

FastTrack Civitas
March 29, 2022

New methods to collect urban freight data

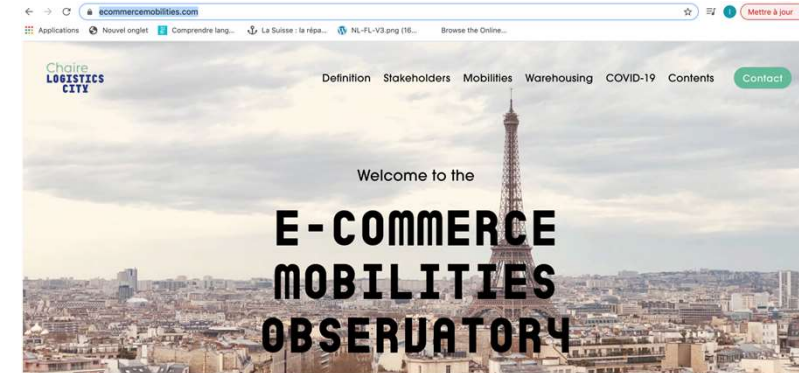
Dr. Laetitia Dablanc

- Research oriented Chair
- Warehouses, innovations, new trends in consumption and impacts on city logistics

<https://www.lvmt.fr/en/chaires/logistics-city/>

Results available online:

- Observatory of ecommerce mobilities
- Survey reports on gig workers for instant delivery platforms in Paris 2016, 2018, 2020, 2021, 2022
- Barometer of urban logistics under covid lockdown
- Logistics real estate and relationships with urban form in 74 large cities around the world



