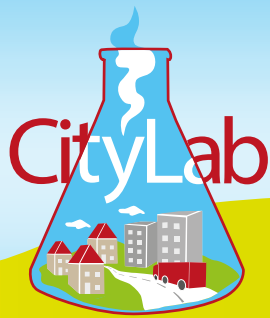




New Trends **Impacting** **Urban Logistics:** **an** **Observatory**



IFSTTAR, April 2018



About the Observatory of Strategic Developments Impacting Urban Logistics

Urban freight planning and operations need to fully recognise the economic, demographic, technological, societal and legal challenges that will shape the **mobility of goods in urban areas** in the future.

To help cities implement their urban freight initiatives, a better **understanding of new trends and challenges** impacting the movement of goods in cities is necessary.

This **Observatory** provides **data and analysis** on some of the most important, or less well known, trends that will shape the urban mobility of goods in the future, including:

- Logistics land uses, logistics real estate, and **logistics sprawl**, which is the spatial deconcentration of logistics facilities and distribution centres in metropolitan areas. Warehouses tend to relocate to outer suburban areas with good access to highway interchanges, large available land space, affordable rents, and access to employees.
- **E-commerce**, e-grocery, and **instant deliveries** (on-demand delivery service within two hours). E-commerce adds hundreds of thousands of deliveries in urban areas every day. The development of instant deliveries is based on the use of mobile apps which connect couriers – individuals, self-contractors or employees – to shippers and consumers.
- **Circular economy**. To deal with current environmental issues associated with ‘linear economy’, a new model emerges - the ‘circular economy’ - which promotes responsible consumption, aims to extend the life of products and to recover and regenerate materials at the end of product life. The circular economy has impacts on urban freight with new types of supply chains required by reverse and return logistics.
- **Service trips** are trips in commercial traffic induced by service oriented activities. The analysis of service traffic concerning used vehicles, commercial sectors and spatial types shows that mainly light duty vehicles and passenger cars are used for service traffic. Service traffic relates to construction, human health and social work, professional, scientific and technical activities, the wholesale and retail trade sectors, and manufacturing.

The full version of the report is available online at www.citylab-project.eu/deliverables/D2_1.pdf



New trends



Key data

Logistics sprawl

Number of warehouses per million urban residents ranges from

6 to **239**
(Tokyo) (greater Gothenburg)

25 large metropolitan areas around the world studied,

2/3 have experienced logistics sprawl

These numbers increased over **75%** time in of sampled cities.



Logistics buildings development, Atlanta, USA, 2018 (photo L. Dablanc)

0.31 km/year: average increase in the average distance of warehouses to their geographic centre of gravity.



Key data

E-commerce

€2.6 trillion global B2C e-commerce turnover for goods (62%) and services (38%), which represents **4.48%** of world GDP in 2015.

62% of European e-commerce sales are generated in three countries: the **UK** (31%), **France** (14%) and **Germany** (13%)

20% of European firms have sold online in 2015
18% of total annual turnover of European firms



4,036 click & collect terminals for e-grocery in France in 2014, more than the total number of hypermarkets (2,022)

6,000 collection points of Collect+ in the UK made up by newsagents, convenience stores, supermarkets and petrol stations

Key data

Instant deliveries



'Instant delivery' courier in the Paris subway (Photo: Leise de Oliveira)

0.2 instant deliveries per home per week in Paris

100,000 instant deliveries and pickups per week in Paris

12% of B2C related deliveries and pickups in 2016 in Paris

3 to 5% of total deliveries and pickups in Paris

88% made by bicycle,

9% by motorbikes and scooters

3% by other means (IFSTTAR survey, Paris. NB Scooters have an increasing share in new survey)



Key data

Circular economy

3 “Rs”

Reuse,
Reduce,
Recycle

3.4 million **11%**
jobs in Europe, an increase of — between 2008
and 2013

Why be interested?

The share of road transport in freight transport is **88%**
representing **21%** of total (all sectors) GHG emissions

A food item can travel **3,600km** before arriving on
the table, between preparation and consumption.

Impacts on urban freight mobility and city life

Impacts for Stakeholders

Public authorities
(city & regional
managers, planning
and transport
elected officials)

Broader commitment required on logistics regional planning and land use control

New thinking (architecture, zoning, economics) about goods movement and e-commerce fulfilment terminals in urban areas

Promoting new urban consolidation facilities and regional multimodal infrastructure for freight to optimize last mile trips

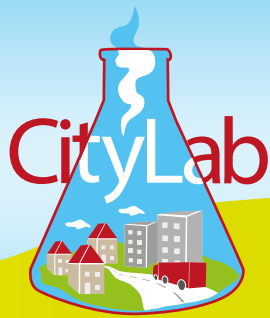
Promoting alternative delivery methods (collective parcel boxes in apartment buildings, pickup points, etc.)

Providing infrastructures for alternative urban delivery methods (bike lanes, charging stations for CNG/electric vans and trucks)

Integrating logistics activities and warehouses into urban and regional political agendas on smart cities, urban sustainability, food policies, circular economy

Encourage companies and citizens to adopt a more sustainable approach.





Impacts for Stakeholders

Transport companies

Increased distance travelled and associated costs between freight terminals where shipments are picked (or delivered) and urban areas where shipments are delivered (or picked)

Potential **need for urban warehousing facilities** if access to cities becomes more complicated

New markets for urban deliveries with increasing competition from independent couriers connecting to **instant delivery apps**

Exploring opportunities to promote unattended deliveries and consolidated deliveries at pickup points

Promote transport services targeted towards repairs, returns; and especially, optimize flows.

