

# The impact of e-commerce on final deliveries: alternative parcel delivery services in France and Germany

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IFSTTAR

# Comparing French and German end-delivery options

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## **Project DISTRANS**

Research on recent evolutions in the supply chain  
2013 - 2015



# E-commerce's impact on final delivery sector

## Delivery services:

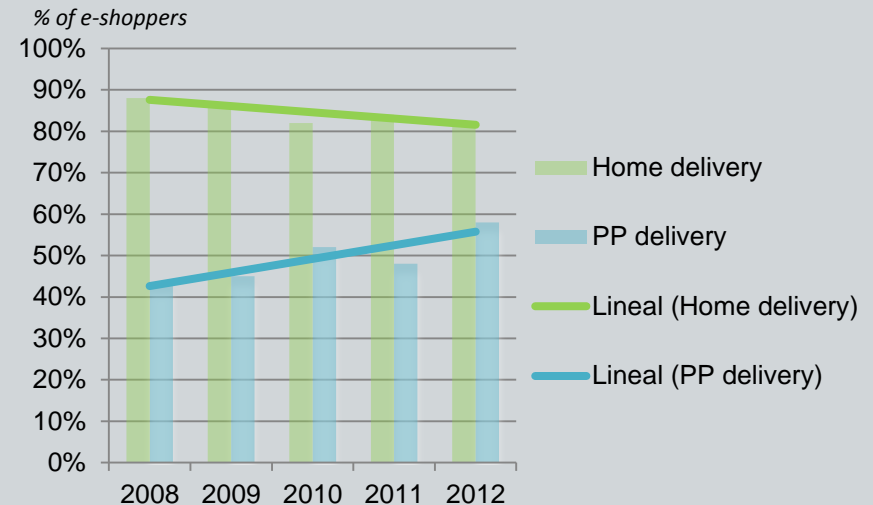
### Traditional

- Home delivery
- Post office

### Alternative

- Automated pack station (APS)
- Pickup point (PP)
- Pickup point for e-grocery (at the supermarket): *Drive*

Preferred delivery options, France



Source : FEVAD, 2013

In 2012, 20% of e-commerce's parcels are delivered in PPs

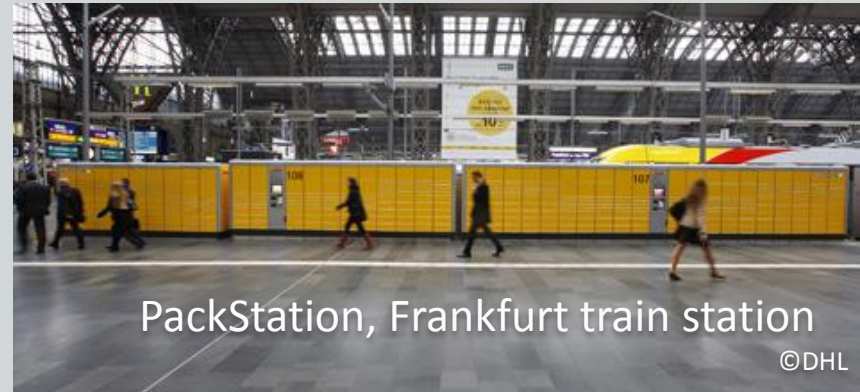


# Alternative options to home delivery



**PP** Network of local shops where parcels are deposited for collection. Examples of host businesses are florists, tobacconists, etc.

**APS** 24h lockers located in shopping centers, gas stations, train station, on the street, etc.



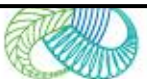
Source: Augereau & Dablanc, 2008



# Trends for reception point networks in Europe

Company	Service type*	Country	No. sites 2008	No. sites 2012	Growth rate 08-12	Parcel volumes 2012
PackStation	APS	Ger.	1,000	2,500	+150%	N.A.
Paketshop (Hermes)	PP	Ger	13,000	14,000	+7.7%	N.A.
GLS	PP	Ger.	0	5,000	N.A.	N.A.
UPS	PP	Ger.	0	0 (2,000 in 2013)	2000%	N.A.
DPD	PP	Ger.	3,000	4,300	+43.3%	N.A.
DPAG/DHL offices	PP	Ger.	14,000	16,700	+23.7%	N.A.
ByBox	APS	F	Not implemented	170	N.A.	N.A.
Cityssimo	APS	F	20	33	+55%	
Kiala	PP	F	3,800 (with M.R.)	4,500	+18%	
Pickup Services	PP	F	3,100 (à2pas)	5,200		
Mondial Relay (Point Relais)	PP	F	3,800 (with Kiala)	4,300	+13%	
Relais Colis (Sogep)	PP	F	4,000	4,200	+5%	
La Poste offices		F	17,082	17,000	-0.0	N.A.