Understanding the drivers of urban goods movements



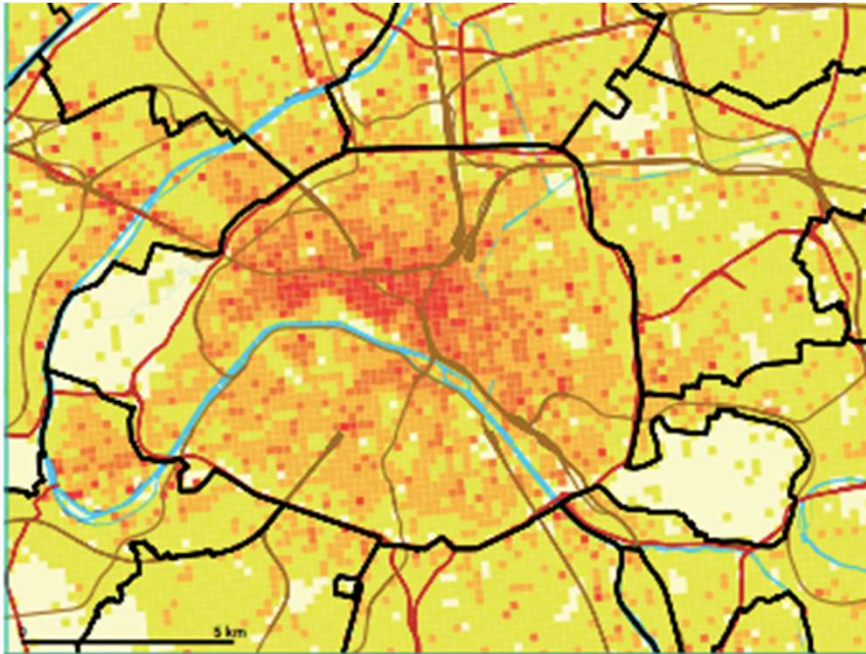
20 deliveries/day



one delivery/day

Concentration of deliveries and pick-ups generated in daily average in Paris

B2B



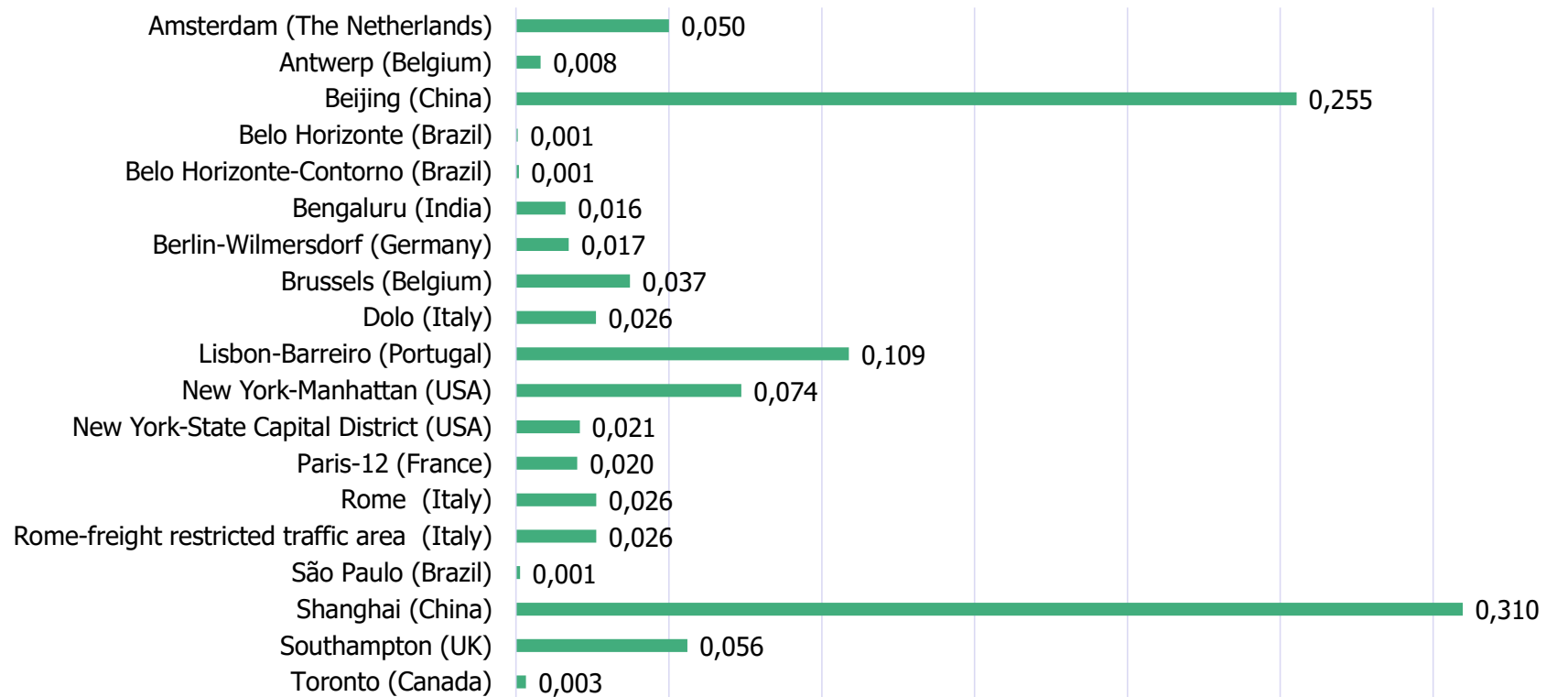
B2C



Coulombel et al., 2018, data from 2010 (LAET)

E-commerce mobilities: the great unknown

B2C deliveries per capita per day (Buildeo Rai & Dablanc from meta-analysis of literature and various business sources)



Rough estimates?

- *New York Times* March 4, 2021 “Roughly 2.4 million packages are delivered in the city every day, nearly half a million more than before the pandemic, and city data shows that 80 percent of deliveries are to residential customers, compared with 40 percent before the outbreak”
= 0.23 parcel per day per person
- *Le Monde* January 21, 2021: “According to head of Colissimo, there were one billion B2C parcels delivered in France in 2020”
= 0.04 parcel per day per person (six times less)
- A major survey made in Lyon in 2016 (LAET) = 0.02 parcel per day per person
- A future survey from a large research project ANR MOBS

