

Presentation made on 24 September 2013

Urban Waterway Logistics



:

in 2020, 80% of the European population will live in cities - *Inland Navigation Europe*

France : in 2010 urban population accounted for 77.5% of national figures (52,8% en 1936) – *French national statistics office*

Inland waterway transport is an alternative to heavy traffic on the roads leading to city centers :

- Reduce congestion & anticipate commercial exchanges growth
- Reduce time spent by truck on delivery
- Improve mobility of goods and people
- Reduce the environmental footprint of commercial exchanges



SPITS - PENICHE

length 38,50 m - width 5,05 m - draft 2,20 m - loading capacity 350 t

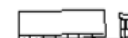


14X



KEMPENAAR - CAMPINOIS

length 63 m - width 6,60 m - draft 2,50 m - loading capacity 550 t



22X



DORTMUNDER

length 67 m - width 8,20 m - draft 2,50 m - loading capacity 900 t



36X



RO-RO SHIP

length 110 m - width 11,40 m - draft 2,50 m



72X



TANK SHIP

length 110 m - width 11,40 m - draft 3,50 m - loading capacity 3000 t



120X



Car vessel

length 110 m - width 11,40 m - draft 2,20 m - loading capacity 600 t



600X



NEO KEMP

length 63 m - width 7 m - draft 2,50 m - loading capacity 32 TEU *



32X



CONTAINER SHIP

length 110 m - width 11,40 m - draft 3,00 m - loading capacity 200 TEU*



200X



CONTAINER SHIP JOWI-CLASS

length 135 m - width 17 m - draft 3,00 m - loading capacity 470 TEU*



470X



Push convoy (4) length 193 m - width 22,80 m - draft 2,50/3,70 m

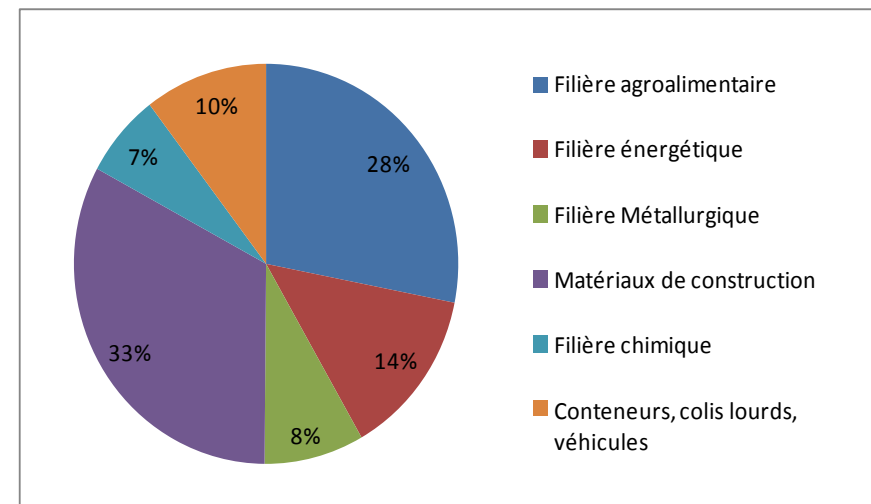
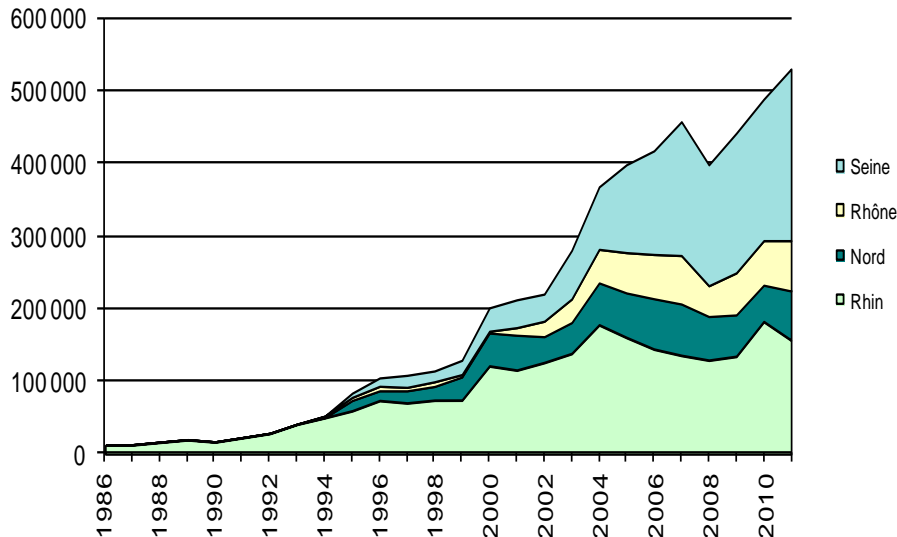
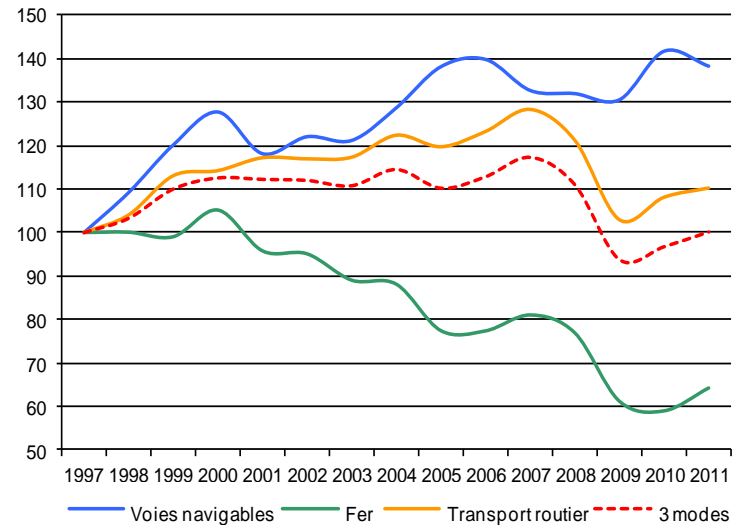
Loading capacity 11.000 t



