CITYLAB –
City Logistics in Living Laboratories

Floating Depot

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CITYLAB facts

- Horizon 2020, Mobility for Growth 2014-2015
- Topic MG-5.2-2014 *Reducing impacts and costs of freight and service trips in urban areas*
- Budget 3,98 Mill Euro
- 1 May 2015 – 30 Apr 2018
- 24 partners, 7 countries

CITYLAB partners

UNIVERSITY OF Southampton

toi

STEEN STROM
WE ENRICH MODERN SHOPPING

ROMA TRE
UNIVERSITÀ DEGLI STUDI

Meware

ROME & YOU

Posteitaliane

TRANSPORT FOR LONDON

Vrije Universiteit Brussel

BRUSSELS MOBILITY
BRUSSELS REGIONAL PUBLIC SERVIC

P&G

gnewt cargo
love the last mile

TNT
THE PEOPLE NETWORK

IFSTTAR

DLR

POLIS

TNO

postnl

ROTTERDAM

MAIRIE DE PARIS

UNIVERSITY OF Southampton

SOUTHAMPTON CITY COUNCIL

MEACHERS GLOBAL LOGISTICS

What we will do

- Improve **knowledge and understanding** about the impacts of freight distribution and service trips in urban areas;
- Implement and test **7 innovative solutions** that **reduce the negative impacts** of freight vehicles whilst **enhancing business profitability**
- Provide a platform to aid the **replication and roll out of** the solutions in other cities

Emission free city logistics in urban centres by 2030

The living labs

LONDON: New distribution hub concepts and clean vehicles

ROME: Integration of direct and reverse logistics

BRUSSELS: Increasing load factors by utilizing free van capacity

ROTTERDAM: Floating depot

PARIS: Logistics hotel

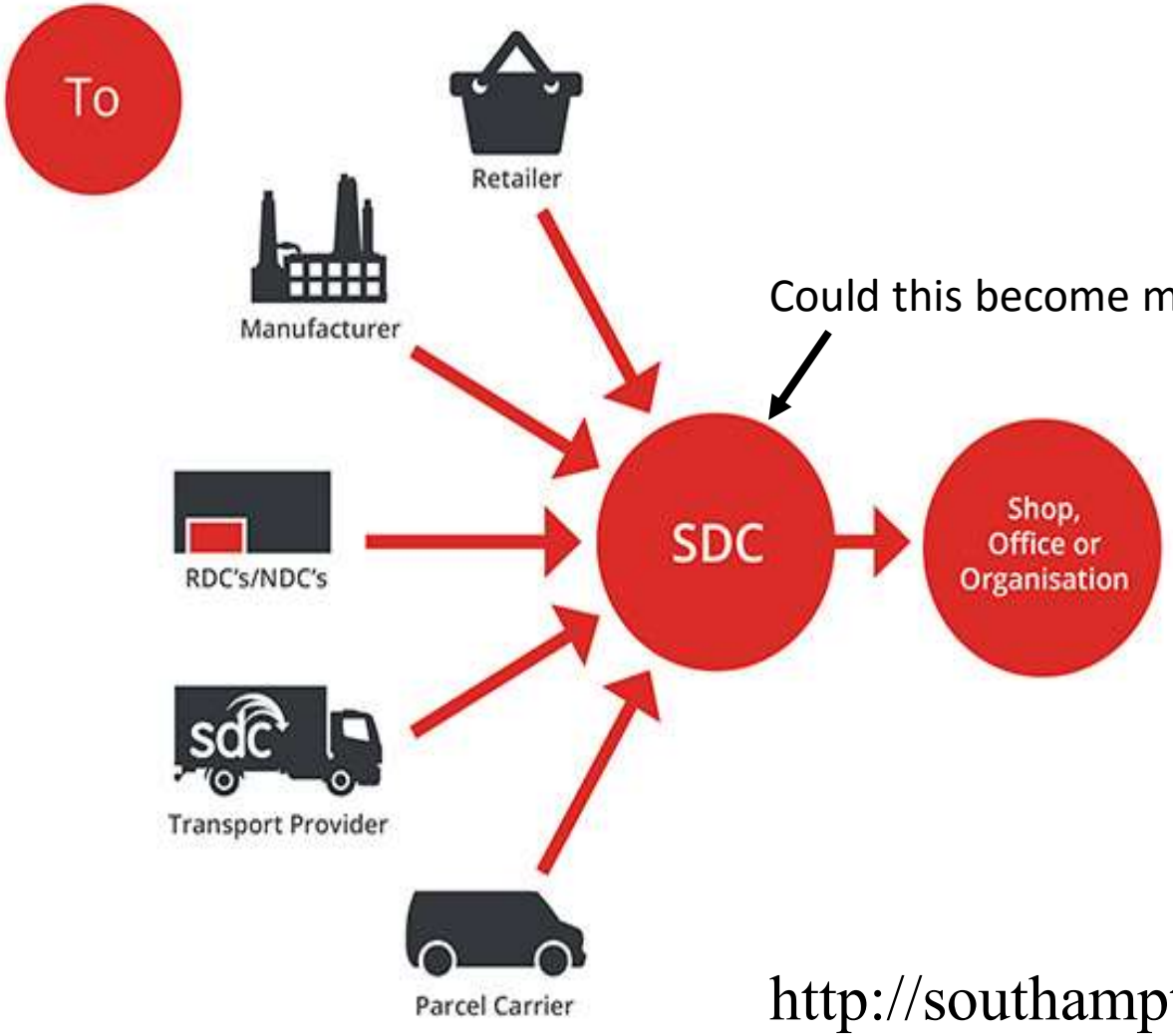
OSLO: Common logistics functions for shopping centers