At least 25% of last mile drivers are NOT in trucks or vans in Paris today



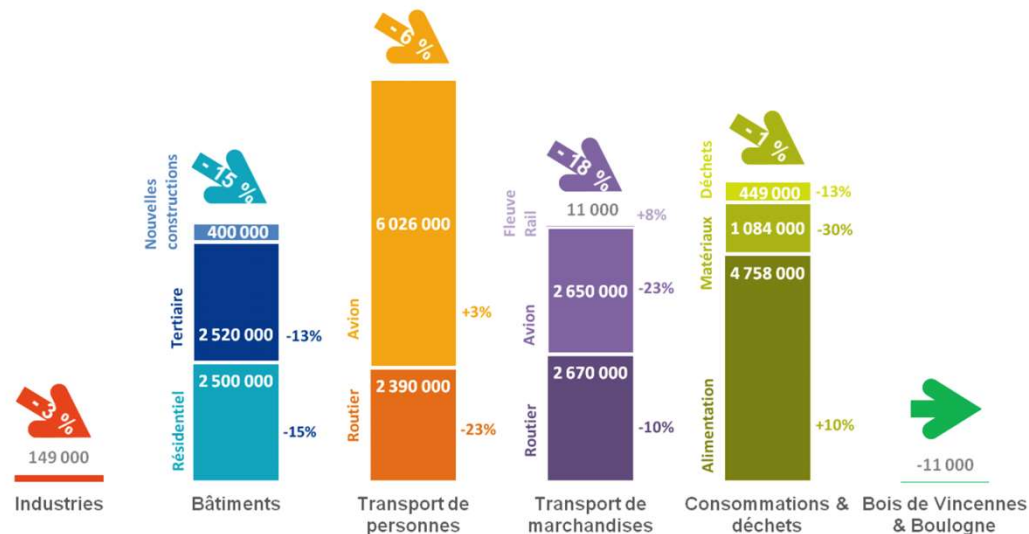
Why get better data for urban freight?

- Support traffic management and city planning through better modeling of freight
- Monitor progress of an urban freight strategy
- Support decarbonization of freight through better impact assessments
- Provide tools for cost–benefit analysis of traffic regulations such as low/zero emission zones including positive and negative impacts on businesses
- Support better design of low/zero emission zones such as optimum size
- Stakeholder involvement:
 - Benchmark for freight companies
 - Freight joint strategy between all relevant local stakeholders, based on actual diagnostic and good data (build trust)
- Modeling/simulation of alternative city logistics models

Carbon footprint City of Paris 2004-2014

- CO₂ emissions from urban freight “decreased by 18% between 2004 and 2014” (official 2017 Carbon Footprint Assessment, City of Paris)

BILAN CARBONE® DE PARIS - ÉDITION 2014 - 9,2 %
25,6 millions de tonnes équivalent CO₂ depuis 2004



Local emissions from freight transport were underestimated mostly because delivery vans were under-estimated

Data came from:

- the LAET B2B urban freight survey which dates from 2010 and does not take into account B2C deliveries
- the national "Light Commercial Vehicle use survey"
 - latest is from 2010 with much less B2C traffic
 - represents data for whole of France thus overestimating LCVs used by private individuals
- Local "plate surveys," which do not make it possible to distinguish between the different types of LCVs (many used by craftsmen or private individuals)

Motorized two-wheelers for delivery not taken into account in Paris carbon footprint assessment

- In Paris, 36% UberEats and Deliveroo couriers use a moped (2021)