440X

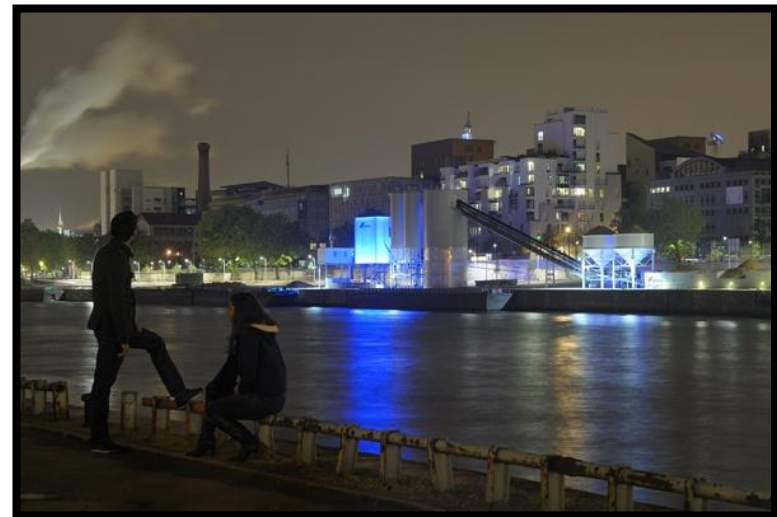
IWT key figures France (2012)

- 60,7 millions tons carried (50% international)
- 7.9 mds tk in France
- 40% growth since 1994



Strengthening city river logistics requires :

- Keep and increase number of available quays in urban areas
- Enable and promote the share-using use of urban port areas
- adapt vessels to goods transported
- improve environmental performance of the fleet : PAM(I)
- Incorporate IWT in the supply chain
- Strengthen RIS (VELI, RTMP, AIS, ...)



Some cases of urban logistic based on inland waterway transport Building materials: historic waterway activity

- Consumer goods sector
- Building materials (and rubble from deconstruction...)
- Express Freight services by inland waterway transport in Paris : Franprix, Vert chez Vous, Lapeyre, ...
- Pallet Transport
- Transport of waste





Urban Waterway Network



LA RÉPONSE PROFESSIONNELLE



Type of goods : Pallets of RMC blocsk, Cement, Big Bags.

