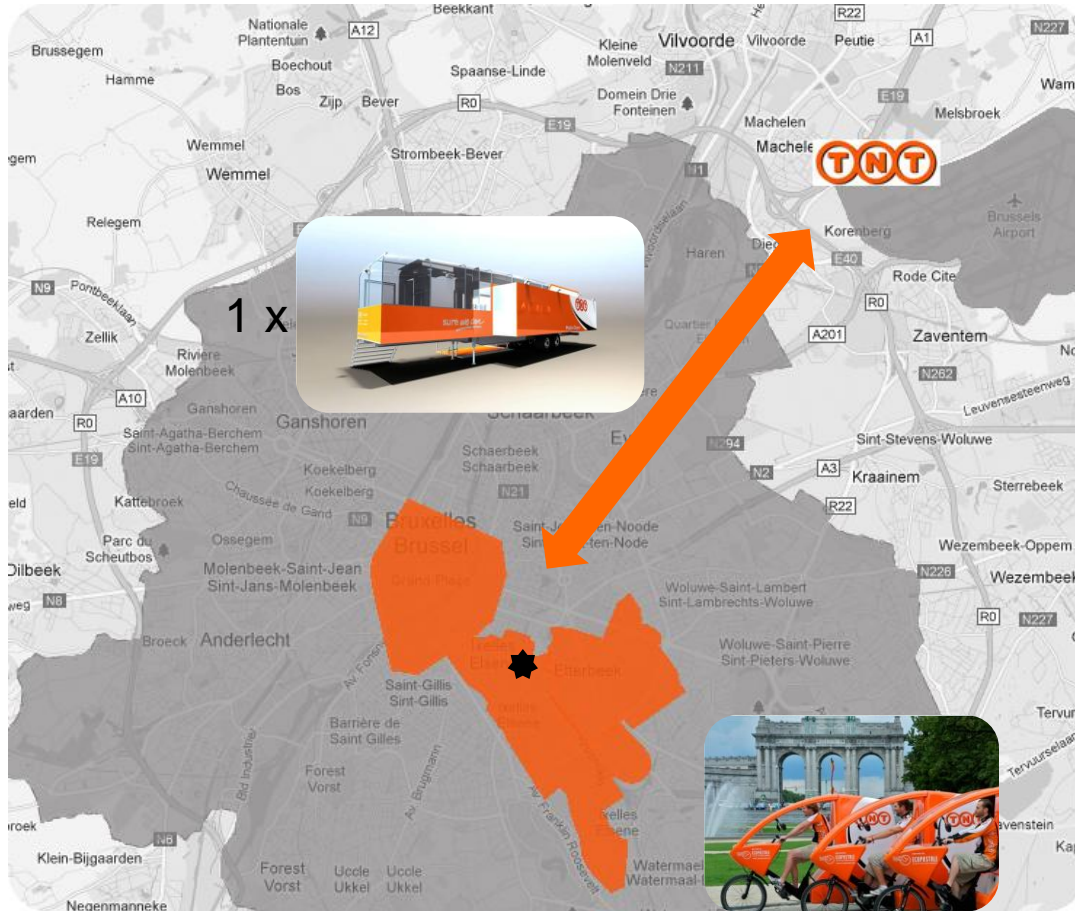
- Parcels are loaded into the MD at the TNT airport hub (already according to their final destination)

STRAIGHTSOL concept: Mobile Depot



- Parcels are loaded into the MD at the TNT airport hub (already according to their final destination)
- The MD drives directly from the TNT hub to the city centre with all parcels for that day

