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Urban Logistics Hubs and Real Estate Economics: Evidence from Ecommerce

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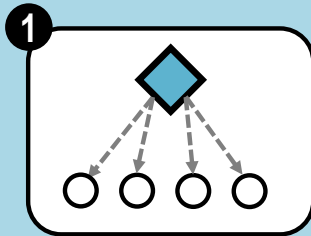
A – The Digital Transformation of Retail
B – The Locational Dynamics of E-commerce
C – The Hierarchy of E-commerce Facilities



A – The Digital Transformation of Retail

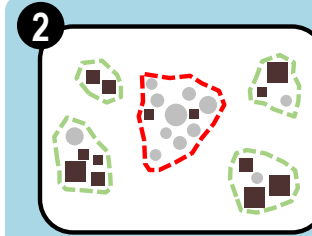
Distribution-based consumption resulting in the shift of the retail inventory from the store to the distribution center.

The Impacts of E-commerce on Freight Distribution



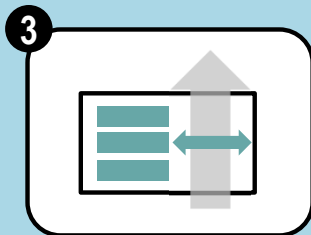
DISTRIBUTION PATTERN

- Distributional consumption.
- Growth in B2C deliveries.
- Changes in last mile logistics.



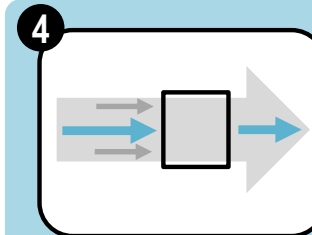
REAL ESTATE FOOTPRINT

- Shift of the real estate footprint from retail to distribution.
- Changes in locational dynamics.



LOGISTICAL FACILITIES

- New logistical facilities (E-fulfillment, Sortation center, Urban logistics depot).
- Automation of fulfillment and inventory management.



VERTICAL INTEGRATION

- Development of 3PL and 4PL services.
- Dedicated carrier services (truck, air, non-vessel operating common carrier).

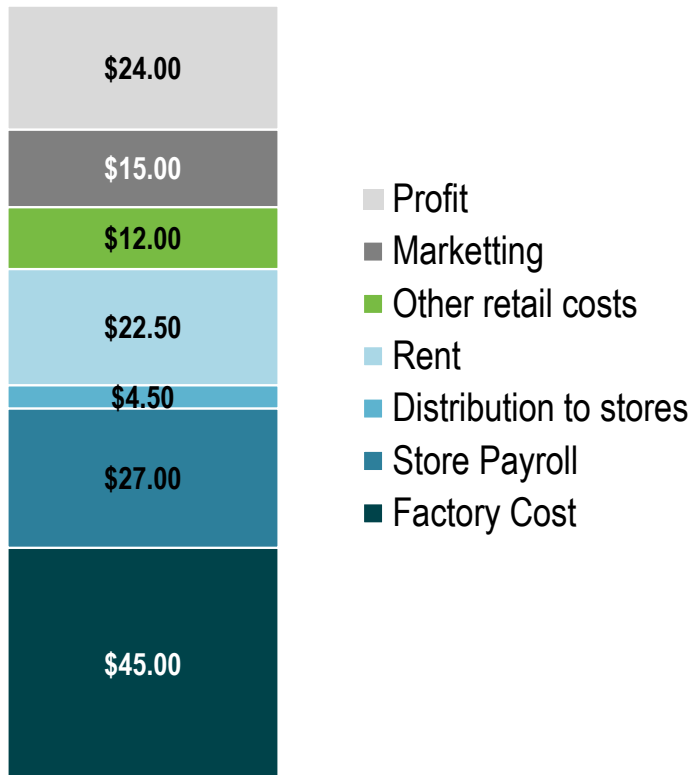
Welcome to the cardboard box era



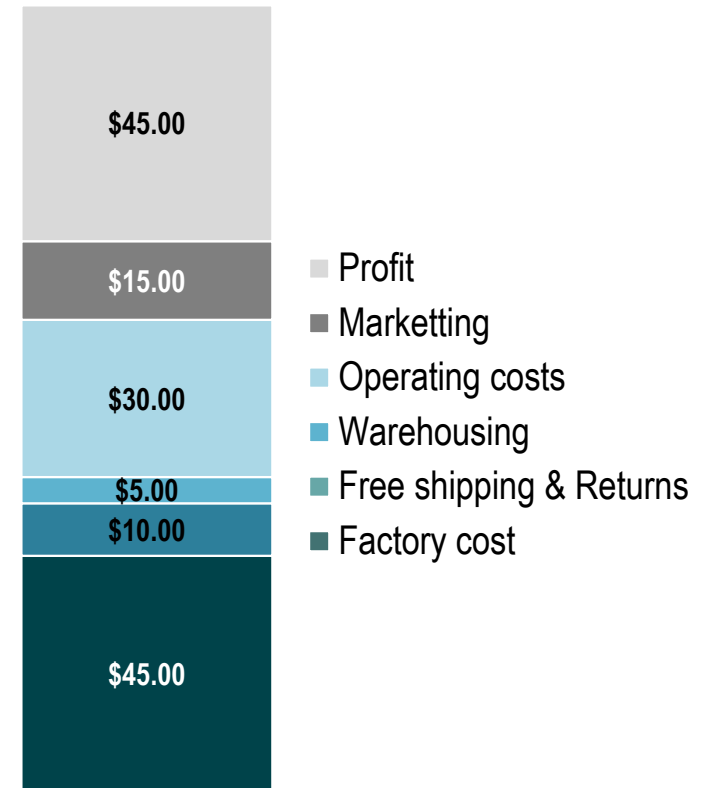
The digitalization of retail

Comparison Between Retail and E-commerce Cost Structures for a \$150 Apparel Piece