SOUTHAMPTON: Joint procurement and consolidation for large public institutions

The consolidation concept and the background to the Floating Depot

Business-as-usual

Consolidation Centres



http://southamptonsdc.co.uk/

TNT Express in Brussels: **Mobile Depot**

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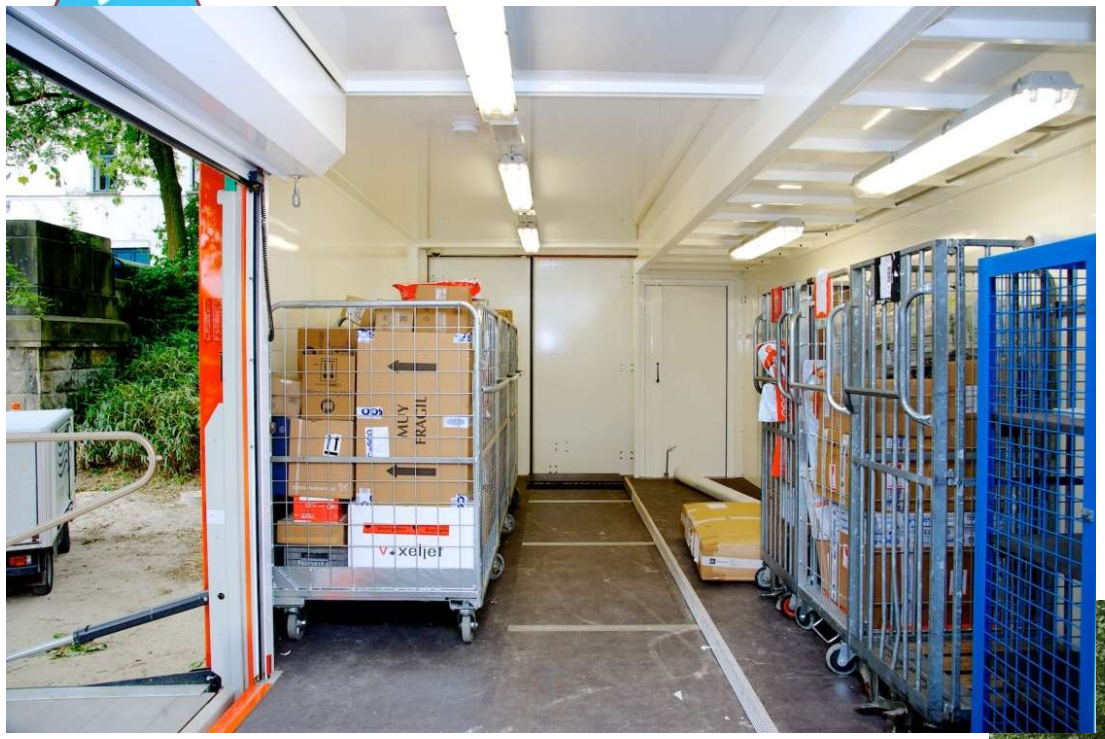


TNT Express in Brussels: **Cargo Cycles**

Environmental impact

Change in emissions (Negative = reduction)	
CO_2	-24%
SO_2	-24%
NOx	+48%
PM2.5	-59%
PM10	-22%