STRAIGHTSOL concept: Mobile Depot



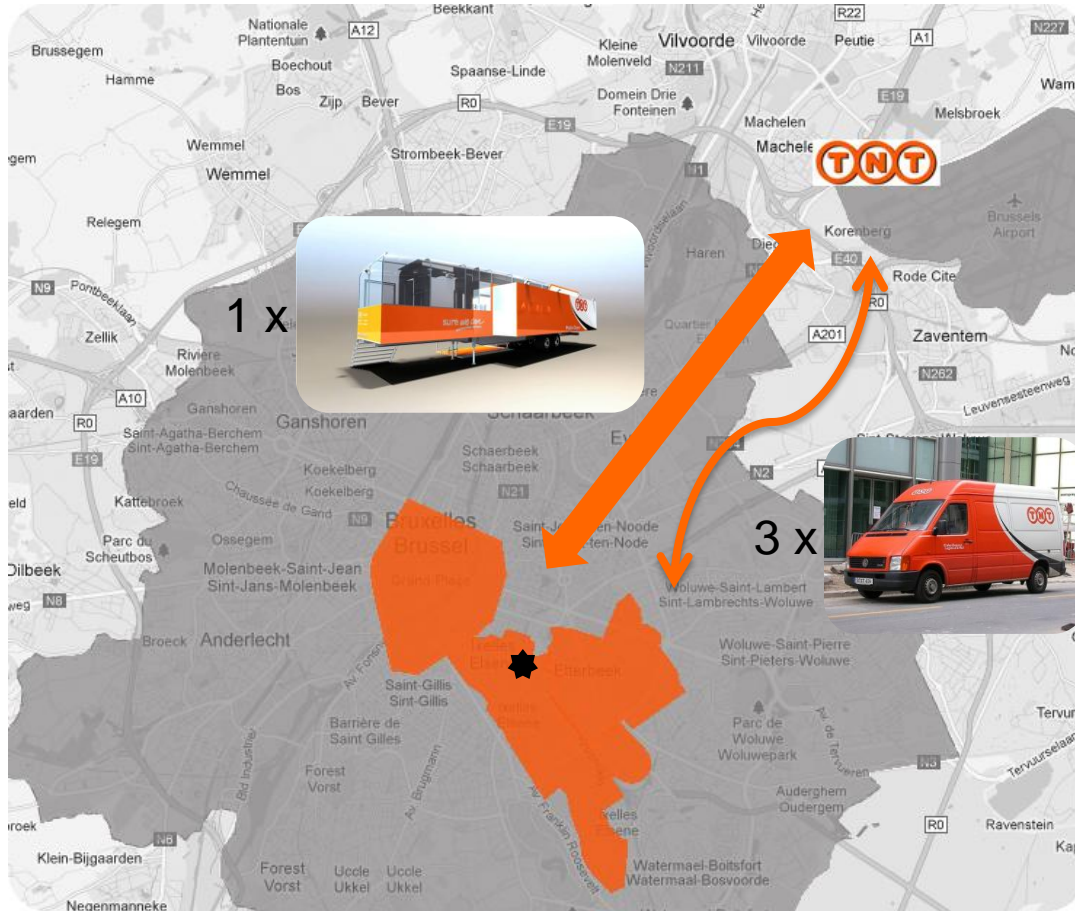
- Parcels are loaded into the MD at the TNT airport hub (already according to their final destination)
- The MD drives directly from the TNT hub to the city centre with all parcels for that day
- From there, deliveries are carried out making use of electric tricycles

Expected outcomes

Mobile depot vs original way of working:

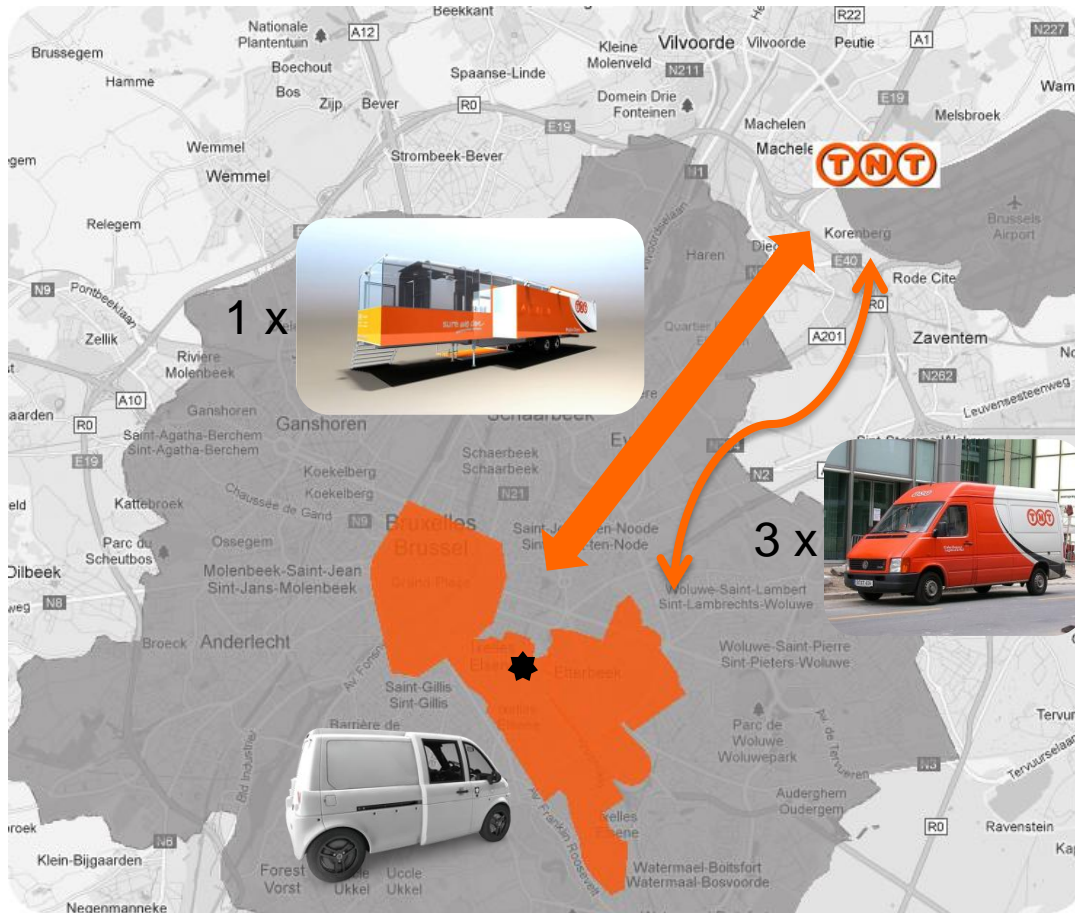
- **Decreased truck-kilometres**
- **Reduced costs per stop**
- **Delivery times and punctuality** for inner-city operations are at least maintained
- **Reduced CO₂-emissions**
- **Employee satisfaction, information flows and noise level** are at least maintained

Additional concept: MD with electric cars



- Problem: **still need for vans to do the pick-up rounds** due to limited volume of the tricycles