Logistic scheme : supply of 6 Paris stores.

Yearly figures : 50 000 tons.

Description :

Point P uses two barges one with 1800T carriage capacity and another one with 1200T with 1800 tons capacity, with weekly rounds.

Modal shift benefits – every year :

2000 trucks less on the road

220 tons CO2

36 250 euros external costs saved

PET bottles for recycling



Type of goods carried : PET bales for recycling.

Start with : about 5000t per year.

Description : Bales are produced on 10 waste management platforms around Paris, and brought by truck to the SITA Gennevilliers platform.

Loaded on the barge with the on-onboard crane to take them to the waste treatment unit.

Modal shift environmental benefits :
650 trips by truck less in 2012.



Urban Waterway Network



Type of goods transported :

Consumer products, food and non-food.

Logistic organisation :

Transport of swap bodies (containers) from a warehouse 50 km south east of Paris to the port of Bonneuil sur Marne.

Goods are then shipped over water to an inner quai within Paris, where containers are unloaded and put on truck trailers.

These trucks deliver then the goods in 100 Franprix shops in the inner city of Paris. .

Annual Tonnage : 6,700 containers a year, equivalent to 113,000 pallets .

Modal shift benefits :

Reduction of 450,000km of road hauls per year.

37% reduction of CO2 emissions in the entire supply chain.

Other key figures : Eventually, 48 containers per year will be delivered, instead of 26 today.

Contractor : FRANPRIX

Actors : Norbert Dentressangle as multimodal transport operator,
SCAT as ship operator and TDS as warehouse company
at the ports of La Bourdonnais and Bonneuil sur Marne.



Urban Waterway Network



Type of goods transported :

Goods and parcels of less than 30kg.

Vert chez Vous Au Fil de l'Eau

Logistic organisation :

A fleet of 15 gas or electric powered Vert chez Vous lorries bring the goods from the Pantin warehouse (north-east Paris) to the Quai de Tolbiac (inner Paris). Parcels are loaded on board with the ship crane. Tricycles on board are loaded during navigation. At each port up to the Port of Grenelle, the vessel stops to unload the tricycles and to collect the ones that ended their round. Return to Tolbiac in the afternoon.

Annual Tonnage :

Between 2,000 and 3,000 parcels/day, which means 144 m³ and/or 14 tons transported each day.

Societal benefits of the modal shifte :

15 heavy-duty vehicles less per day and eventually 30 in the near future.

207.9kg of CO₂ less per day = 51 tons per year and 104 tons in the near future.

Success factors :

The operator received a subsidy from VNF for the ship crane and is due to receive additional support for the upgrade of the vessel.

2012 Figures on the river Seine

Paris Intramuros:

2 300 000 tons handled
= 92 000 lorries avoided / year

+ 11,76 % compared to 2011
= almost 10 000 lorries avoided in the
centre of Paris in a year!

Paris & inner suburbs:

13 millions tons handled
= 520 000 lorries avoided / year

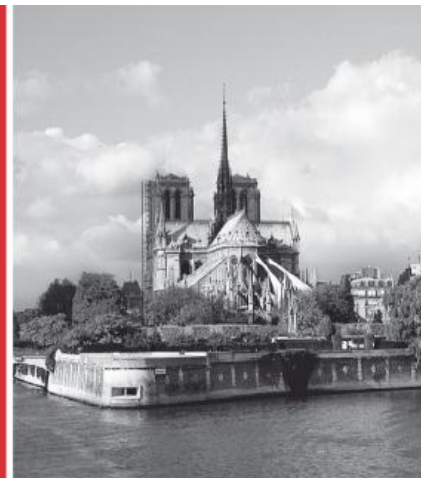
Paris & suburbs :

250 Millions tons carried per year,
over 80% by truck



CE CONTENEUR A FAIT ROUTE PAR LA SEINE

10 000 KM DE TRAJET ROUTIER ÉCONOMISÉS PAR AN



**Paris city centre shops distribution
by multimodal Road/River means of transports**





What is the « Franprix entre en Seine » project ?