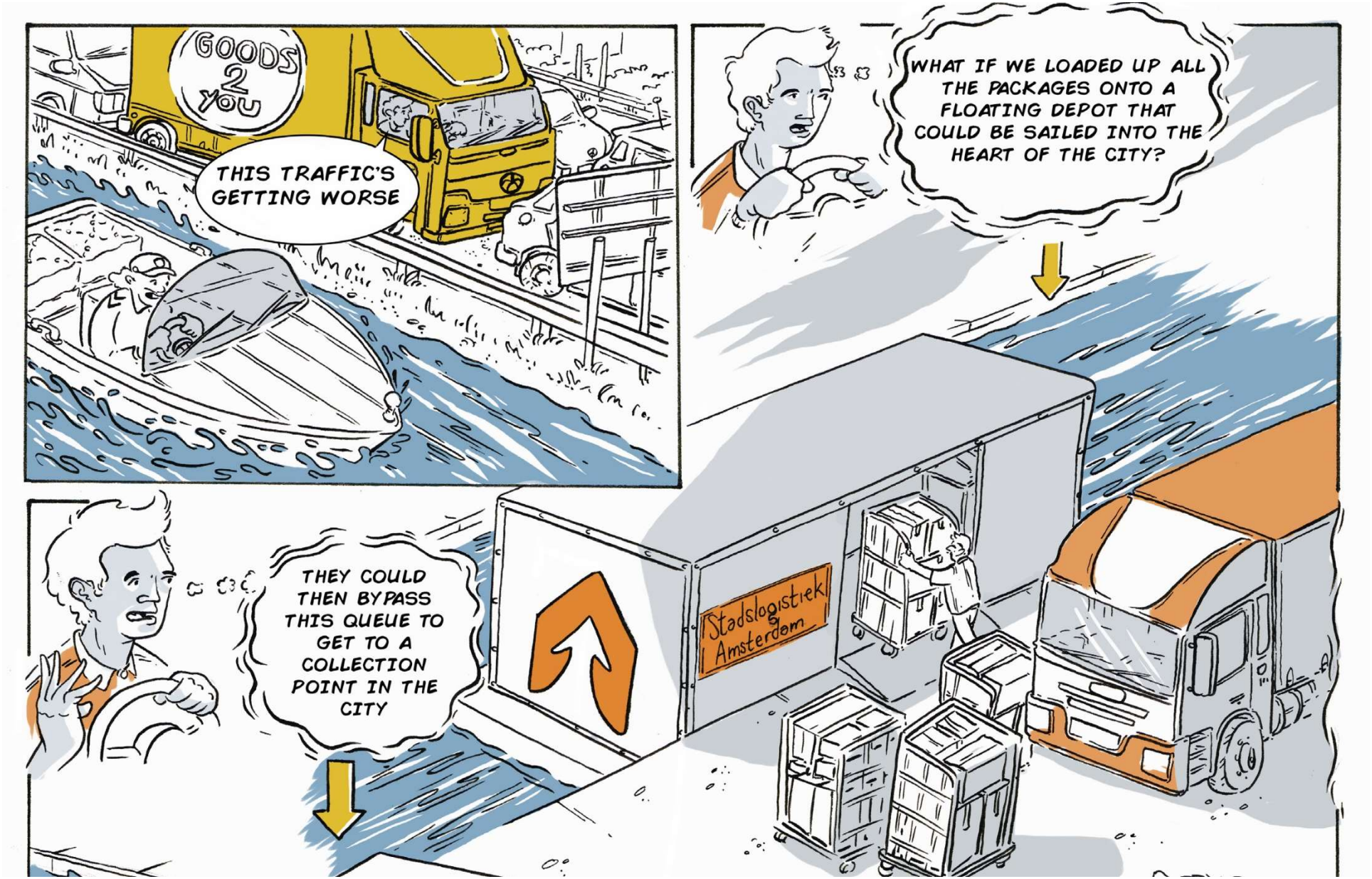
Calculation are based on the STREAM emission factors (Den Boer, E., M. Otten, and H. van Essen (2011). *STREAM International Freight 2011 – Comparison of various transport modes on a EU scale with the STREAM database*, Delft, CE Delft, July 2011.)