Source: the authors from various companies' data sources, 2013



## The French system of PP

Atypical features of *Point relais* system:

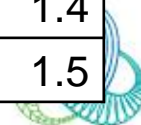
- Early development, 30 years ago;
- 4 mayor players;
- Medium-sized network providers.

PP density over population and e-shoppers. France 2008-2012.

<b>Firm</b>	<b>PP per 100,000 inhabitants 2008</b>	<b>PP per 100,000 inhabitants 2012</b>	<b>PP per 10,000 e-shoppers 2008</b>	<b>PP per 10,000 e-shoppers 2012</b>
Kiala	6.1	7	1.7*	1.4
Pickup Services	5	8.1	1.4	1.7
Point Relais (Mondial Relais)	6.1	6.3	1.7*	1.3
Relais Colis	6.4	6.6	1.8	1.4
Average	5.9	7	1.6	1.5

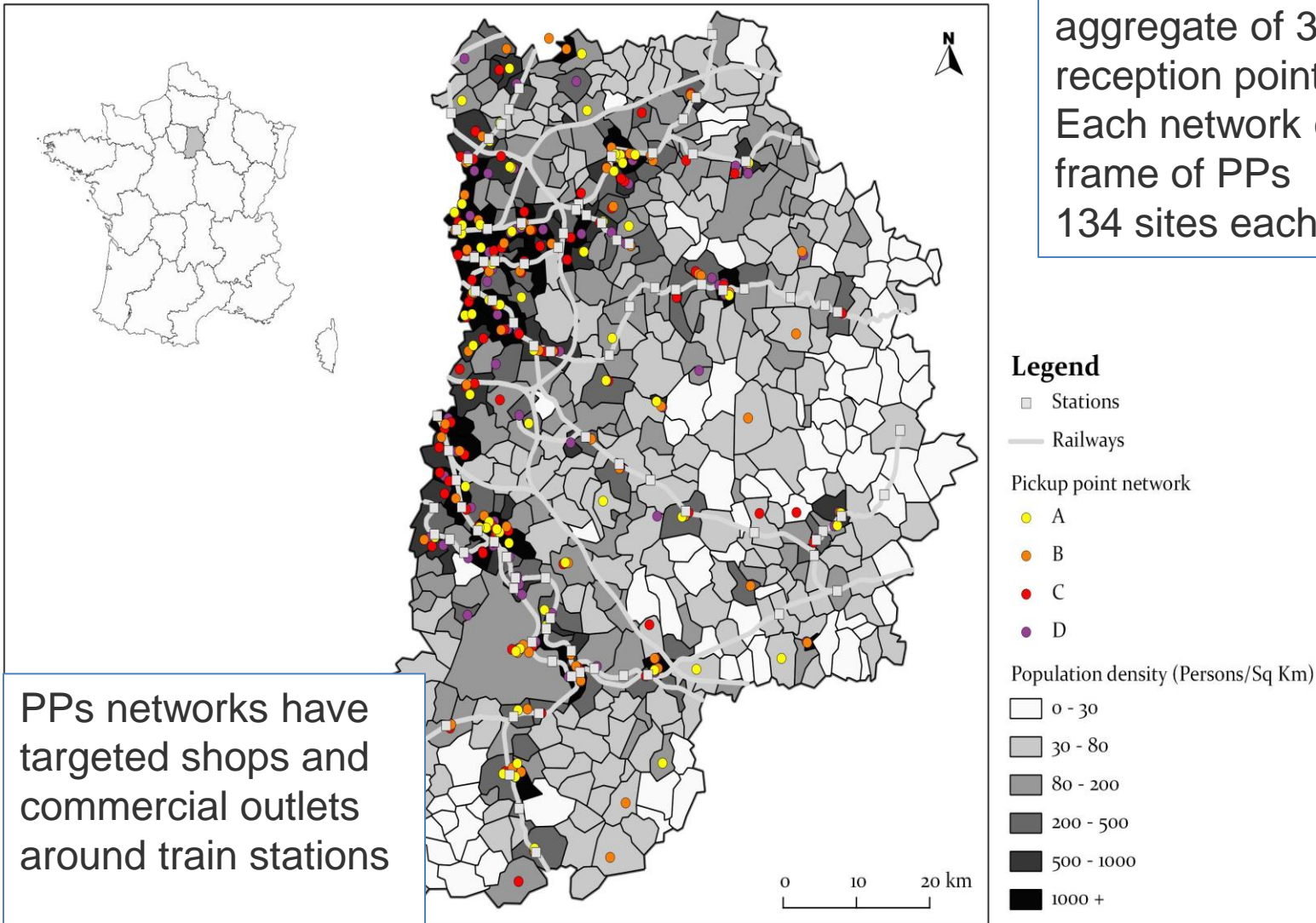
\* Shared network until 2012