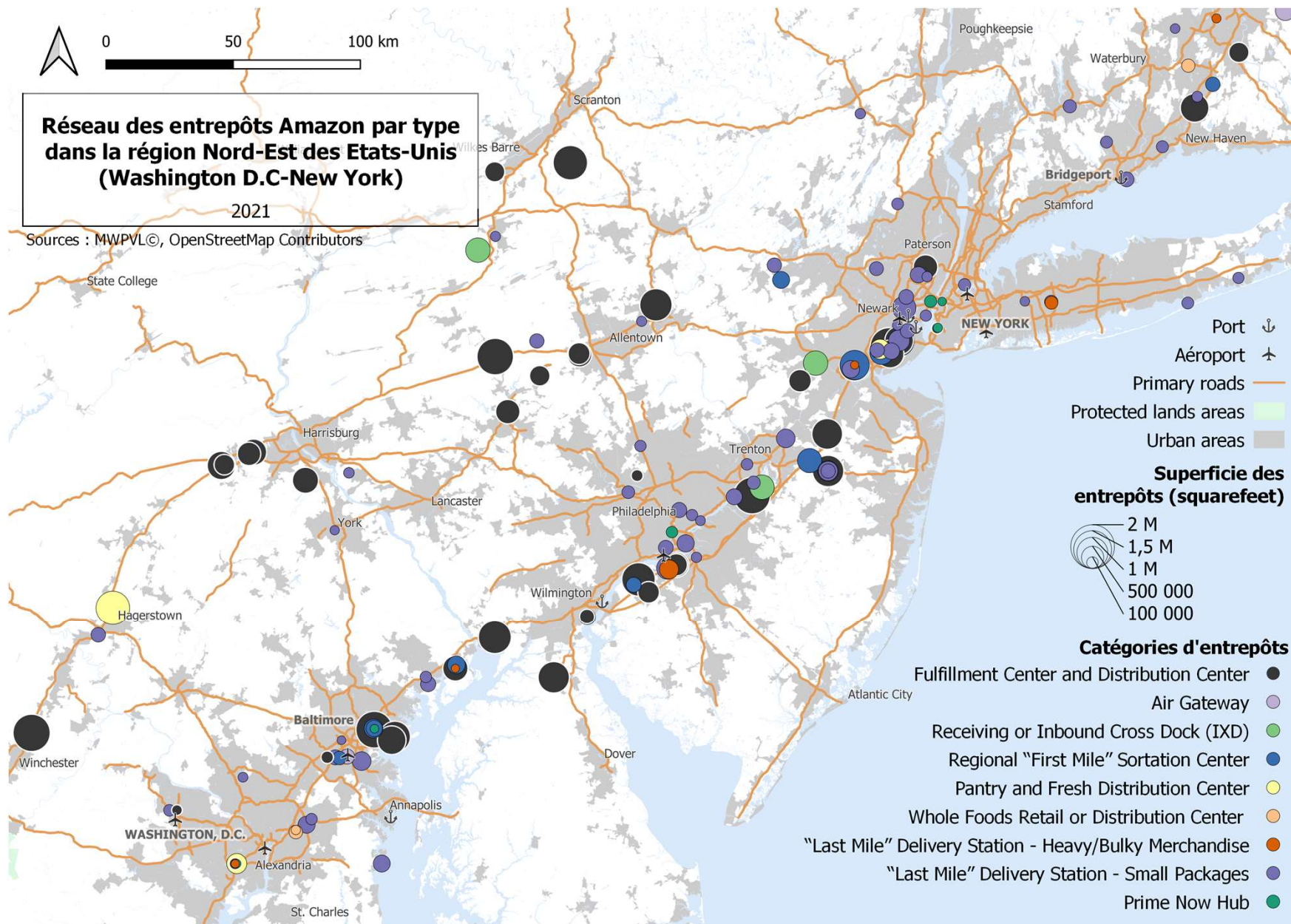
New methods for urban freight data collection

- New ways of collecting data: a major area of progress for city planning (modeling mobility, evaluating policies, assessing carbon footprint)
- Data from telecom operators
- Data from logistics operators, e-retailers, delivery apps
- Open access data from various sources: OSM
- Data from municipal agencies
 - Automatic number plate recognition cameras for traffic enforcement
 - Open-access data such as a local bike-sharing service

Data from telecom operators



- A study by Roland Berger and Kisio in March 2020 using data from Orange (French main telecommunication operator)
- Huge **misinterpretations** due to lack of truck identification in telecom data
- Efforts to recognize 'freight behaviors' in mobility data



More open data for warehouses, example OpenStreet Map

T. Lecourt,
M. Schorung
Logistics City
Chair, 2021

Open-access data from municipal services

- Bike-sharing public service in French cities
 - Many electric bikes now used for instant deliveries
 - Mobility pattern of delivery couriers on Velib are not easy to figure out
 - Trip routes, places of pickup and delivery, volume of activity could be identified via AI



AreaDUM in Barcelona: also a way of collecting data

- Delivery drivers must register on a smartphone app (AreaDUM) including plate registration number
- Once arrived on unloading zone, must confirm their location
- A 30 minutes window then available for delivering
- Provides real time data to the municipality



ANPR data

- ANPR: Automatic Number Plate Recognition
- ANPR cameras to enforce low emission zones: UK, Italian, Spanish, Dutch, Scandinavian cities
- France just authorized them (2021) but under very strict conditions, **no data can be used**
- Ex. City of Amsterdam: once a year, one month of ANPR data is studied for research/modeling purpose
- Privacy issues prevent the use of more (or of "live") data
- Swedish cities: use of ANPR data for research has not yet been authorized "it is really a pity to not be able to use data that is actually there" (representative of City of Gothenburg DOT, March 23, 2021)

Privacy statement from Transport for London on use of CCTV data

On a case by case basis we may use and share CCTV images for research and analysis purposes. For example these may be used to improve the management of health and safety incidents, or travel demand management.