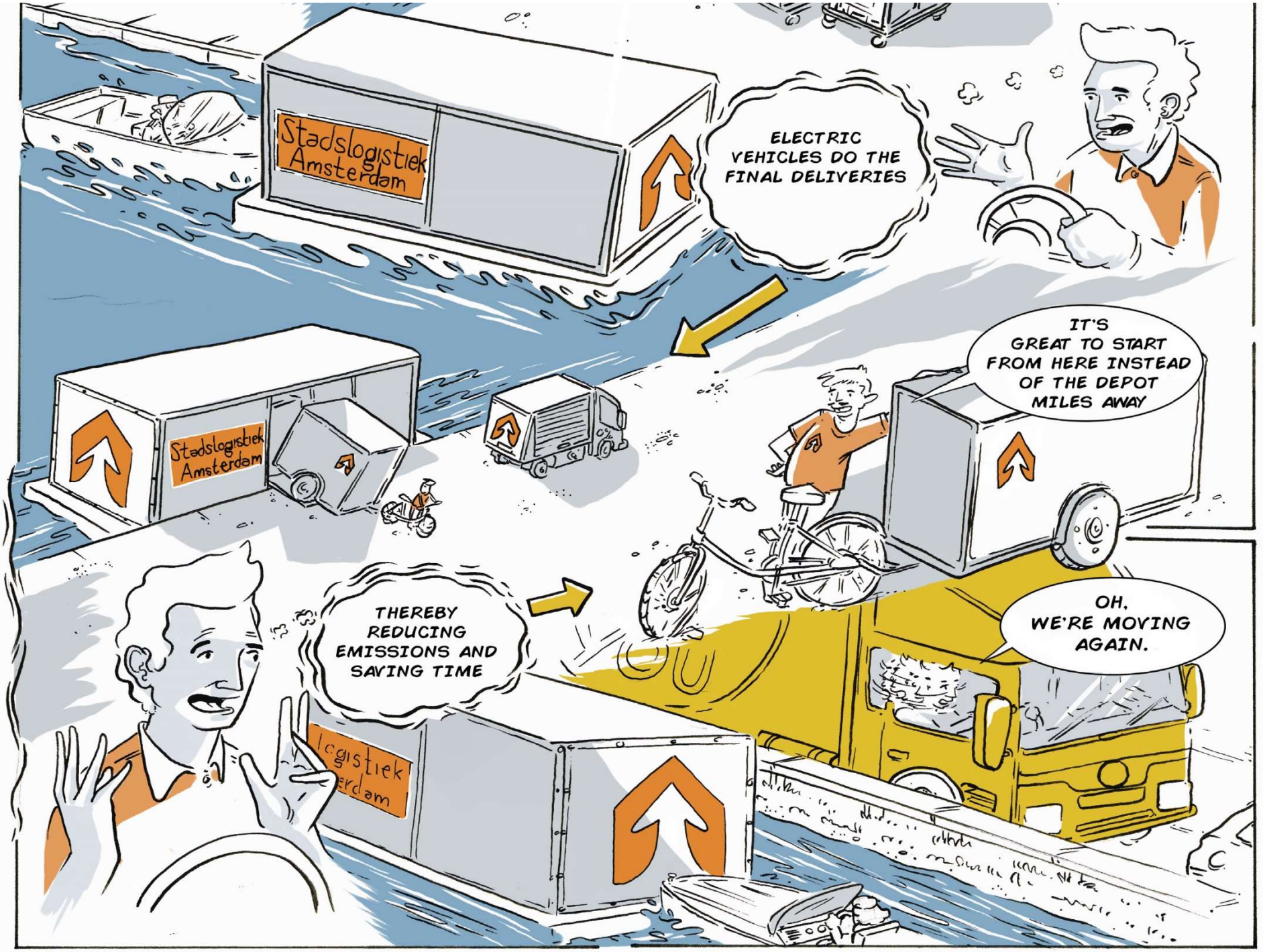
Costs and benefits

Increase in operating costs: deliveries and pick-ups through the Mobile Depot **are twice as expensive**

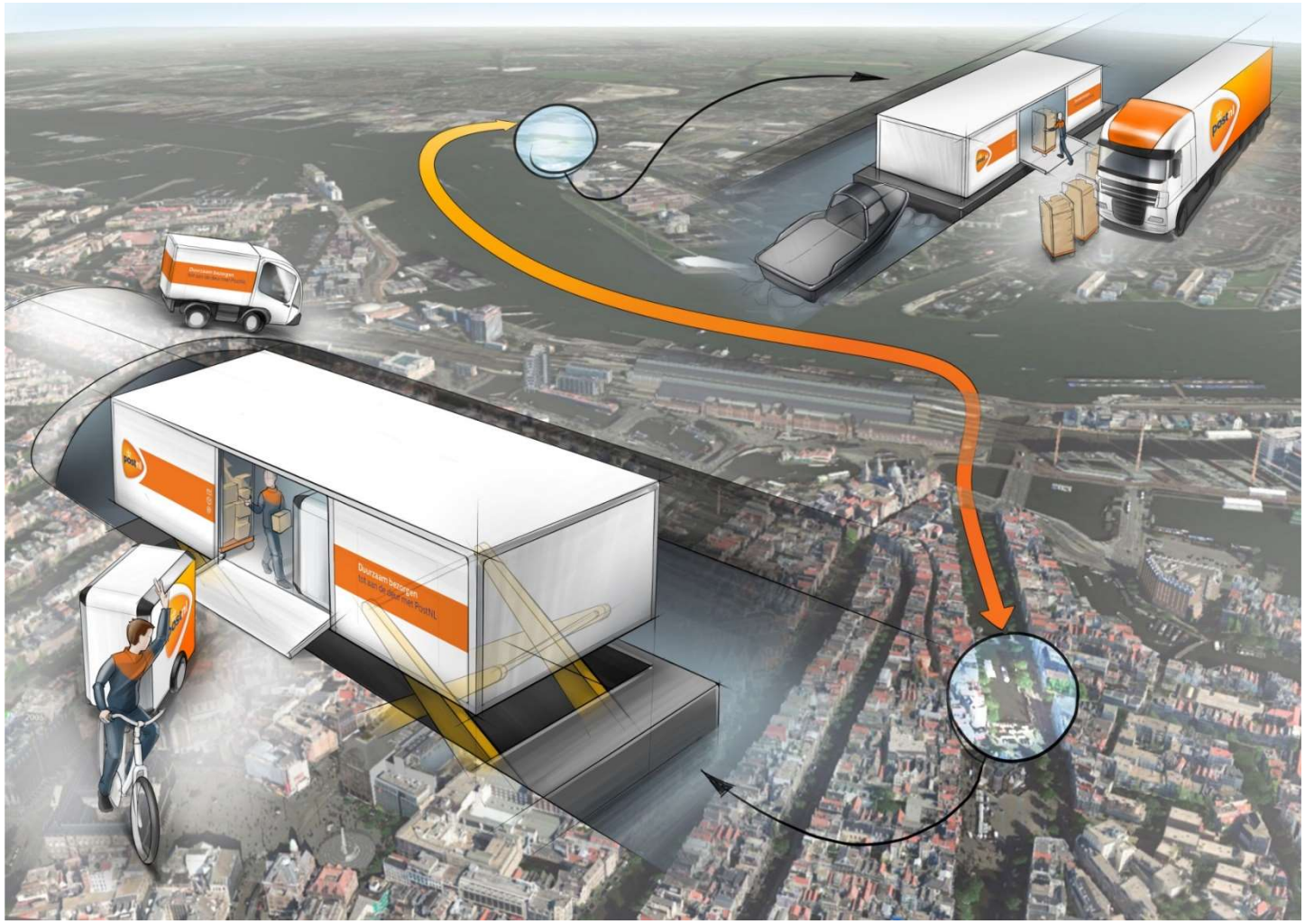
- Load rate during demonstration was 40% (on average)
- Importance of having a high stop density
- Freight profile delivery area should match load capacity of tricycles and mobile depot to make the concept efficient
- Process optimization
- Higher cost of subcontracting to cycle couriers