Source: Morganti with data from interviews, FEVAD and INSEE 2013.



## Pickup point networks in Seine et Marne

4 PP networks cover the department with an aggregate of 391 parcel reception points. Each network offers a wide frame of PPs (from 70 to 134 sites each).



PPs networks have targeted shops and commercial outlets around train stations

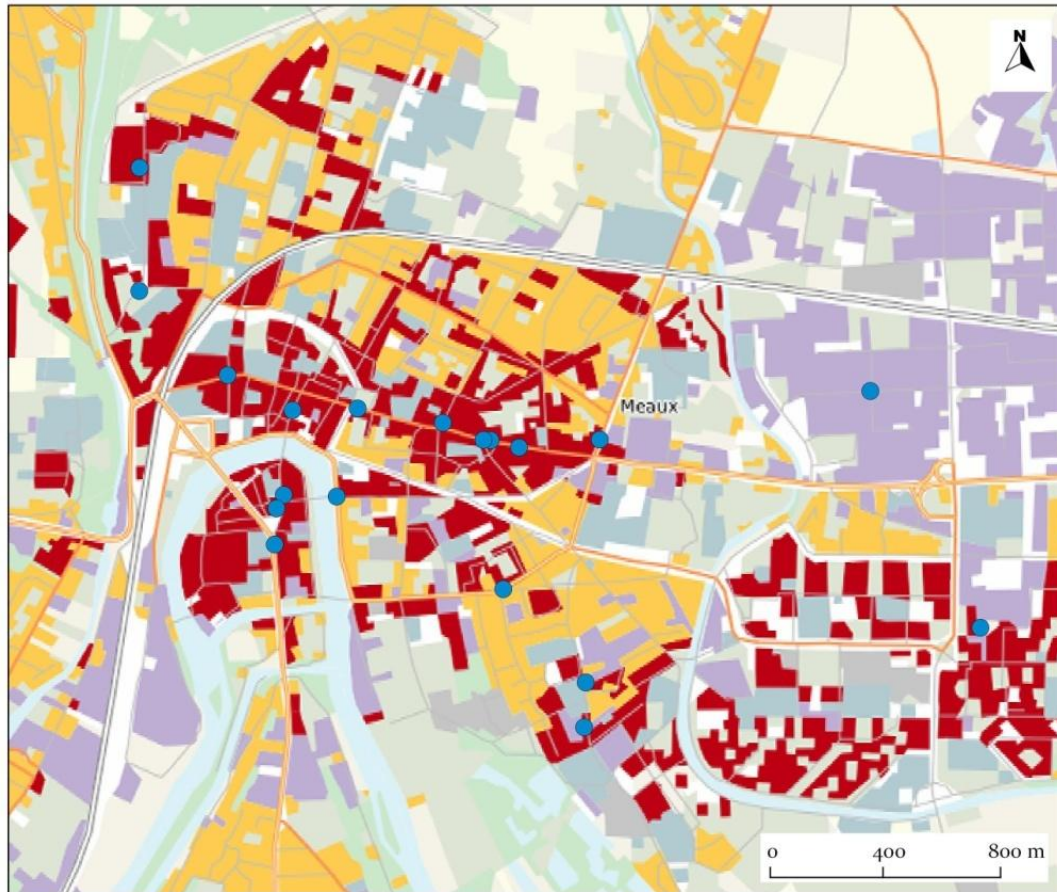
One station out of two is within a 300 mt range from a PP

Map by Fortin & Morganti, 2014



# Target areas for pickup points

Pick-up point locations in an urban area (City of Meaux)



PP network operators all target the same type of location for new PPs: the most densely populated areas and transportation nodes (main train and subway stations, road intersections).

