Chaire LOGISTICS CITY

CO_2 emissions from freight

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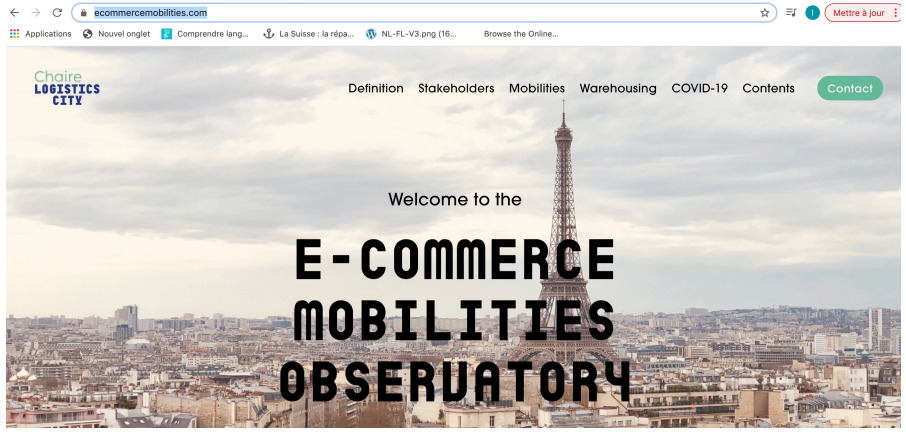
https://www.lvmt.fr/en/chaires/logistics-city/

- Warehouses, innovations, new trends, policies on freight and city logistics
- New sources for freight data

Results available online:

- Observatory of e-commerce mobilities
- Survey data on instant delivery platforms in Paris
- Logistics real estate and relationships with urban form in 74 large cities around the world



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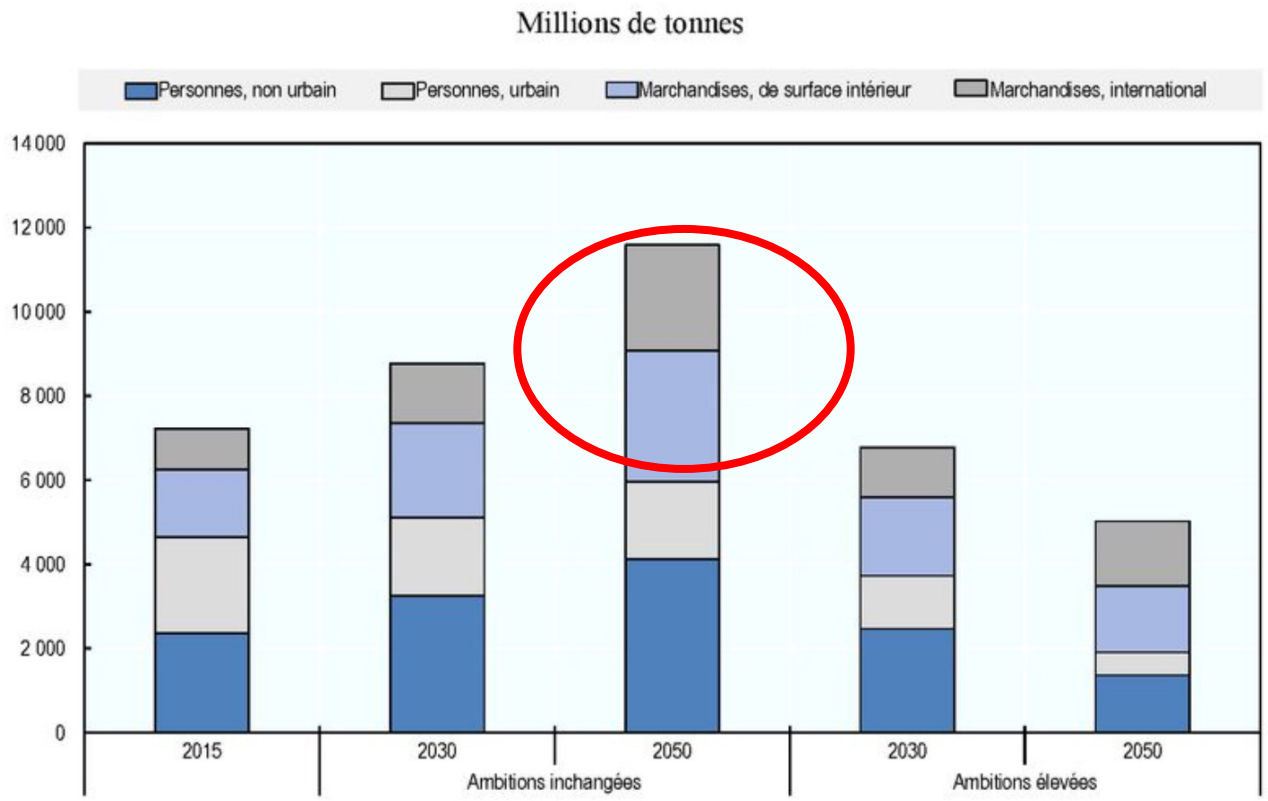
Freight transportation and logistics' carbon footprint