Shippers (own account and third party deliveries)

Outsourcing to urban logistics operators able to develop innovative urban logistics services due to increasing home deliveries and express transport

Suburban locations as favourable solution in terms of size and national networks connectivity

Develop returns policy

Receivers (own account and third party deliveries)

More vehicle-kilometres and associated costs due to store supplies

Outsourcing of delivery to service providers or increasing inventory in the store as solution to increased logistics costs

Potentially less reliability on deliveries

Higher logistics costs (unlikely)

Integrate them in circular economy thinking and initiatives

Impacts for Stakeholders

Real estate developers

Following the evolution of land availability in the region and new land needs (eg. new urban warehouse markets)

Developing new solutions such as freight villages in suburban communities and multi-storey logistics facilities in urban areas

Providing accommodation of large e-commerce fulfilment centres in metropolitan areas

Develop alternative solutions: more charging stations, recycling facilities and more widespread in industrial and residential buildings and specialized access to warehouses when necessary.



Multi-storey warehouse in Seoul, South Korea (Photo: L. Dablanç)

Other stakeholders

Industrial brownfields, new commercial brownfields, logistics brownfields

Growing awareness of consumers on impacts on working conditions, road safety, of on-demand transport and instant deliveries



“ According to Airparif, HGVs and light commercial vehicles account for **40% of nitrogen oxide** and **30% of carbon dioxide** traffic-based urban emissions. ”

Impact on Urban & Regional Environment

Quality of life, local street life	Expected increase in van and truck-kilometres
	Fewer local stores as competition from e-retailers increases
	Introduction of new types of stores (Amazon bookstores/pickup points)
	Circular economy initiatives may help promote exchanges between residents.

Impact on Urban & Regional Environment

Local air pollutants (PM and NOx), CO2 & noise emissions	Increase in PM, NOx, and noise emissions due to increased van and truck-kilometres in urban areas
	Reduction in emissions due to increased biking for e-deliveries
	Worsening overall carbon footprint due to expected increase in traffic because of increased van and truck-kilometres in urban areas and on regional road networks
	Reduction in gas emissions thanks to the reduction in the use of raw materials and the implementation of sustainable processes.



Amazon locker in a shopping mall, Lille, France, 2016
(Photo: Z. Liu)



Automated lockers for parcels' collection in a residential building, Guangzhou, China, January 2017
(Photo: Z. Liu)



Impact on Urban & Regional Environment

“ In the city of Paris, freight transport generates **1.5 million pickups and deliveries** per week, with 90% carried out by vans and trucks. ”

Traffic/
congestion

Expected increase in traffic due to increased van and truck-kilometres in urban area and on regional network

Increasing heterogeneity of traffic in city streets due to increased biking for deliveries

Increasing demand for non-traditional delivery times (evenings, week-ends)

Road safety/
conflicts of
street use

Increase in road safety problems due to increased commercial traffic

Increased conflicts between road users due to increased biking for deliveries



Instant delivery motorcyclist in Paris, Feb 2017 (Photo: L. Dablanç)



Impact on Urban Freight Efficiency

Shipments consolidation & Multimodal infrastructure

Greater use of freight hubs to facilitate shipment consolidation and multimodal freight hubs

Promoting new urban logistics hotels around shipment consolidation closer to the city centre

Alternative solutions for e-deliveries (pickup points, click-and-collect) to promote shipments consolidation and to reduce costs and CO2 impacts



Cargocycle in Paris, The Green Link for TNT (Photo: L. Dablanç)



Cargocycle delivering pharmacy goods in Paris (Photo: L. Dablanç)

Impact on Urban Freight Efficiency

Innovation in city logistics

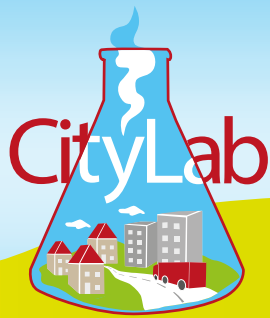
Promotion of innovative behaviours for urban warehouses (e.g. Chapelle International logistics hotel)

Emergence of innovations in sustainable city logistics services driven by e-commerce (clean vehicles, alternative modes, urban warehouses)

“E-commerce appears to be one of the main drivers for city logistics innovations in terms of new operators, green operations and the use of new types of vehicles.”



Bluedistrib lockers in Paris (Photo: H. Levifve)



Impact on Urban Freight Efficiency

Costs for last mile deliveries

Increasing last mile average distances due to logistics sprawl. Regional transport companies may benefit from extra work but typically revenue per km reduces

Alternative solutions (freight hubs, logistics hotels, urban warehouses, etc.) leading to consolidation of deliveries in order to reduce costs

Costs could decrease with more outgoing flows (recycled, returns): better loaded vehicles on the way out of cities.

Impact on Working Conditions & Legislation

Transport and logistics companies

Potential unfair competition from on-demand transport services and instant delivery apps

Owner-drivers, independent couriers, employees of transport companies

Potentially dangerous driving behaviour as pay is often linked to number of trips (motorbikes, bicycles)

Unstable worker/employee status of on-demand transport services and instant delivery apps

Adjusting labour laws to adapt to rising on-demand transport services

Working on Sunday and/or at night

“The rapid growth in the number of parcels has drawn attention to certain issues in the final part of the supply chain, which is referred to collectively as the ‘last mile’ problem.”



Parcel consolidation hub in city centre, Guangzhou, China, 2017 (Photo: Z. Liu)

The Observatory is part of the **CITYLAB project** developed by IFSTTAR with its partners. The **CITYLAB partners** comprise city authorities, urban freight practitioners, stakeholders and researchers.



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