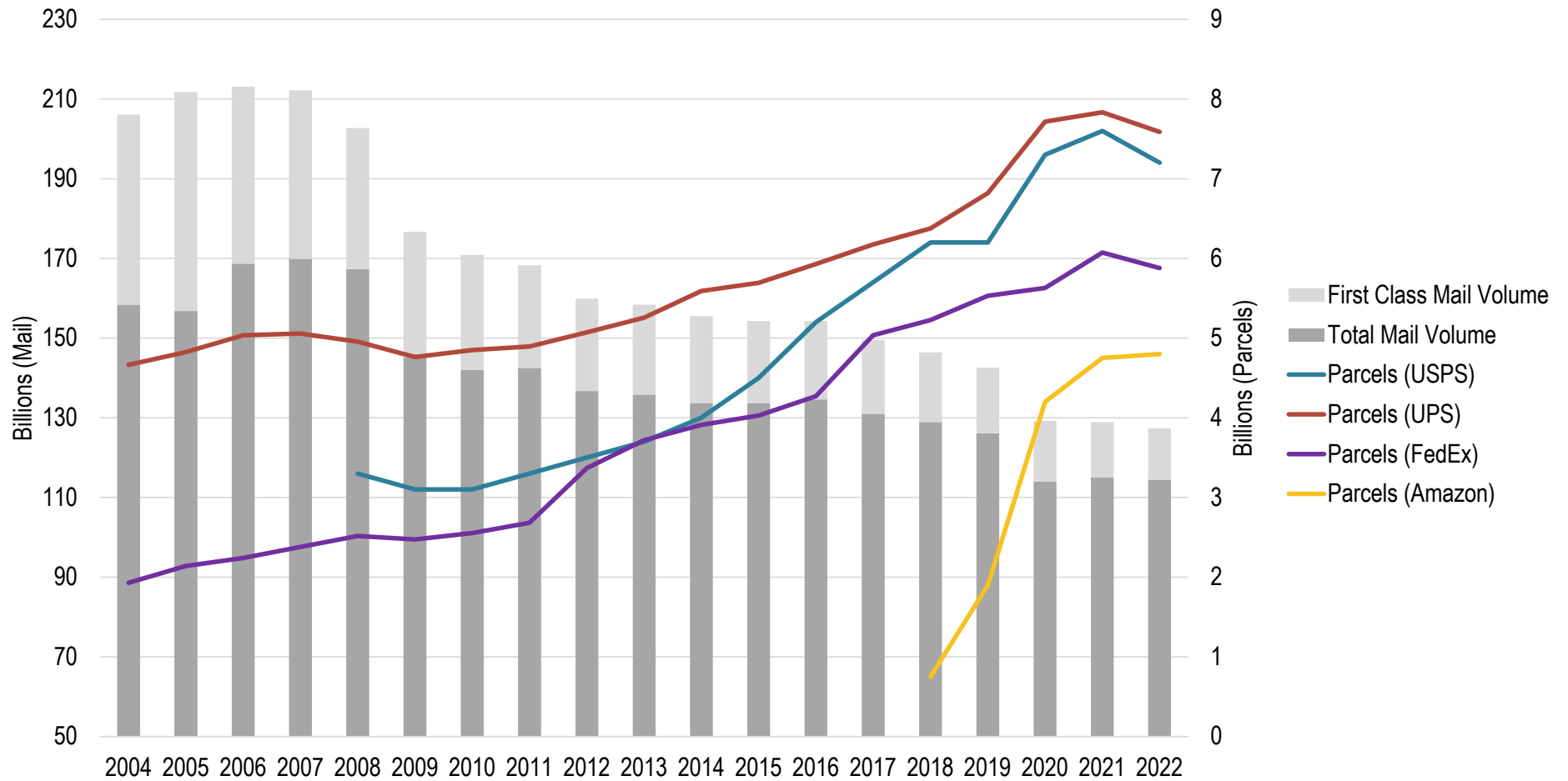
Retail Cost Structure



E-commerce Cost Structure

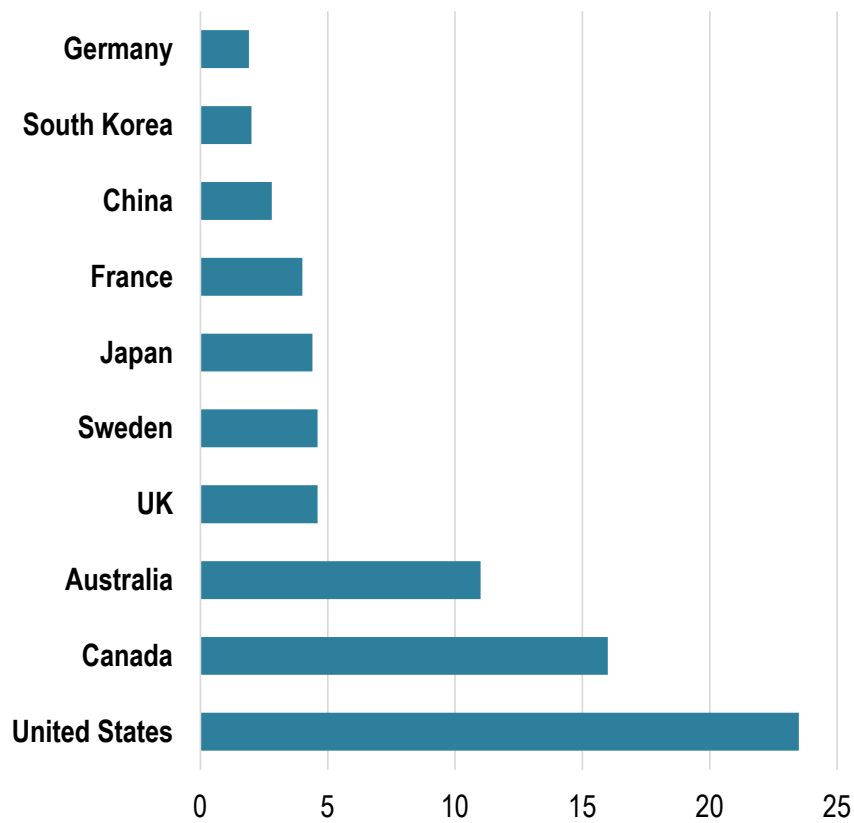


Mail Carried by USPS and Parcels Carried by Major Carriers, United States, 2004-2022 (in billion units)