- A reality **since 24th august 2012**
- A delivery of about 100 shops over 9 districts of Paris and the town of Boulogne-Billancourt by a multimodal road/river/road mean of transport.
- A daily carriage of 450 pallets along 20 km by ship through 2 rivers (La Marne and La Seine).
- An innovation:
 - First and only example of downtown food delivery by ship in France
 - Unique by its volume in Europe / Only other cases existing in Europe can be found in Netherlands
- A 2-year project with major logistic players and administrations
- A rewarded project: Riverdating 2012 / Marianne d'Or of sustainable development





1. The Origins



Franprix : A fair player for a sustainable and responsible logistics

- ✓ In a context of continuous increase of urban density and difficult share of the space in between economical actors and residents
- ✓ In a context of increased company need of positive image in the opinion in a difficult market

Franprix, main player in proximity retail business in Paris, was looking for an innovative and sustainable mean of transport to deliver its Paris downtown shops

- ✓ In a context in Europe of environmental politics and regulations more and more restrictive inside city centers (especially in terms of transports, air and noise pollutions)



Example: Last French National Health & Environmental Plan, initiate Zones of Priority Action for Air (ZAPA) in which access can be forbidden for vehicles if some levels of non pollution are not reached

Paris is in leadership in these experimentations

Franprix, was looking to get a step ahead in case of drastic change of legislations



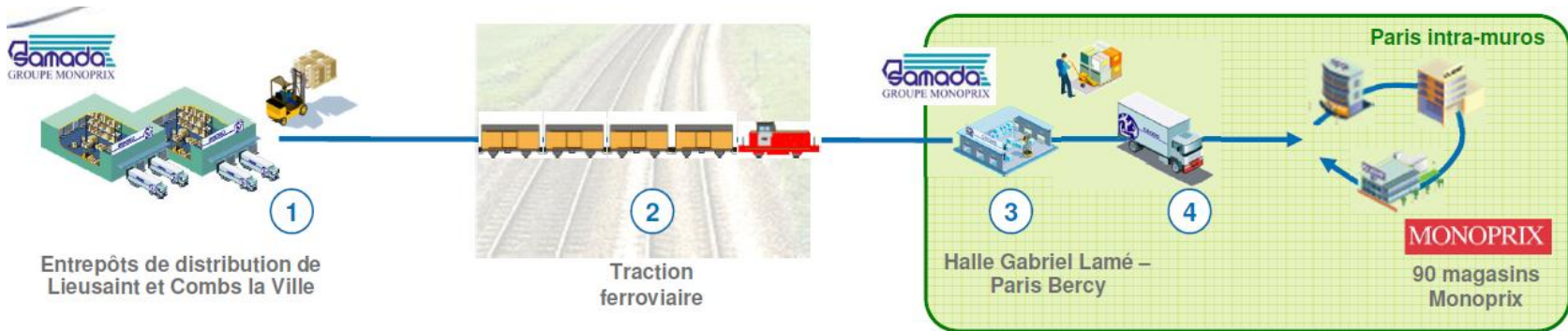
1. The Origins



What about other french retail companies?



Monoprix transports 190 000 pallets per year with a multi-modal Road/Train solution. Using Bercy station and GNV trucks



In 2009, Carrefour & Norbert Dentressangle worked on a project of shop delivery by river

This project didn't went out, due to important transport over-costs, linked to:

- A Distribution center too far from the nearest port
- A too low density of downtown shops