Mobile depot needs to be located within delivery area to minimize the stem time of the cyclocargos


GOODS 2 YOU
THIS TRAFFIC'S GETTING WORSE
WHAT IF WE LOADED UP ALL THE PACKAGES ONTO A FLOATING DEPOT THAT COULD BE SAILED INTO THE HEART OF THE CITY?
THEY COULD THEN BYPASS THIS QUEUE TO GET TO A COLLECTION POINT IN THE CITY
Stadslogistiek Amsterdam

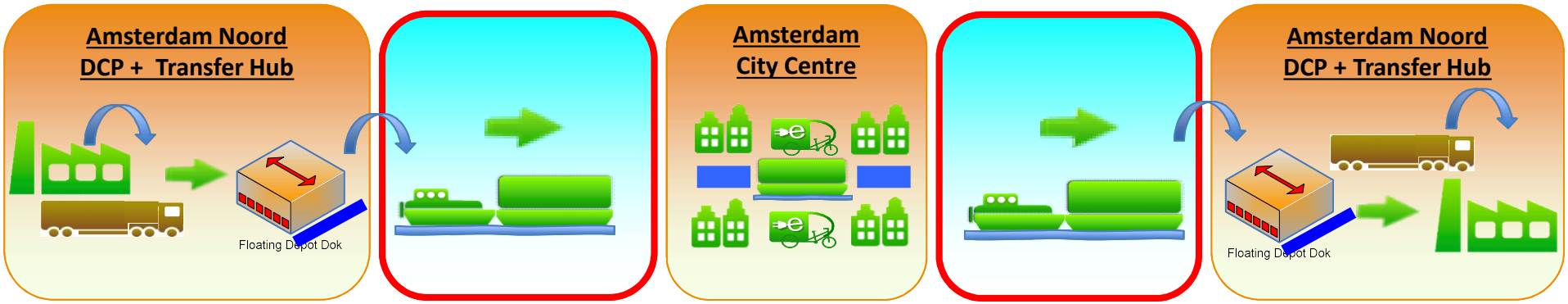

Stadslogistiek Amsterdam
ELECTRIC VEHICLES DO THE FINAL DELIVERIES
Stadslogistiek Amsterdam
IT'S GREAT TO START FROM HERE INSTEAD OF THE DEPOT MILES AWAY
THEREBY REDUCING EMISSIONS AND SAVING TIME
OH, WE'RE MOVING AGAIN.

Amsterdam: Floating Depot Trial



PostNL Challenge: Zero emissions in the Dutch city-centres by 2017

Floating Depot Amsterdam: the process



1. Parcels delivered to the floating depot hub (a.m.)
2. Parcels are sorted and loaded onto the floating depot
3. Floating depot is moved into the city centre and moored as a hub
4. Parcels delivered by electric vehicles, re-loading at the floating depot
5. At the end of the shift, floating depot returns to its hub
6. Parcels are unloaded and returned to the Parcel Sorting Centre

Overview: Floating Depot pilot in Amsterdam

8 - 9 Sorting packages

9 – 9.30 Cargo cycles travel to city

9.30 – 12.00 Delivery round 1

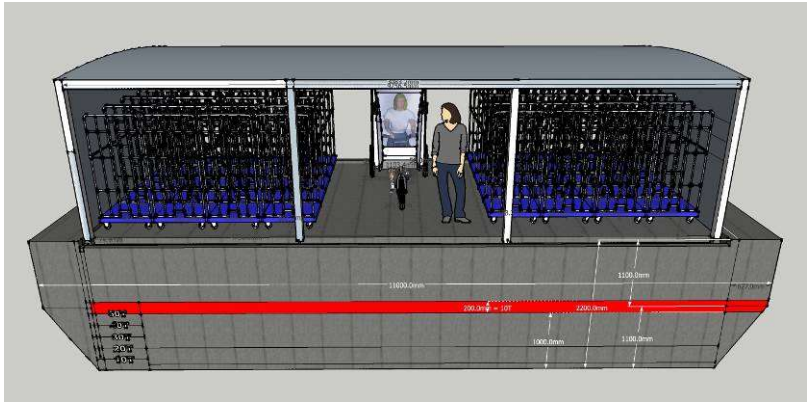
12.00 – 13.00 Re-load from the FD

13.00 – 15.30 Delivery round 2

15.30 – 16.00 Return to depot

Vehicles

Pushboat (hybrid) & Floating depot



Goupil/ Cargobike

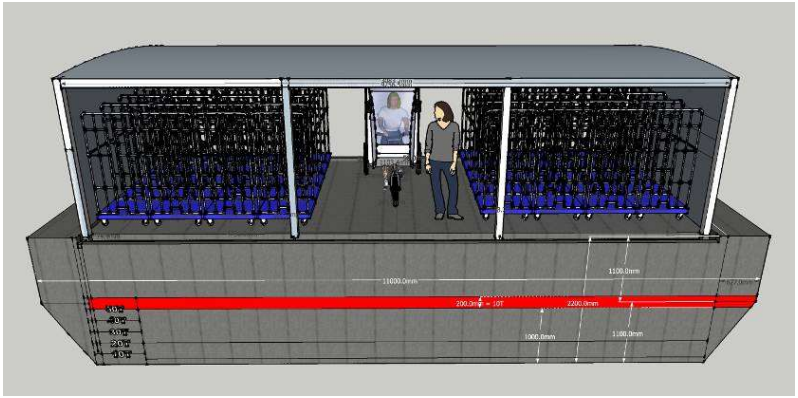
Vehicles

Floating Depot Characteristics

- Floating Depot 1.0 is dependent on push boat
- Has a build-in lift, (to lower itself to pass bridges and to level with the quay)