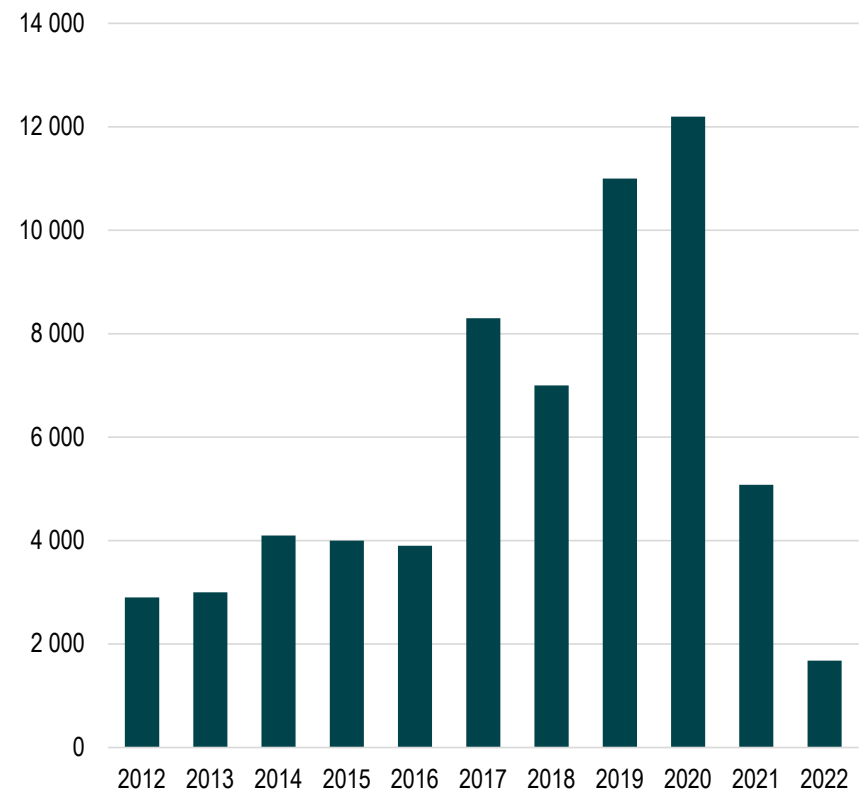


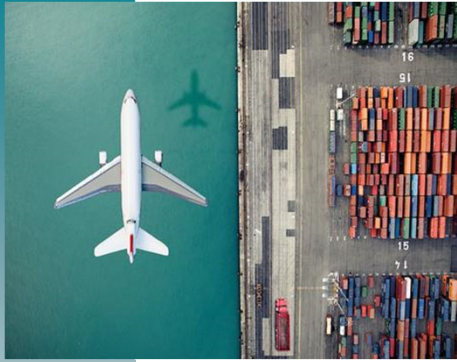
The Retail Apocalypse: Reassessing the Retail Footprint

Retail Space per Capita, 2017 (in square foot)



Announced and Completed Retail Store Closures, USA





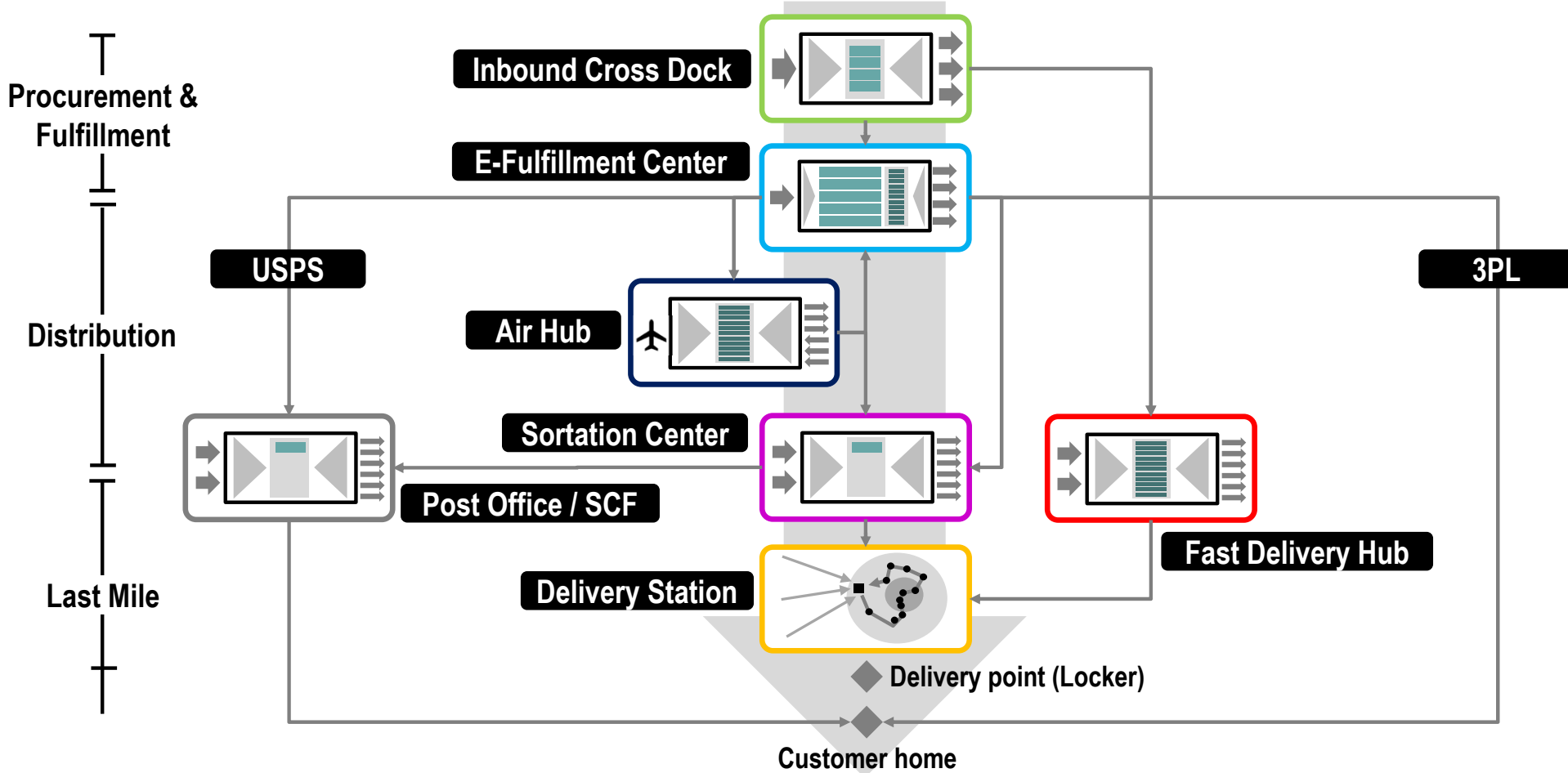
B – The Locational Dynamics of E-commerce