- Freight and logistics activities represent **8 to 10% of worldwide GHG emissions** (GLEC)
  - 80-85% from transportation
  - 15-20% from warehouses
- Increasing emissions from IT and data centers
- Digital is also part of the solution (data processing, optimisation)

Warehouses in Atlanta
Photo L. Dablanc

Freight is one third of CO_2 emissions from transportation and may represent **half** in 2050 (ITF/OECD)

Graphique 2.2. Émissions de CO_2 des différents secteurs du transport de personnes et de marchandises dans les deux scénarios



ITF/OECD, 2019

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Scope 1 or scope 3?

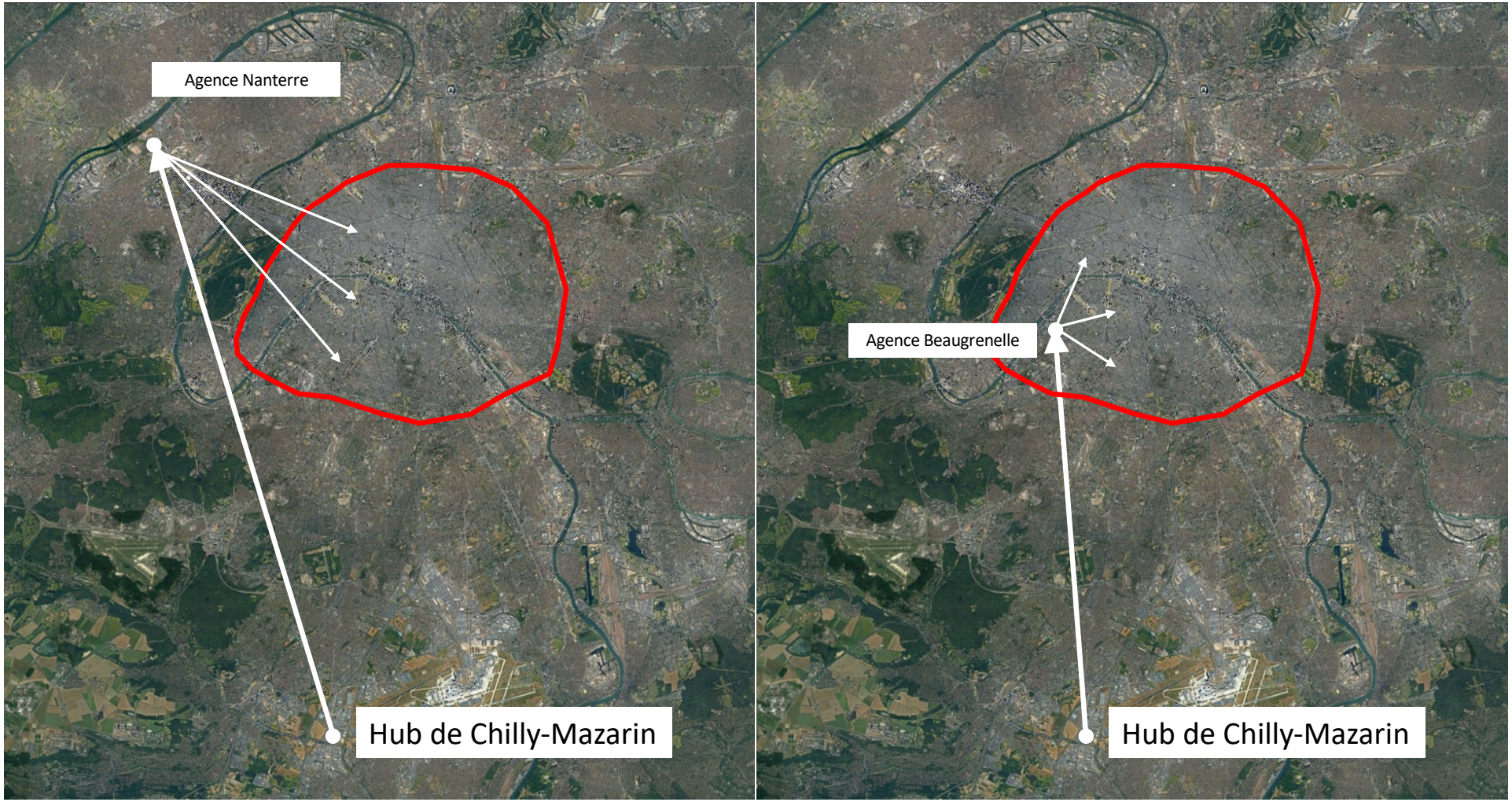
Carbon footprint of freight for city of Paris (2020)