Dimensions:

- Height: 2.30m, fully raised, 1.10m when lowered
- Width: 4 m
- Length: 10m
- Capacity: around 30 – 40 Roll cages



Previous attempts:
Vert Chez Vous, Paris

April 2013

Paris freight facts

The **urban freight transport** is:

- 20% of road occupancy
- 30 to 40% of the pollution

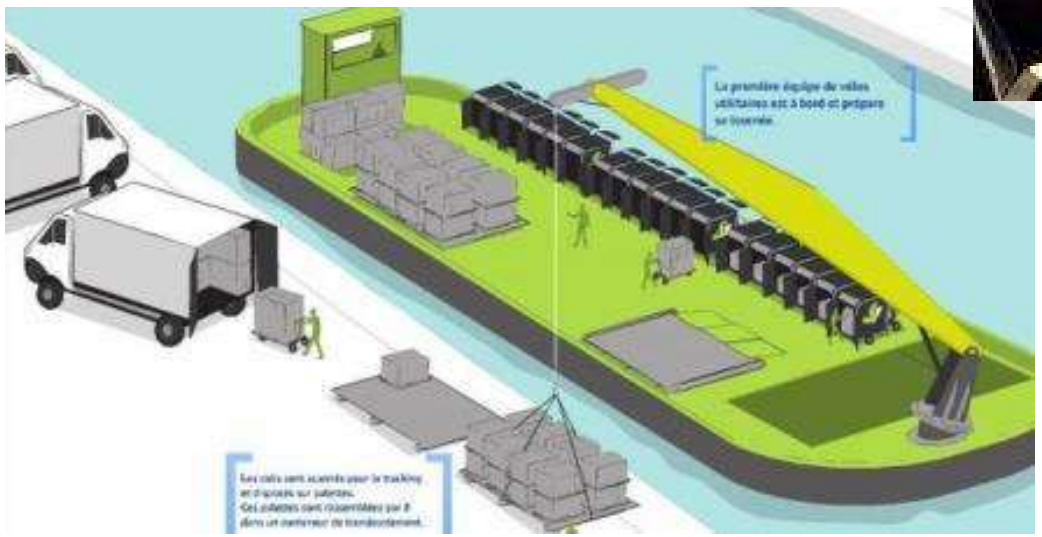
Delivery of the final km = 20% of the total cost of the transport chain