Location and Design Criteria for Distribution Centers

ATTRIBUTE	DRIVER	
Cost	Price sensitivity	Price per square foot; Operation costs (labor, utilities, taxes).
Footprint	Massification	Large surface; Parking space for trucks; Space for expansion.
Facility	Throughput	High clearance; Separate loading and unloading bays; Improved stacking density (from 20 to 80 feet); Potential for cross-docking.
Connectivity	Co-location	Continuous turnover (pick-up and deliveries often LTL); Access to corridors; Co-location with rail, air and port terminals.
Accessibility	Lead time	Market access; Shorter lead times; Less than 48 hours service window.
Technology	Automation	Sort inventory; Control movements from receiving docks to shipping docks; Management systems controlling transactions.

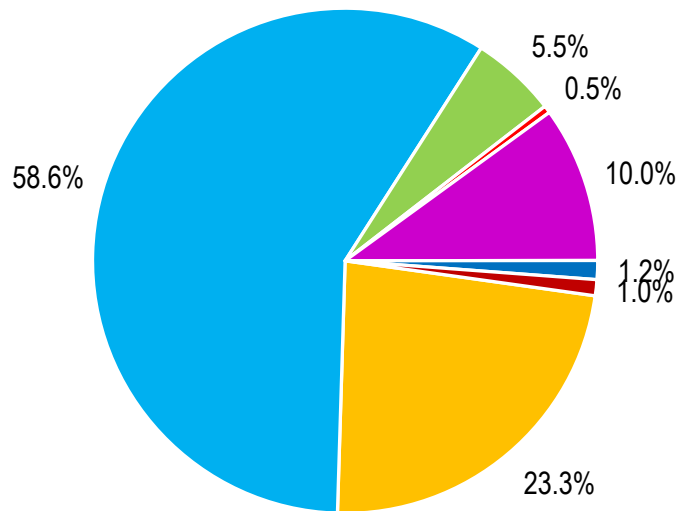
The Distributional Places of Amazon: Internalizing Parcel Deliveries through a Distributional Hierarchy

DISTRIBUTIONAL PLACES



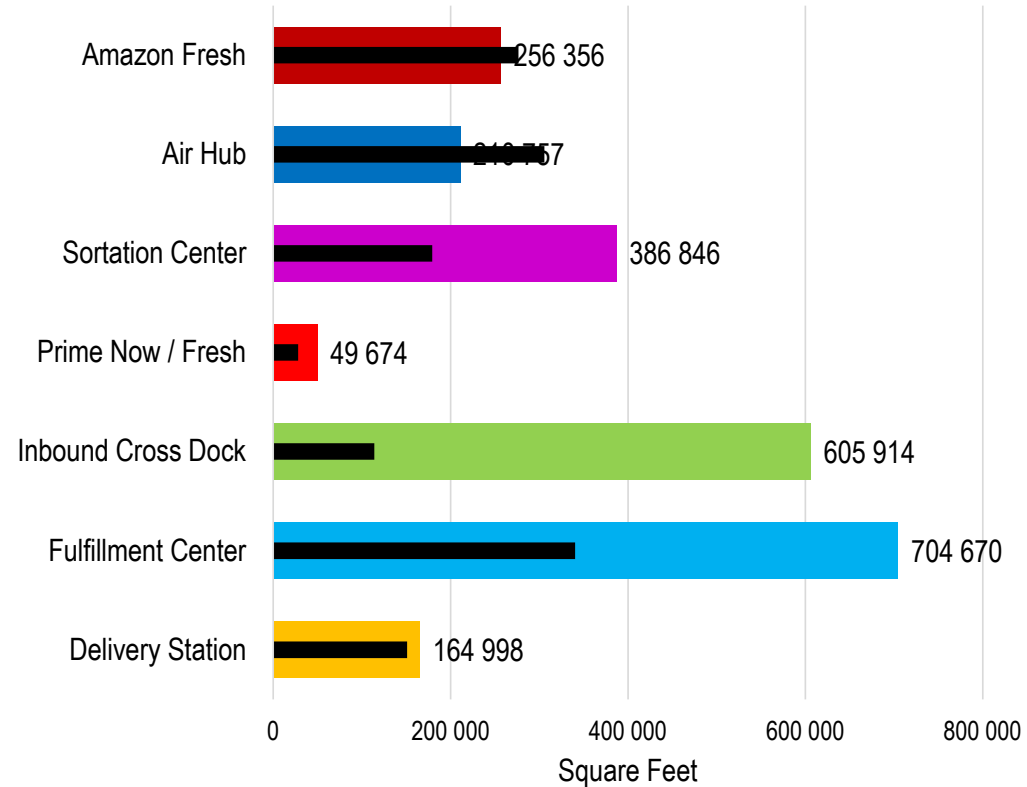
Footprint and Average Size of Amazon Distribution Facilities, 2022