→ *Potential lack of partner stores for hosting PP*

## Legend

● Pickup points

Land use

■ Individual dwellings

■ Collective dwellings

■ Activity areas



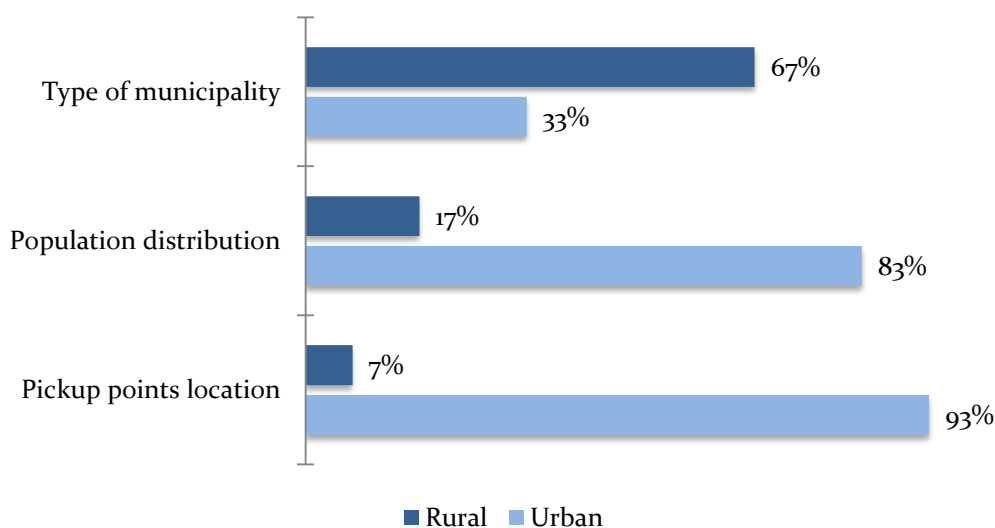


# Pickup point network locations, Seine-et-Marne



## Comparing urban and rural areas

### Disparities between urban and rural areas



PP density is high in urban areas and, as one would expect, tends to decline in rural regions. However, **the coverage of rural areas by PP networks is not proportional to their population:**

7% of PPs are located in rural areas, where lives 17% of the population

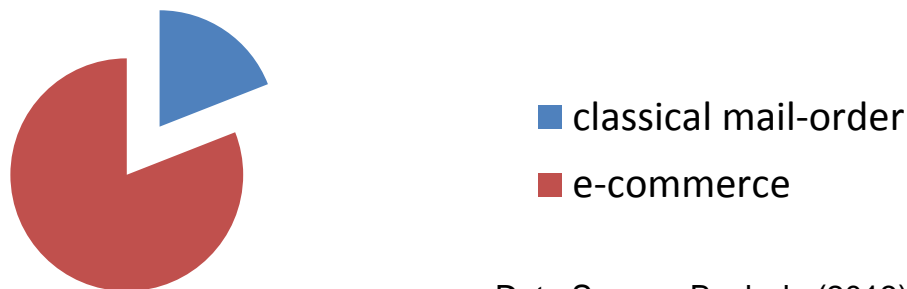


# E-commerce in Germany

- 60% of Germans is shopping online regularly
- Turnover in e-commerce grows considerably
- 55.9 Billion € turnover mail-order-business (48 Billion € with physical goods) in 2013
- 750 Million parcels in 2013 in Germany
- 48% Business to Consumers

High rate of returns  
(Fashion sector)

## Turnover in mail-order business (48 billion €) in 2013



Data Source: Bevh.de (2013)