Additional concept: MD with electric cars



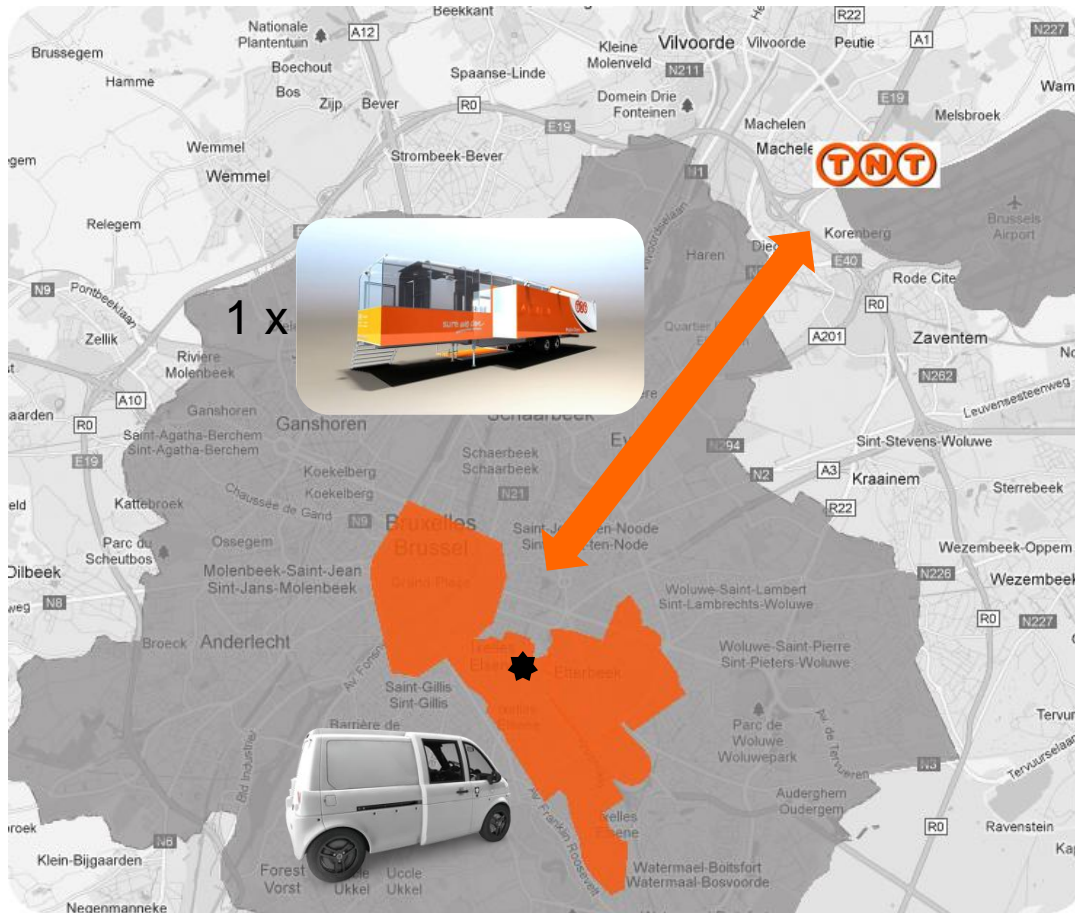
- Problem: **still need for vans to do the pick-up rounds** due to limited volume of the tricycles
- Additional concept: **Mobile Depot with electric cars**

Additional concept: MD with electric cars



- Problem: **still need for vans to do the pick-up rounds** due to limited volume of the tricycles
- Additional concept: **Mobile Depot with electric cars**

Additional concept: MD with electric cars



- Problem: **still need for vans to do the pick-up rounds** due to limited volume of the tricycles
- Additional concept: Mobile Depot with electric cars
- Testing this concept is not part of STRAIGHTSOL. However, if TNT will test this during the STRAIGHTSOL period, they will provide us with the data

Alternatives to be compared

1. New concept: **mobile depot** and **bi- and tricycle couriers** (real data from 1 year's test)
2. Original way of working: inner-city distribution from the **airport hub** with **vans and small trucks** (real data)
3. Intermediate way of working: inner-city distribution from **cycle courier's depot** with **electric tricycles** (real data)
4. Additional concept: **mobile depot** and **electric cars** (simulation or real data)

When will the MD be operational?

Original planning:

- 1 year field-test starting June 2012

Problem:

- Recently, Ecopostale and TNT Express were faced with additional problems
- Therefore, TNT Express temporarily stopped the tricycle deliveries
- Tricycle deliveries will restart in June
- The Mobile Depot will be launched in September 2012 and still will be operational for at least a year

Thank you for your attention

Sara Verlinde
sara.verlinde@vub.ac.be

www.vub.ac.be/MOSI-T
<http://mobi.vub.ac.be>

www.straightsol.eu