Total Footprint

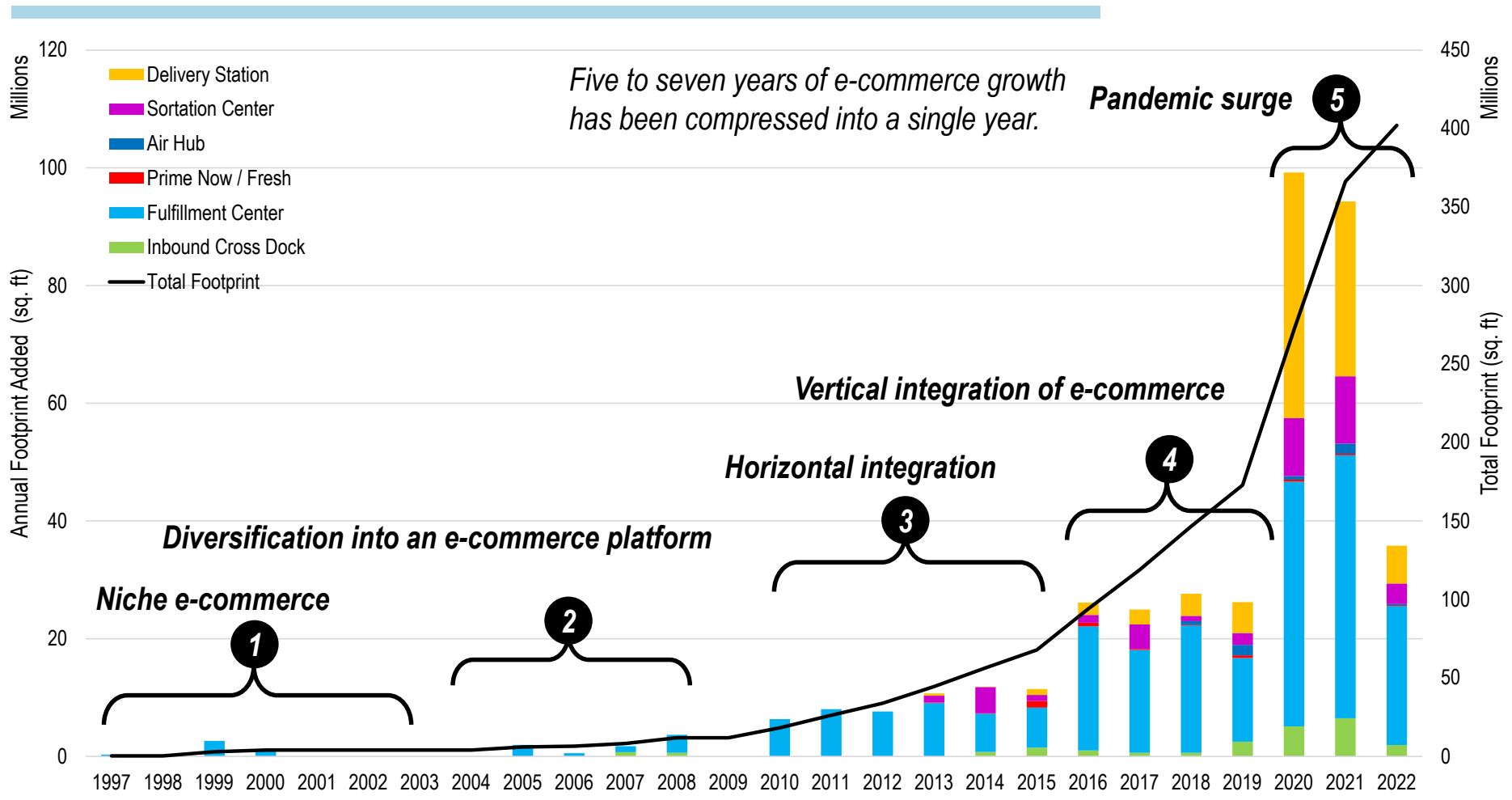


- Delivery Station (634)
- Fulfillment Center (335)
- Inbound Cross Dock (36)
- Prime Now / Fresh (80)
- Sortation Center (106)
- Air Hub (23)
- Amazon Fresh (80)

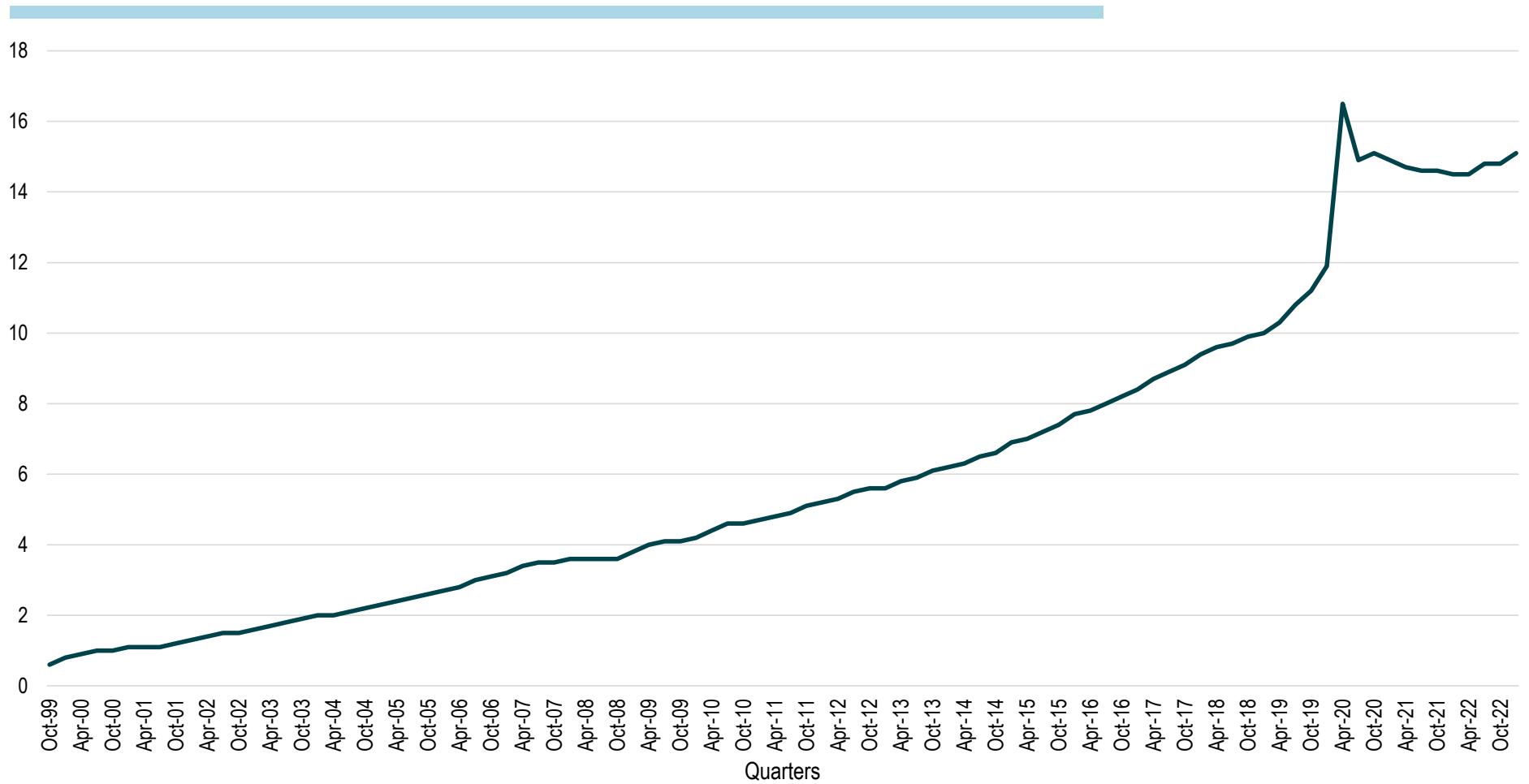
Average Facility Size (Standard Deviation)