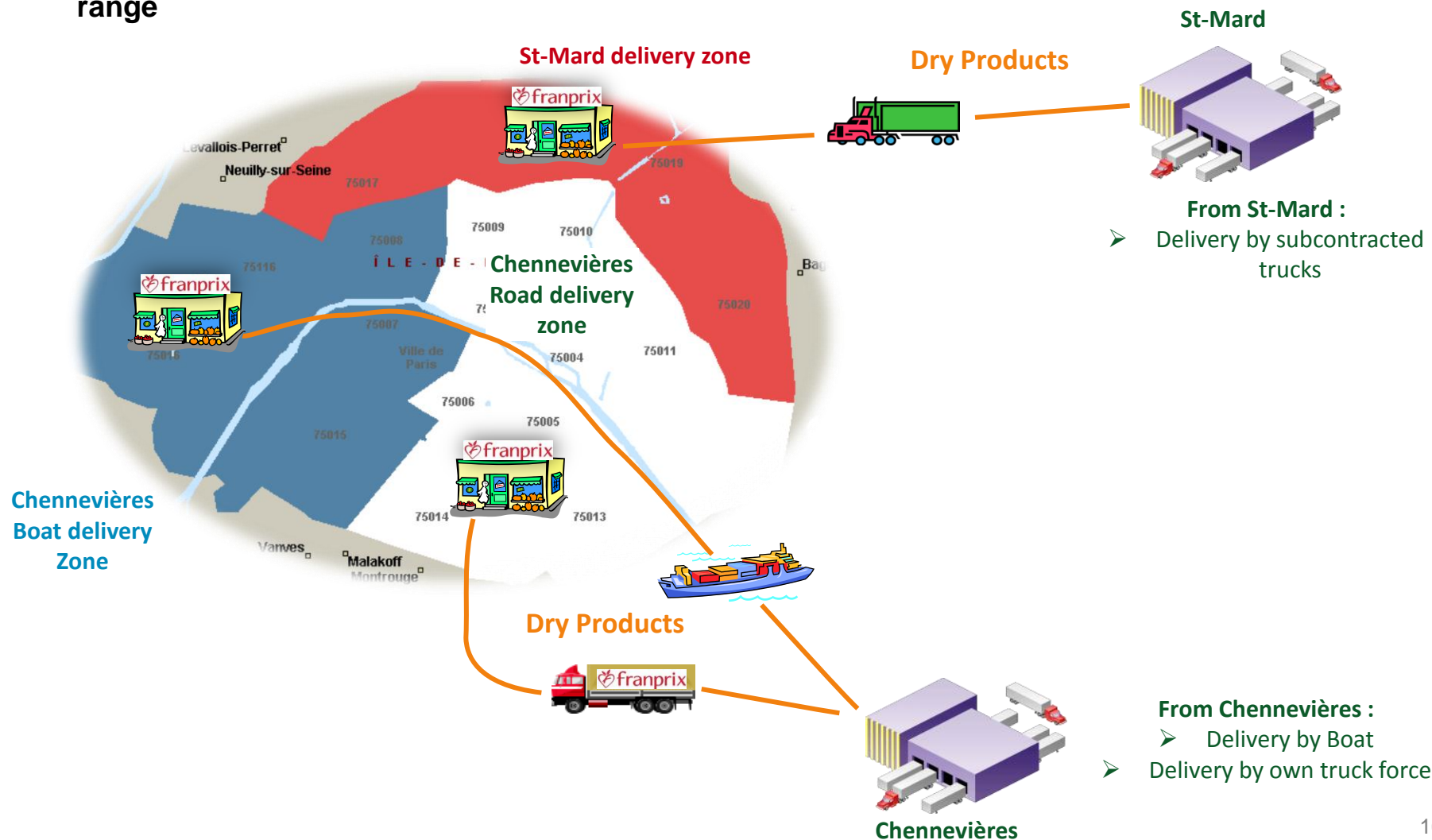


Galeries Lafayette Group is studying a river delivery solution for its 2 Flagship stores inside Paris. They start their investigations in January 2012. So far, as we know no decision is taken. Mainly due to important cost linked to low volumes



2. A project fully designed in the Franprix logistic network

- ✓ This project could be imagined thanks to the proximity of our main historical distribution center, Chennevières sur Marne, with a port in operation
- ✓ This project was feasible thanks to the concentration of shops around the river in a very short range





2.1 Logistics details Loading in Chennevières



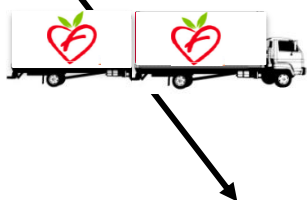
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**Chennevières
sur Marne**