# Recent trends in alternative delivery options - Germany

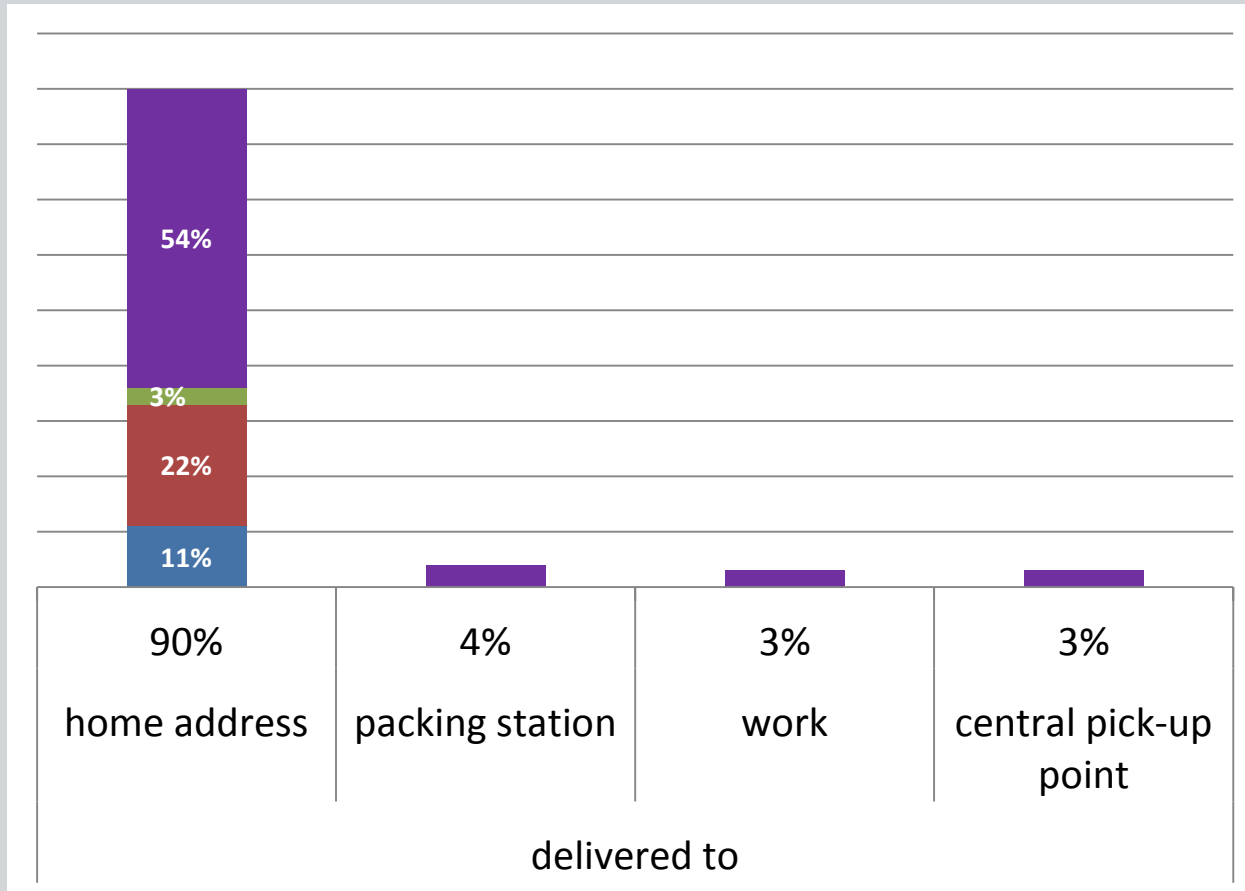
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Development of Packstations in Germany (DHL, 2011)

Year	# APS	Customers	# municipalities with APS	# of lockers
2001/2002	2	-	2	-
2002	24	2,500	2	-
2009	2,500	1.4 Million	> 1,600	-
2011	2,500	2 Million	>1,600	200,000



# B2C Deliveries preferences - Germany



- successful at 1st try
- successful at 2nd try
- to neighbour
- via post office

Source: AT Kearny (2012)



# On-going research

## PPs deployment in:

- ✓ Rural areas
- ✓ Suburban areas
- ✓ Urban areas

Households car- dependency

## - High densely populated areas, i.e. Paris

Shopping travel:  
67 % by walking  
24% by public transportation  
7% by car

Which is the impact of PP deliveries compared to home deliveries on Paris' congestion and pollution?



# Thank you for your attention

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# Amazon deliveries in California