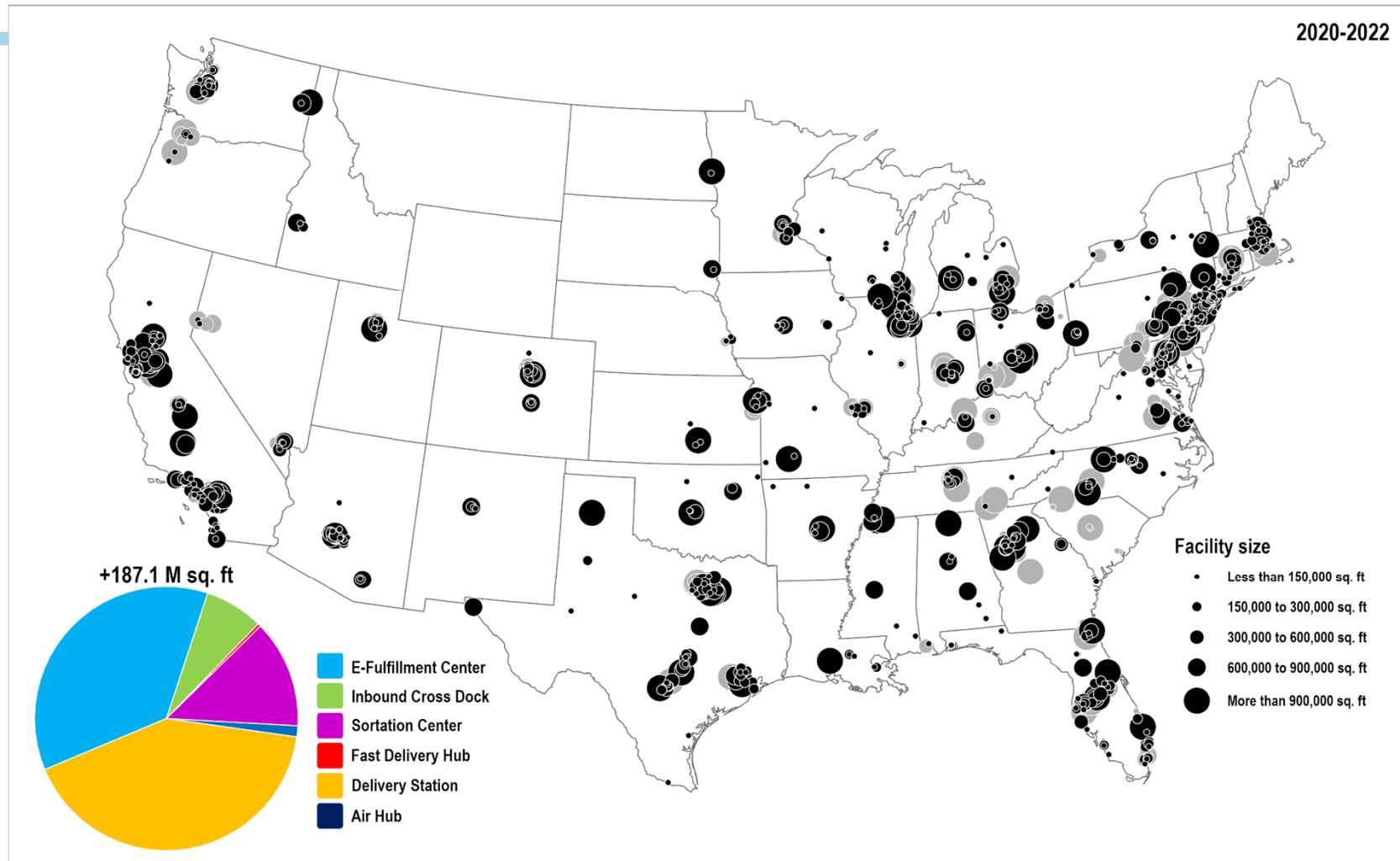
Annual Footprint added in Amazon Distribution Facilities