Issue: 30% decline in productivity of transport across the city in 15 years

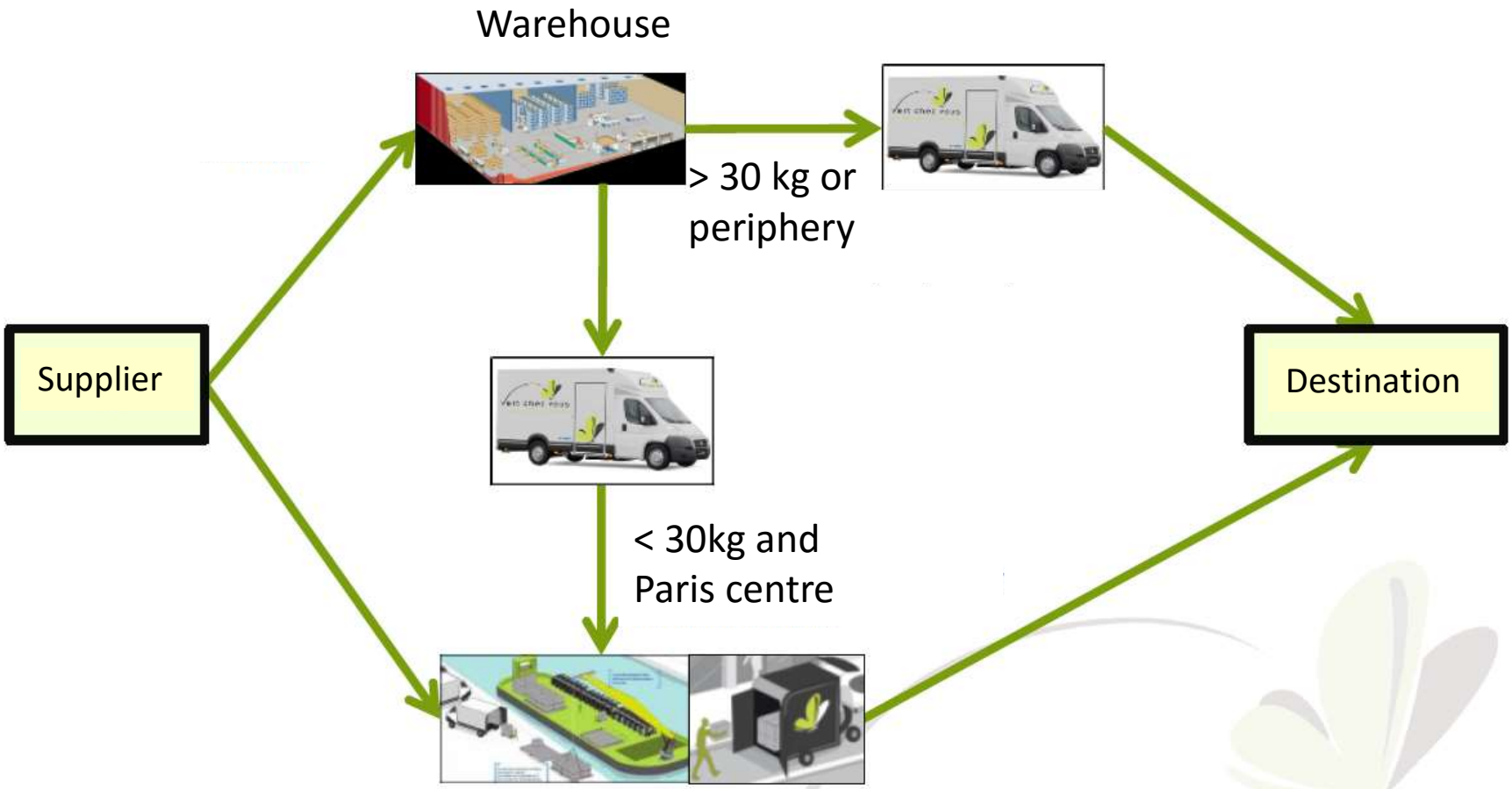
Vehicles used

- **Electric:** Bike 2m^3 , Berlingo 3m^3, Vito 6m^3 , Ducato 19m^3
- **Natural gas**: Iveco 19m^3

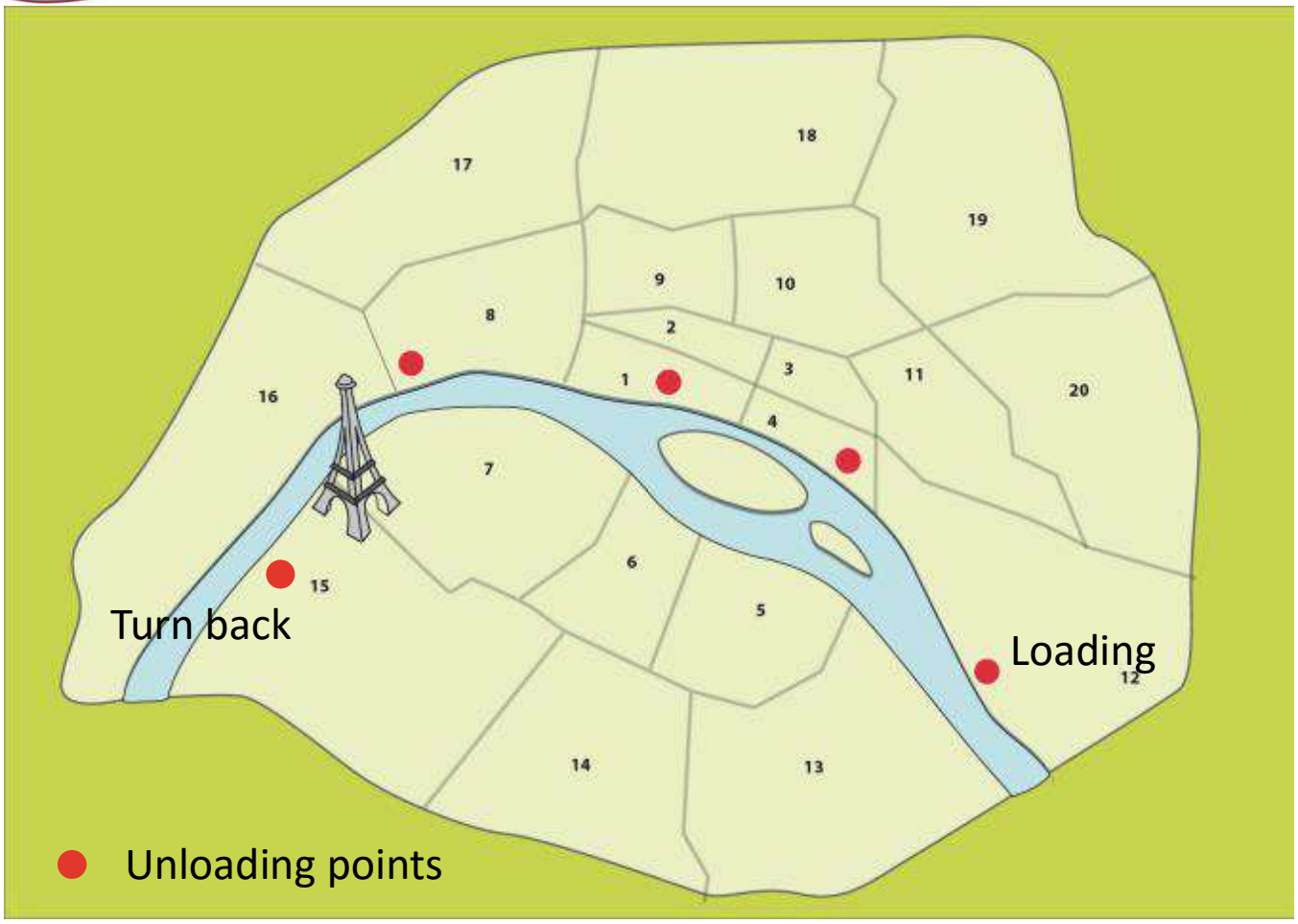
Barge (Vokoli)
Daily round-trip on Seine