# Paris – ongoing research



## Légende

• RELAIS COLIS

Temps d'accès piéton

5 minutes  
10 minutes

Communes

Eau

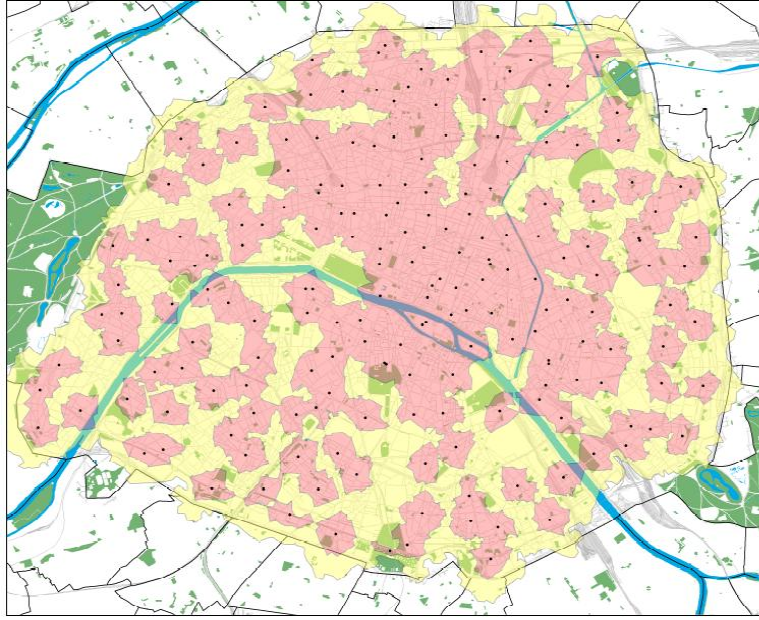
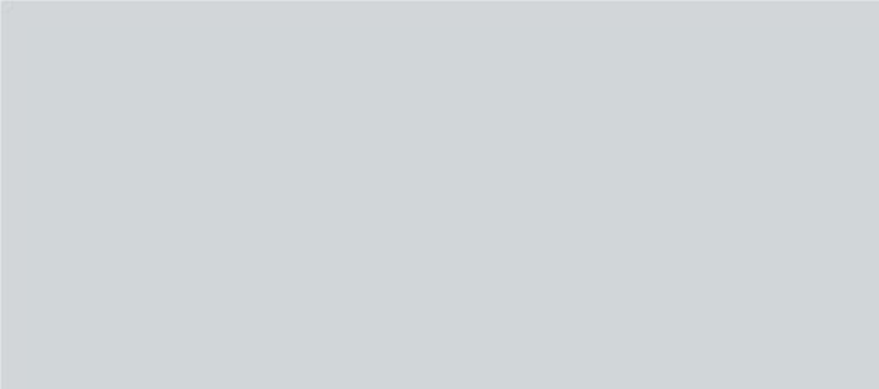
Espaces Verts

Voies ferrées

0 250 500 1 000 1 500 2 000 Mètres



# Paris – ongoing research

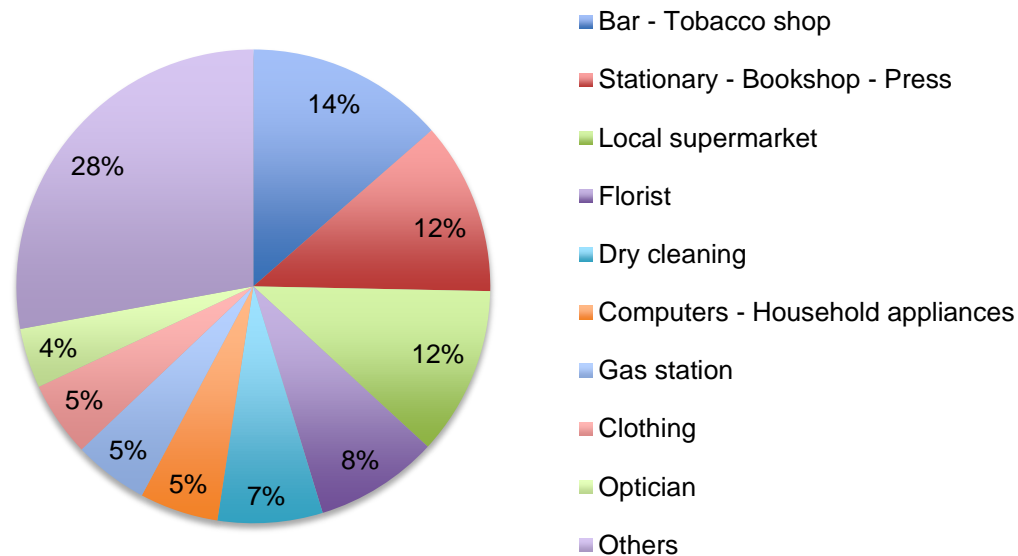


# PP network partner stores

Shop owners provide parcel reception services both for additional revenue and to generate more in-store traffic.

Local stores play a logistics role in the final delivery system.