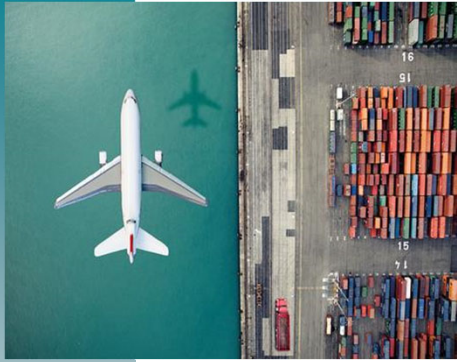


E-Commerce Retail Sales as a Percent of Total Sales, United States



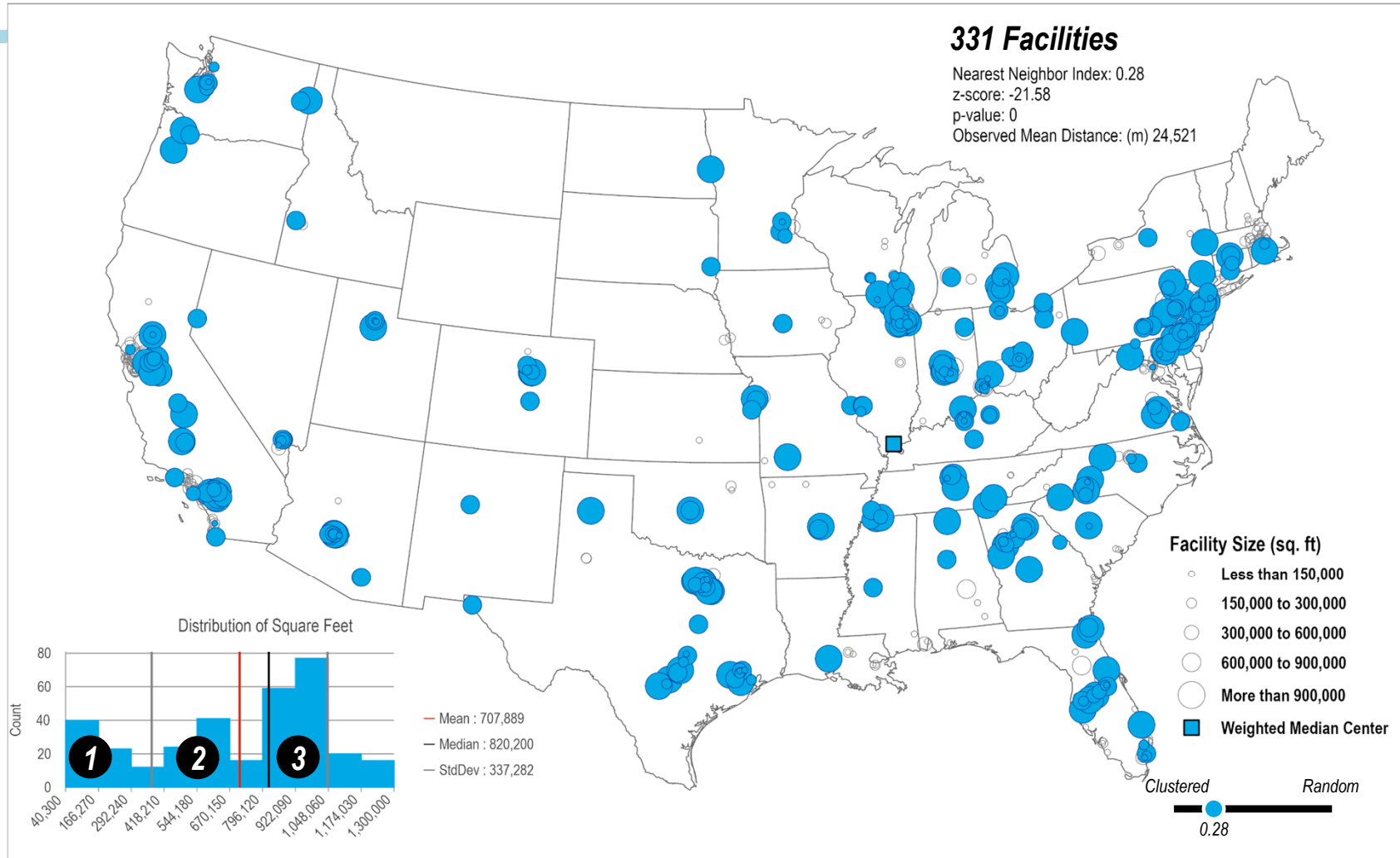
Annual Footprint added in Amazon Distribution Facilities, 2020-2022