Flow organisation



Round trip



18 electric bikes
each with
2m^3 capacity
and making
4 delivery tours
each day

Organisation

Goods arrive from 6am

7.30am First delivery team board and prepare their tour

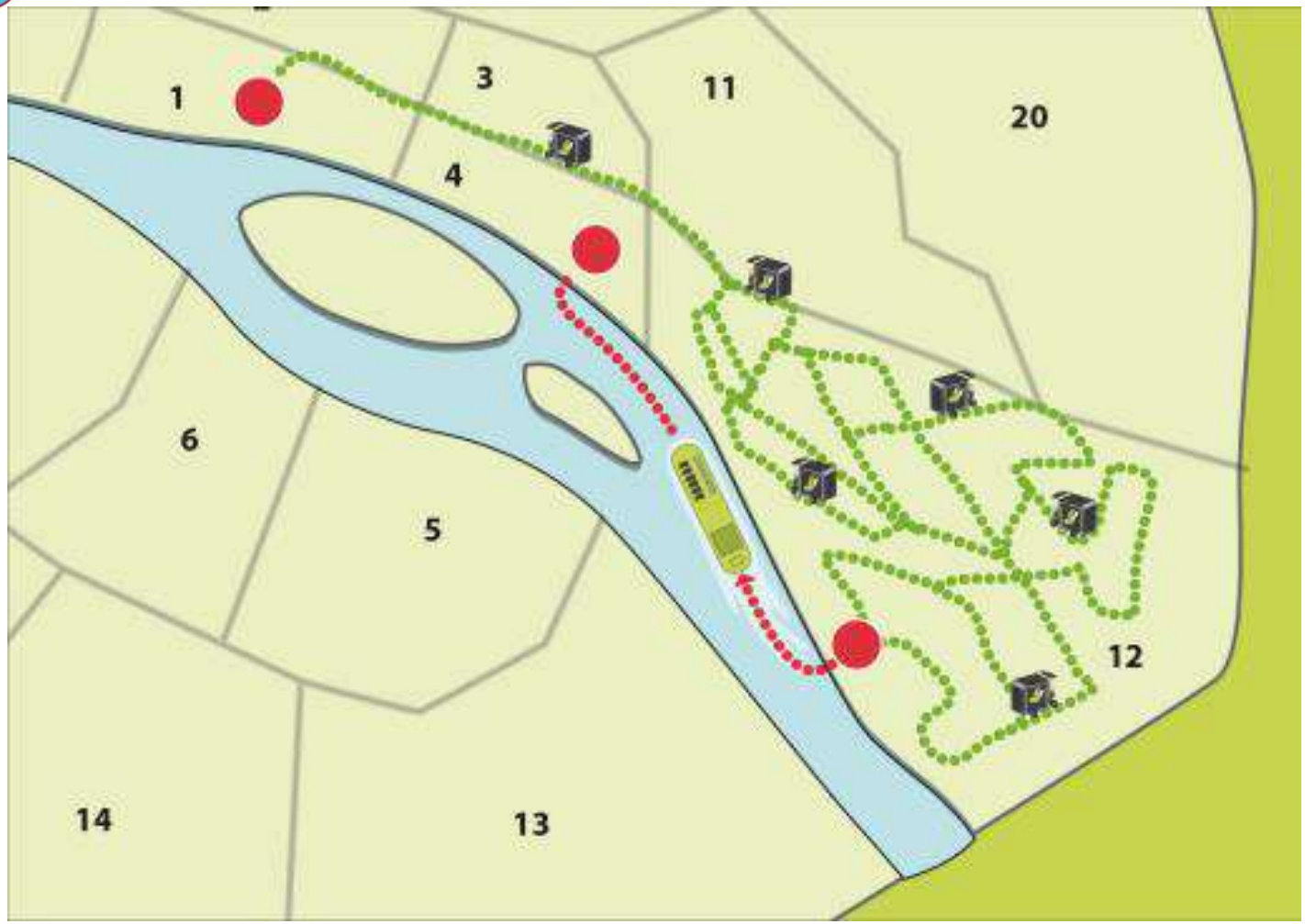
8.15am First delivery team depart on bikes

Tour takes 1h30m

8.15am 2nd delivery team boards and prepares tour as boat sails to next point

- 2,500 to 3,000 packages per day
- Up to 144m^3 per day

Organisation (2)



Next stages

- Trial to start 2016/17 in Amsterdam.
- Citylab ‘follower city’ opportunities

- Might such a system work in London, Birmingham, Manchester?
- Will LEZ’s and CO_2 free city logistics drive such innovation by 2020?
- What is the value placed on having less freight vehicles in urban areas and what would we be prepared to pay?