Introduction to urban logistics hubs

Dr. Laetitia Dablanc
New York City June 7, 2023: parcel transhipment directly on the curb

City Council passes bills to curb NYC’s online-delivery truck chaos
### Main types of warehouses and logistics facilities

<table>
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<tr>
<th>Distribution center (DC): storage and management of goods (intermediary goods for manufacturers, consumer goods for retailers). Increasingly large (XXL warehouses of 50,000 to 200,000 sq meters). In dense Asian cities such as Tokyo, Seoul, Singapore, warehouses are generally vertical (multi-story buildings of up to 20 levels or more).</th>
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<td><strong>Temperature-controlled warehouse</strong>: same as above but for goods that require cold storage, specific temperature (frozen, fresh). Generally higher than ambient temperature DCs.</td>
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<td><strong>Fulfillment center</strong>: equivalent to a distribution center, but the terminology is usually used for e-commerce operations. Higher number of SKUs and frequency of picking.</td>
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<td><strong>Cross-dock terminal, sortation terminal</strong>: a facility in which goods are not stored but handled in and out in less than a day and generally a couple hours or less. Goods can be parcels and letters but also larger units such as pallets.</td>
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<td><strong>Logistics park, freight village</strong>: a set of several warehouses managed by one entity (often the property developer/owner) offering additional services to users such as security, meeting rooms, cafeteria. Freight villages are a further integrated version providing fuel stations, truck maintenance service, and sometimes multimodal services (Italian <em>interporti</em> provide rail road intermodal services, German <em>Güterverkehrszentren</em> can also include waterways).</td>
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### New formats in urban logistics real estate

| **Logistics hotel**: large multi-story (vertical) urban facility which is mixed-use. Logistics occupies the main area, often in underground and first levels. Other uses are located at the upper levels: offices, sport facilities, retail. Example Chapelle International in Paris, France (Sogaris developer). |
| **Consolidation center, urban consolidation center (UCC)**: facilities of 1000 to 5000 sq meters aggregating goods flows from multiple carriers, consolidating delivery tours in city centers under one delivery company (eg Cityporto Padova, Binnenstadservice in Dutch cities, Stadsleveransen in Gothenburg, Sweden). Specialized UCCs exist such as _London Construction Consolidation Centres_ for consolidating and organizing the deliveries to building sites. |
| **Micro-hub** (urban distribution centers, urban logistics spaces): small logistics facilities (below 2000 sq meters) where goods are prepared for last mile delivery, often on cargo-cycles or electric vans. They can be used by a single user (eg Green Cargo in London) or by multiple users, who share the space but do not consolidate shipments as they would do in a UCC (eg Depot-bike in Prague). Often located on former stores, underground parking facilities, former gas stations. |
| **Dark store**: small urban fulfillment centers, micro-hubs for ultra-fast delivery of groceries (‘quick commerce’). Vary between very small (100-200 sq meters) to larger (2000 sq meters) depending on the number of SKUs on sale. |
Warehouses in the metropolitan area of Paris, 2022
Recent trends

Photovoltaic

Amsterdam, Sept 2022

**Vertical**

2021 Amazon fullfilment center in Delaware, US

**Re-use of urban assets**

Empty space turned into logistics hub under the Paris ring-road
New formats in urban warehouses, micro-hubs, logistics hotels

- **Vertical** (underground and multistory)
- **Mixed-use**: logistics hotels
- **Temporary**: use of spaces waiting for a development permit, use of spaces available during the day
- **Smart**: re-use of urban brownfields (gas stations, parking facilities, vacant retail), use of empty spaces
Why look at warehouses?

West L.A. (destination)

Ports of Los Angeles-Long Beach (origin)

Distribution centers
Réseau des entrepôts Amazon par type dans la région Nord-Est des États-Unis (Washington D.C-New York)

2021

Sources : MWPVL®, OpenStreetMap Contributors

Warehousing clusters in megaregions

T. Lecourt, M. Schorung
Logistics City Chair, 2021
Location of hubs is not always based on spatial logic
Urban hubs reduce overall CO₂ emissions from deliveries

Without an urban hub: 151 tons CO₂/y  
With an urban hub: 74 tons CO₂/y
A need for new urban terminals

Robichet, 2023
New urban warehouses are based on goods flow consolidation ... and use of trucks

Tokyo  Brooklyn  Paris
New formats blend in city centers

Paris, February 2023
Auchan clik&collect and Deliveroo rest area for delivery workers

New York City, June 2023
Gopuff dark store with retail partners
A discreet Amazon warehouse in Brooklyn/Red Hook

- Amazon Flex delivery workers
- Street parking and difficult handling of cart

Dablanc, March 2022
New urban formats and architecture for warehouses from mainstream developers

Prologis, project ‘Size’ Paris 17th

Segro, project ‘Centre Paris 19’, Paris 19th
Delivery services from underground municipal car parks

Under the Louvre, Paris

Under Plaza Mayor, Madrid (FM Logistic Ibérica)
Temporary rental and time-sharing

Swoopin, Paris 11th
Six-month rental before redevelopment for social housing project

Amazon, Paris 14th
Use of a bus depot during the day

L. Dablanc

F. Bouchon Le Figaro
Ressources

- METROFREIGHT www.metrans.org/metrofreight
- Enquêtes sur les livraisons instantanées à Paris : https://hal.archives-ouvertes.fr/hal-02374915
- Urban freight platform: https://www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/default.aspx

New book from Logistics City Chair
https://drive.google.com/file/d/1pf7cskXY_aZdJiFr6uhg2J_7YQLTWiSv/view