2

Transport



- ✓ 450 pallets per day
- ✓ Total investment of **73 containers**



- ✓ 7 trucks of 26 tons with trailers, « PIEK » norms
- ✓ Trucks and containers are designed specifically for this project
 - ✓ 24-feet containers (17 Pallets) & 27-feet containers (19 Pallets)
 - ✓ Able to carry 2 containers respecting French transportation law (<18,5 m)
 - ✓ Consistent with standard containers
- ✓ 4 Franprix drivers are managing transports from Chennevières to Bonneuil port

Transport from 9:00 to 18h00

2.2 Logistics details Loading boat



3

Port de
Bonneuil

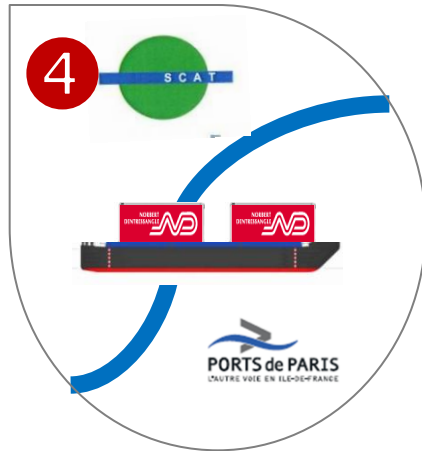


- ✓ Loading and unloading of the trucks and ship are done with a reachsteaker.
- ✓ Loading/unloading of the boat is done **in less than 4 hours**



Boat loading from 14h30 to 18h00

2.3 Sailing to Paris



✓ Ships:

- 1 **pusher** and 1 **barge of 48 container capacity**
- 2 layers of containers (max to pass under Paris bridge)

✓ 2 floodgate have to be passed before **20:30**

✓ This is the **main constraint** of the project

✓ Distance : **20 km**, or **3 hours sailing**



Sailing to Paris from 18h00 to 21h00, way back to Bonneuil next day from 11h30 to 14h30



2.4 Quai de la Bourdonnais



5

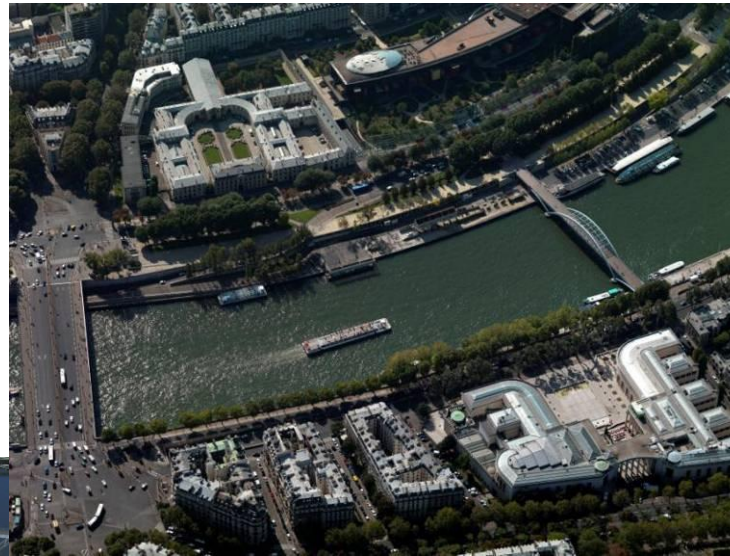
Paris
Quai de la
Bourdonnais

TDS TERMINAUX DE SEINE

✓ Platform reinforced

1,6 million euros investments were done from mars 2012.