- Scope 1 (emissions from local freight traffic): 1.2 Mt
- Scope 3 (emissions from all freight transport): 5 Mt (21% of all carbon footprint of Paris)

Location of logistics facilities' impact on freight emissions

Without an urban hub: 151 tons CO_2/y

With an urban hub: 74 tons CO_2 /y



Jonction 2017 +
Grelier Chair
Logistics City 2020

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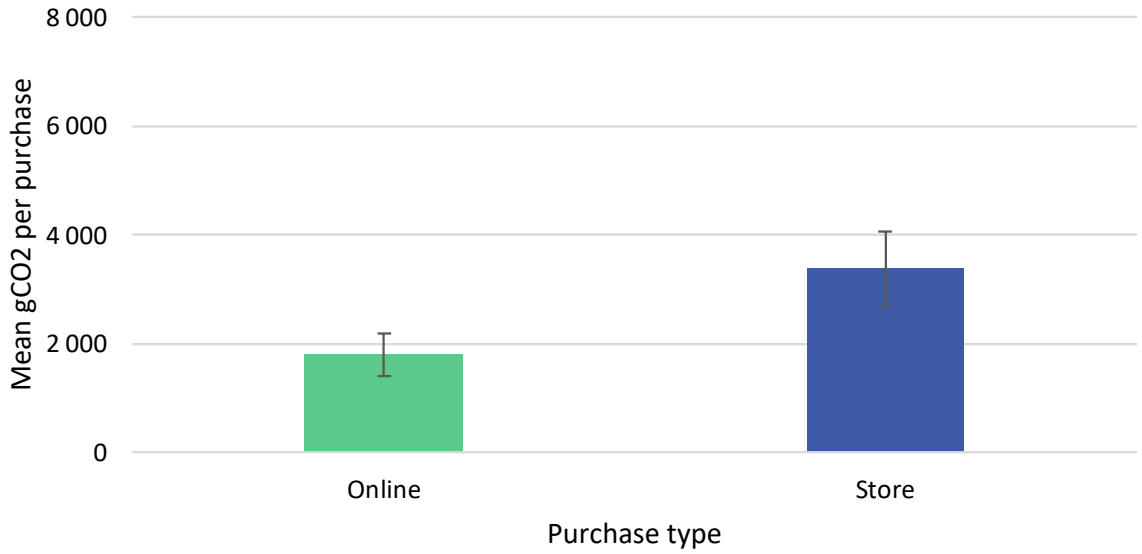
E-commerce: less CO_2 emissions than physical retail

- Meta-analysis (Buldeo Rai, Touami, Dablanc, 2022)
- 244 carbon footprint studies (50% from Europe, 30% from the US, 20% from other countries)

Only 41% of these studies include full calculations (life-cycle analyses and Scope 3)
Only 17% of these studies include returns
Only 59% of these studies include packaging



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GLEC: a unified method to assess freight and logistics emissions for companies

- GLEC: Global Logistics Emissions Council
- https://www.smartfreightcentre.org/en/

The global method for calculation and reporting of logistics emissions

ISO 14083:2023

- International standard
- A common methodology for the quantification and reporting of GHG emissions from the operation of transport chains of passengers and freight

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Intelligent mobility and optimization tools are part of the solution

Reduce goods transport demand	Optimise transport modes	Increase optimal use of assets
Spatial disposition of warehouses and production sites to minimize distances	Use best modes according to situation (capacity, infrastructure availbility)	Optimize loading factors of vehicles
Sourcing of materials and parts to minimize distances	Support transition to multi-modal	Choose best vehicles according to situation (capacity)
Increase delivery lead times accepted by consumers	Integrate carbon cost in transport cost calculations	Consolidate transport resources to minimize empty runs

Selection from McKinnon Decarbonizing logistics 2018

Technologies to regulate, monitor truck traffic… also a way to collect better freight data

- Belgium and Brussels: truck charging since 2016
- Highest fee (33.9 c/km) for most polluting trucks

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London Low Emission Zone

- All the metropolitan area regulated for trucks and large vans based on Euro standard
- Three *Zero Emission Zones* by 2025
- Automated plate reading cameras (ANPR cameras)

Electric trucks are promising but still too expensive

Amazon DAF electric trucks, 2022

Schenker France Volta Zero since 2022

Tesla Semi delivered to Pepsi since December 2022

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Zero emission logistics can also mean poor working conditions

New York City (Dablanc, Schorung March 2022)

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