**Type of partner store in pickup points network, Seine-et-Marne**



# PPs accessibility in Seine-et-Marne

## Average access distances to the nearest PPs:

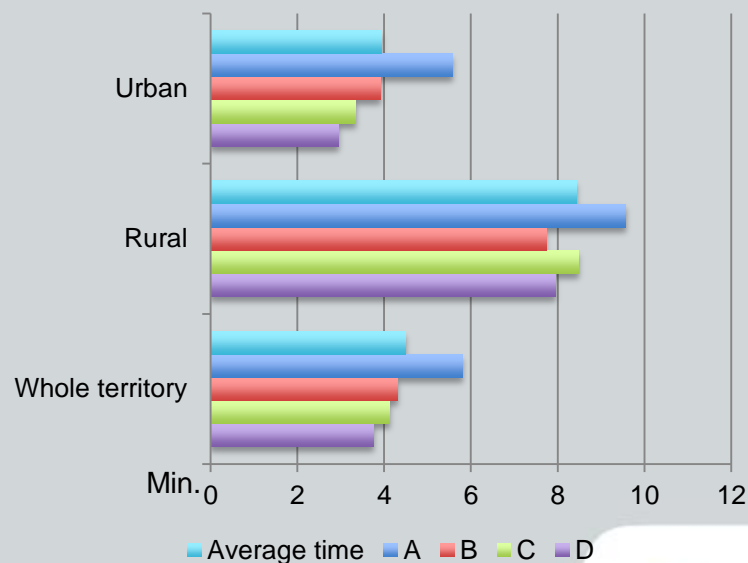
- 1.6 km in urban areas
- 6 km in rural areas

## Average access times by car:

- 4 minutes in urban areas
- 8 minutes in exurban/rural areas.

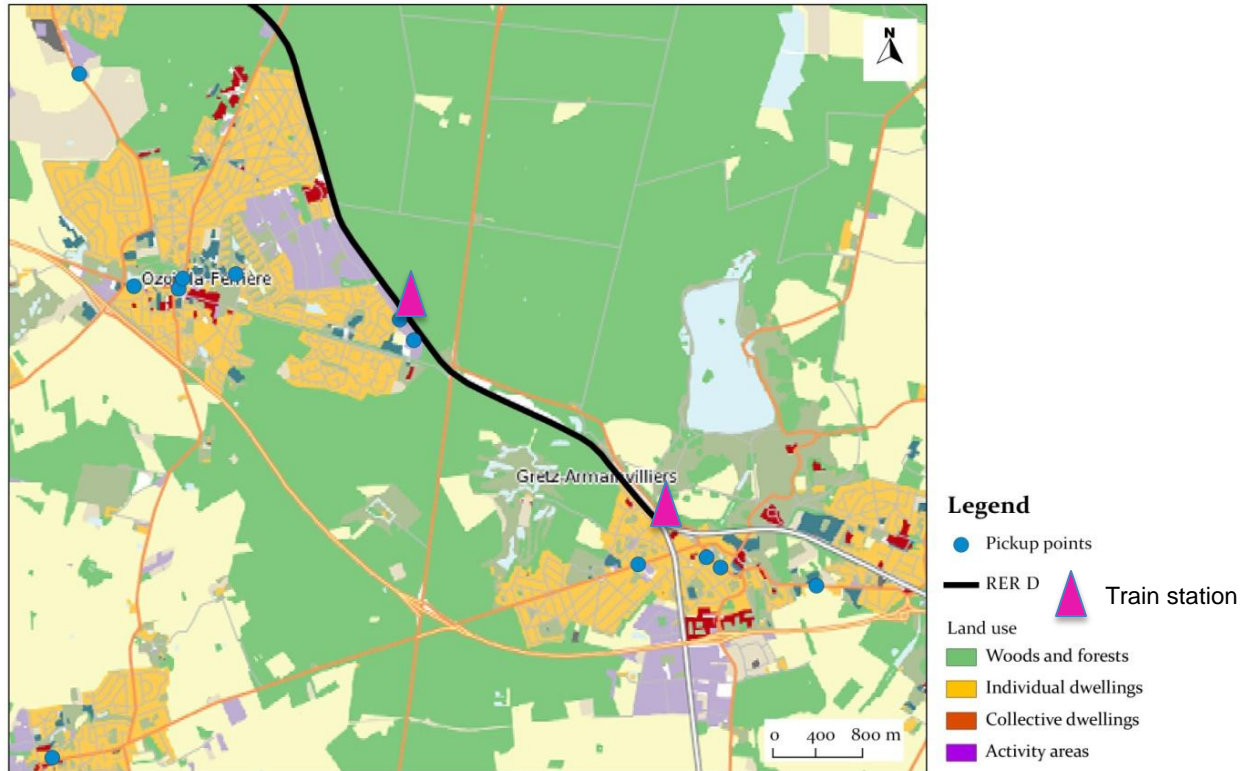
Network D, having a larger number of PPs sites, performs better than the others.