Central location able to reach in 10 minutes all shops



Activity from 5h15 to 11h00

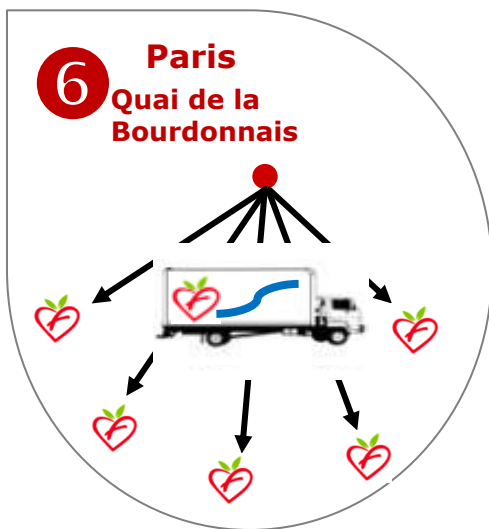


2.4 Quai de la Bourdonnais

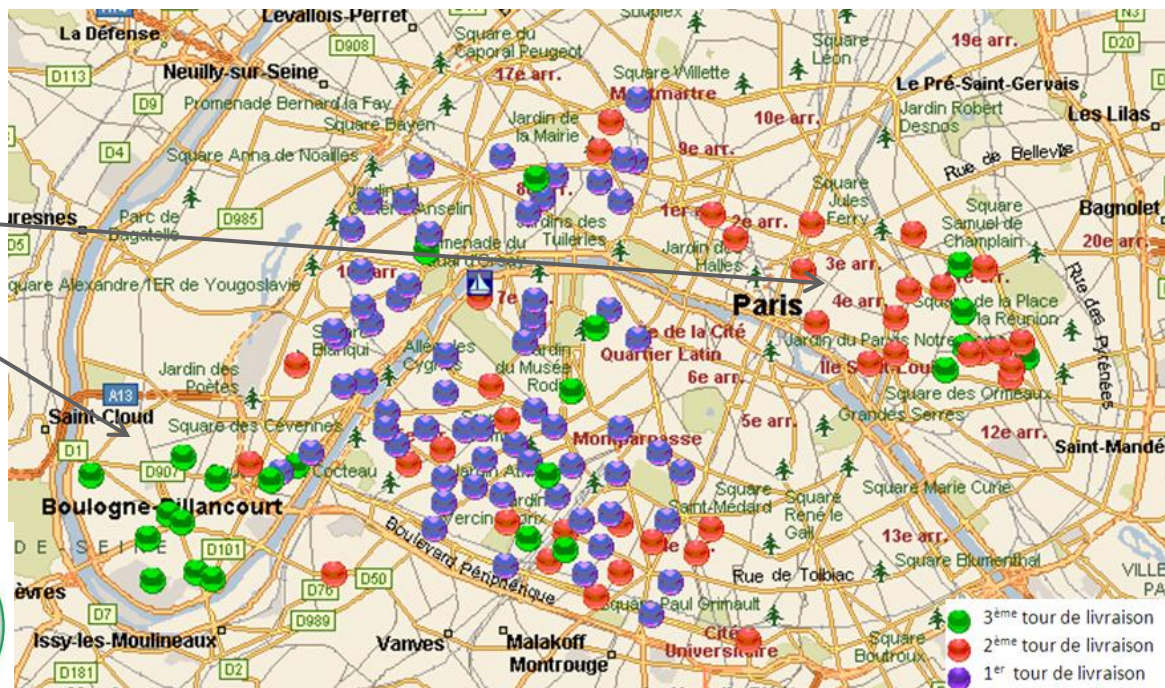


2.5 Shop delivery

- ✓ Around 100 shops are daily delivered by Norbert Dentressangle:
 - ❖ Paris downtown : 1, 2, 4, 7, 8, 11, 14, 15, 16 quarters
 - ❖ Boulogne Billancourt
- ✓ Main constraint : Delivery hours of shops have not been changed but secured
- ✓ 7 trucks 26T « PIEK » norms