CCTV images from London Underground are to be analysed by Newcastle University in the fight against covid-19 under an agreement with TfL, which is part of a wider research programme led by the Department for Transport and the SAGE subgroup on Environmental and Modelling. The research will analyse images to quantify the proximity of people and their surface contact whilst using public transport, as part of wider research to understand the transmission of covid-19. The CCTV data is encrypted and steps are taken to anonymise the footage. This research is subject to a Data Protection Impact Assessment as well as a confidentiality agreement between the University and TfL.

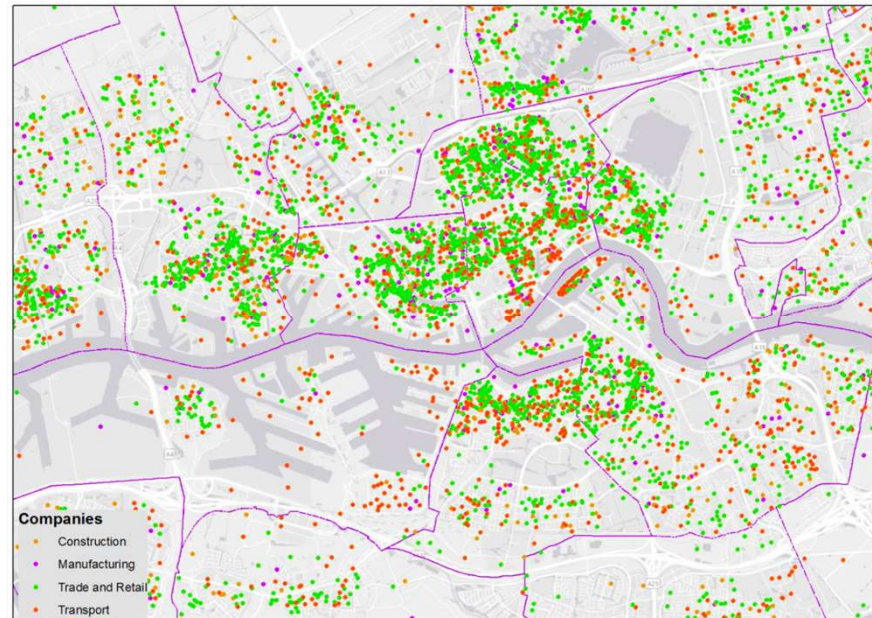
Similar research is being undertaken by University College London to understand how infection risk would vary according to different levels of crowding using encrypted CCTV data alongside data from surface and air sampling. Anonymisation techniques are applied to prevent identification of individuals and this research is also subject to a Data Protection Impact Assessment as well as a confidentiality agreement between the University and TfL.

Data sharing, partnerships with freight operators

- French legislation imposes data sharing from operators or new mobility services but freight data is not mentioned
- Universities go operator per operator (DB Schenker with univ Eiffel recently)
- Best example of partnerships: Dutch cities (especially Rotterdam)
- **Don't ask for data**, ask for indicators!

Allocation of deliveries to companies (Rotterdam)

CBS representation of the 80 biggest transport companies



significance
quantitative research

- Dutch cities must implement zero emission zones that include freight by 2025
- They include a plan for a shared data model with potential benefits and incentives for companies sharing data such as prioritised access
- In 2019 Rotterdam established the Roadmap Zero-Emission City Logistics strategy

Zero-Emission Zones

Don't Wait to Start with Freight!

December 2020



World Business Council for Sustainable Development recent report on mobility data sharing

Enabling data-sharing:

Emerging principles for transforming urban mobility

Powered by: Deloitte

“The movement of goods is increasing in importance, as the rapid growth of e-commerce and to-your door delivery has led to more carrier fleets in city streets. The combined impact is staggering – in China for example, daily parcel deliveries are on track to hit 145 million by the end of 2020, nearly tripling from 57 million in 2015.⁴⁶ All of those delivery vehicles have a significant impact on congestion and emissions.”

Figure 4 Data stakeholder framework