Access time to the nearest PP, in minutes



# Location of the PP in the suburban areas

Pick-up point locations in an suburban area (Gretz and Ozoir)



In suburban areas:  
concentration of PPs  
in close to regional  
train stations

Map by Fortin, 2013

The development of PP  
networks in the end-  
delivery sector

Definitions and  
methodology

Pickup point network  
operators

Identifying the spatial  
patterns of PP network

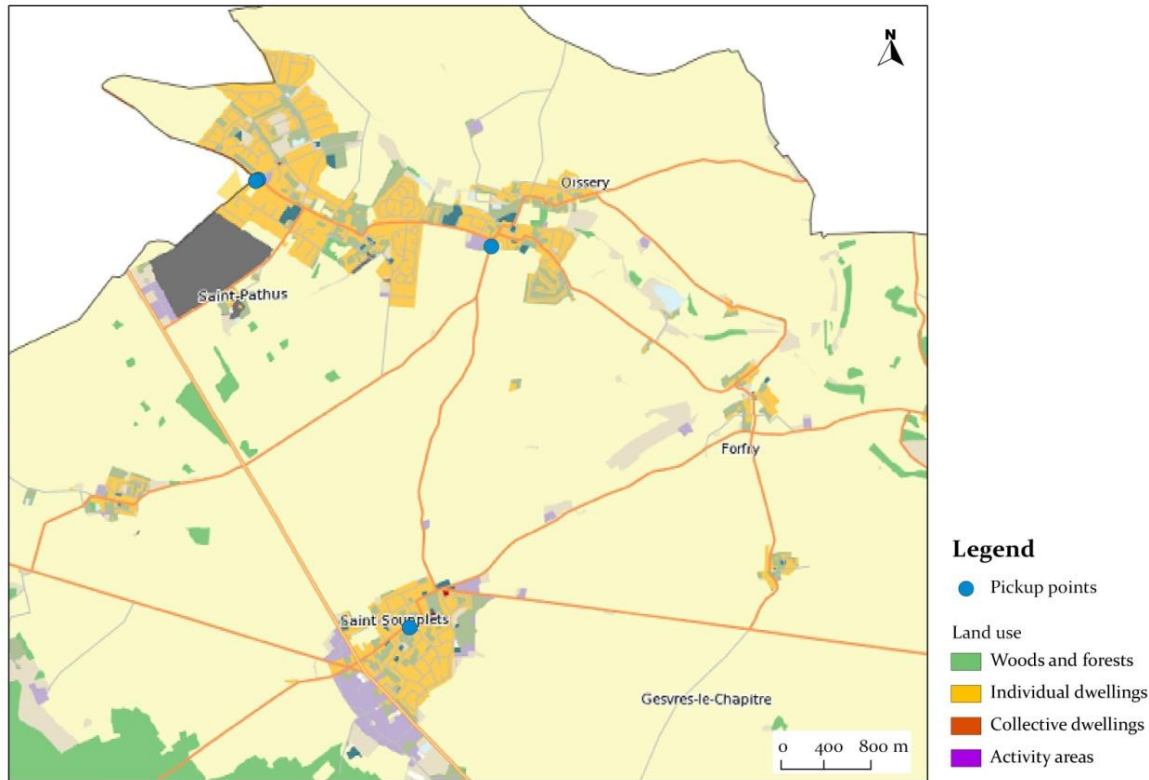
Drafting a conceptual  
framework for PP  
networks

23



# Location of the PP in the rural areas

Pick-up point locations in an rural area (N. of Seine et Marne)



In rural areas concentration of PPs reflects the structure of the village.

Map by Fortin, 2013

The development of PP networks in the end-delivery sector

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Pickup point network operators

Identifying the spatial patterns of PP network

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24



# Conclusions

- PP network operators all target the same type of location for new PPs: the most densely populated areas and transportation nodes (main train and subway stations, road intersections).
  - *Potential lack of partner stores for hosting PP*
- PP density is high in urban areas and, as one would expect, tends to decline in rural regions. However, the coverage of rural areas by PP networks is not proportional to their population: 7% of PPs are located in concentrate in rural areas, which contain 17% of the population.
  - *Disparities in PP accessibility between rural and urban area*
- PPs carry a lower risk of missed deliveries and provide better shipment consolidation than home deliveries, which explains their recent large-scale deployment.
  - B2C delivery in PPs has same features then B2B deliveries