Enlarged perimeter to respect shops organisation



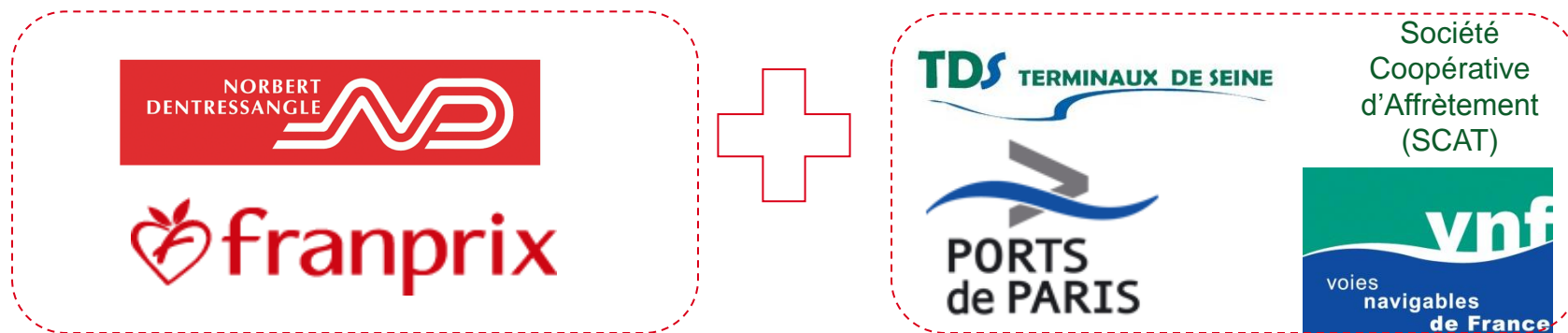
Shops delivery from 6:00 to 12:30



4. A Team story to build a success



- ✓ **A large partnership in between logistics actors ...**
 - ✓ Main cooperation is done with Norbert Dentressangle (Logistic operator and pilot of the process)
 - ✓ With participation of specialists:
 - ✓ SCAT (Société Coopérative d'Affrètement), specialized in boat sailing on Seine
 - ✓ TDS (Terminaux de Seine), specialized in container manipulation on the port



- ✓ **... administrative authorizations and promotion ...**
 - ✓ Ports de Paris, who invest 1,6 M€ in reconditionning Paris Wharf
 - ✓ Voies Navigables de France for floodgate opening
- ✓ **... and political & environmental financial support**
 - ✓ Help from Ile de France Region validated
 - ✓ Operational helps from French legislation
- ✓ **Short teams and quick decisions were a key factor of success**

5. Environmental impacts

➤ Global environmental impact analysis

Evaluation done by an independent institute financed by governmental environmental administration, ADEME



➤ Noise impact analysis in Paris downtown

- I A forecast of noise impacts was done on the Quai de la Bourdonnais, where pallets are unloaded, by a specialised institute, Cap Horn Solutions.



Thanks to use of specific equipments “low noise”, levels of noise are everywhere around and at every hour **under regulations limits**



5. Environmental impacts*



Traffic

450.000 Km saved
or **12 857** Paris Periferic

35 Accidents

Saved / year

- 3 874

Trucks / year



Air Quality

- 234 Tons of



- 23% NOx

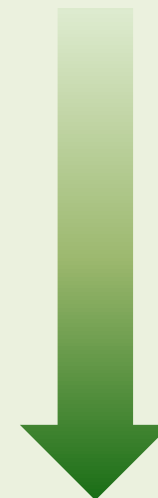
Azotes oxide

- 46% CO

Carbon monoxide

- 43%

hydrocarbures



Gas

88.500 L Gasoil

Saved / year



Society saving

External costs
saved per year

1 M€

* Based on a full load of 48 containers



6. « Franprix entre en Seine » in few data



- ✓ **In 2012, Franprix delivers by ship 26 containers per day, which represent:**
 - ✓ **113,000 pallets per year**

- ✓ **Specific Investments:**
 - ✓ **Norbert Dentressangle: 73 specific and dedicated containers and 14 trucks**
 - ✓ **Port de Paris: 1,6 M€ of reconditioning Paris wharf**

- ✓ **Franprix has the exclusivity of the ship loading. No over cost with this solution vs previous ones**

- ✓ **Since 2013, we may be able to optimise the load factor of the ship up to 48 containers**
 - **With additional Franprix goods**
 - **With goods of other Business units of the Group**
 - **Building partnership with other companies or providers**

- ✓ **Which represents,**
 - ✓ **Equivalent of 3,874 trucks**
 - ✓ **Equivalent of 450,000 kms saved**



Key factors of success



- **Proximity of our distribution center from an operational port**
- **Density of shops in Paris Downtown**
- **Enough daily volumes to dwarf fixed costs of barge exclusivity → No over cost due to this solution**
- **Short motivated teams involved among all partners**
- **Capacity of short decision making and risk taking of all partners (investments, engagement)**



6. « Franprix entre en Seine » a reality since 24th August 2012