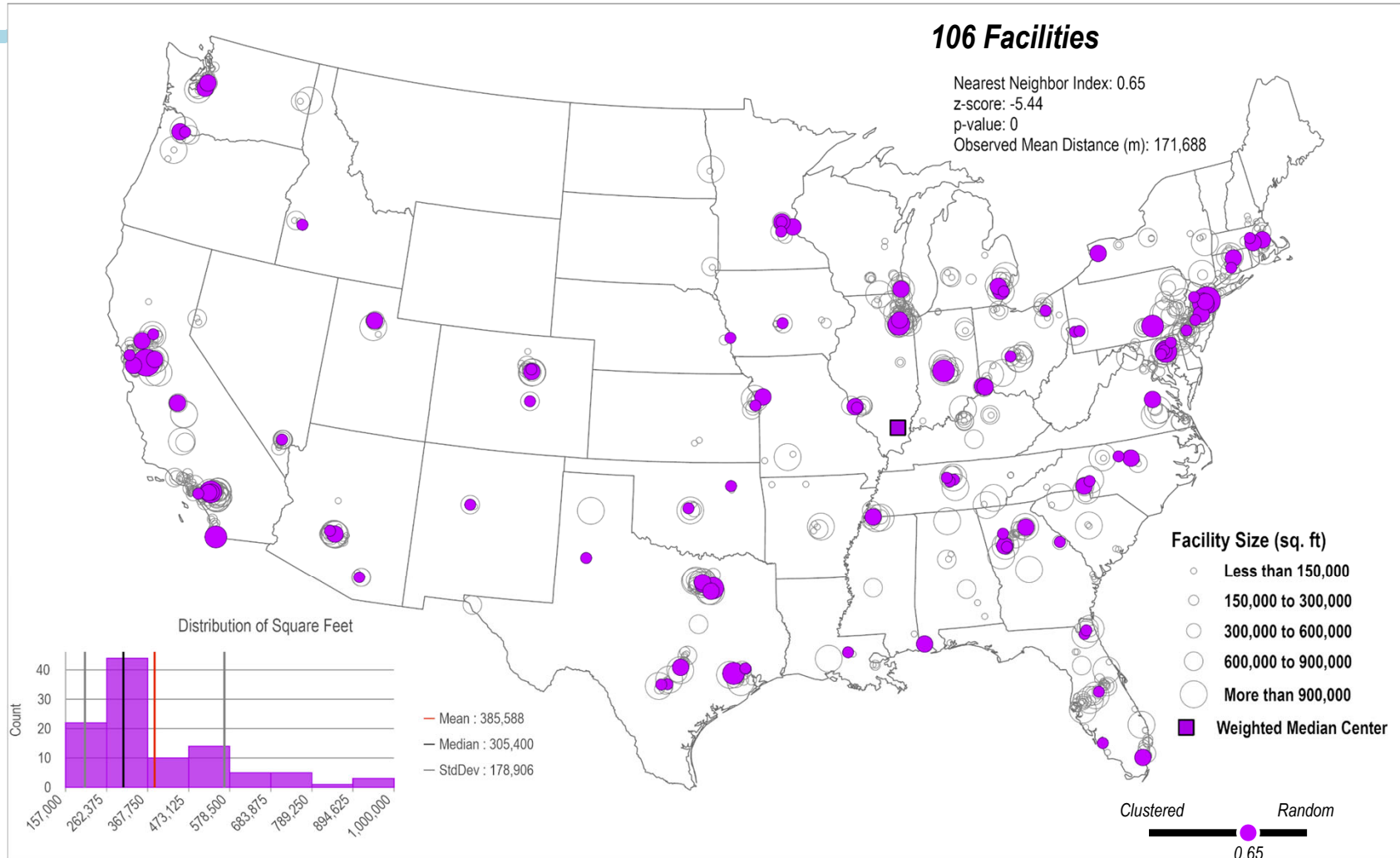


C – The Hierarchy of E-commerce Facilities: Distributional Places

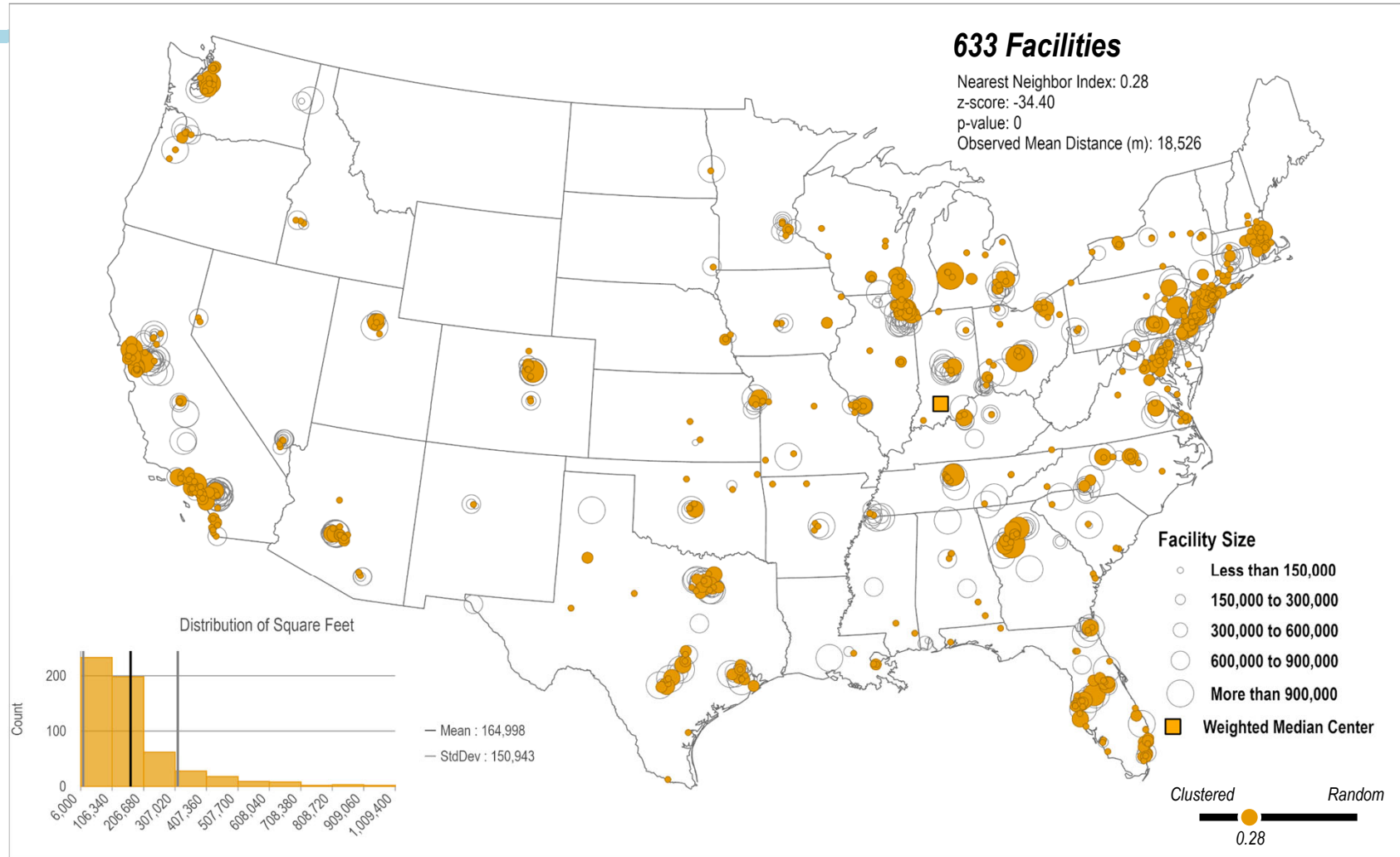
Amazon Fulfillment Centers Network



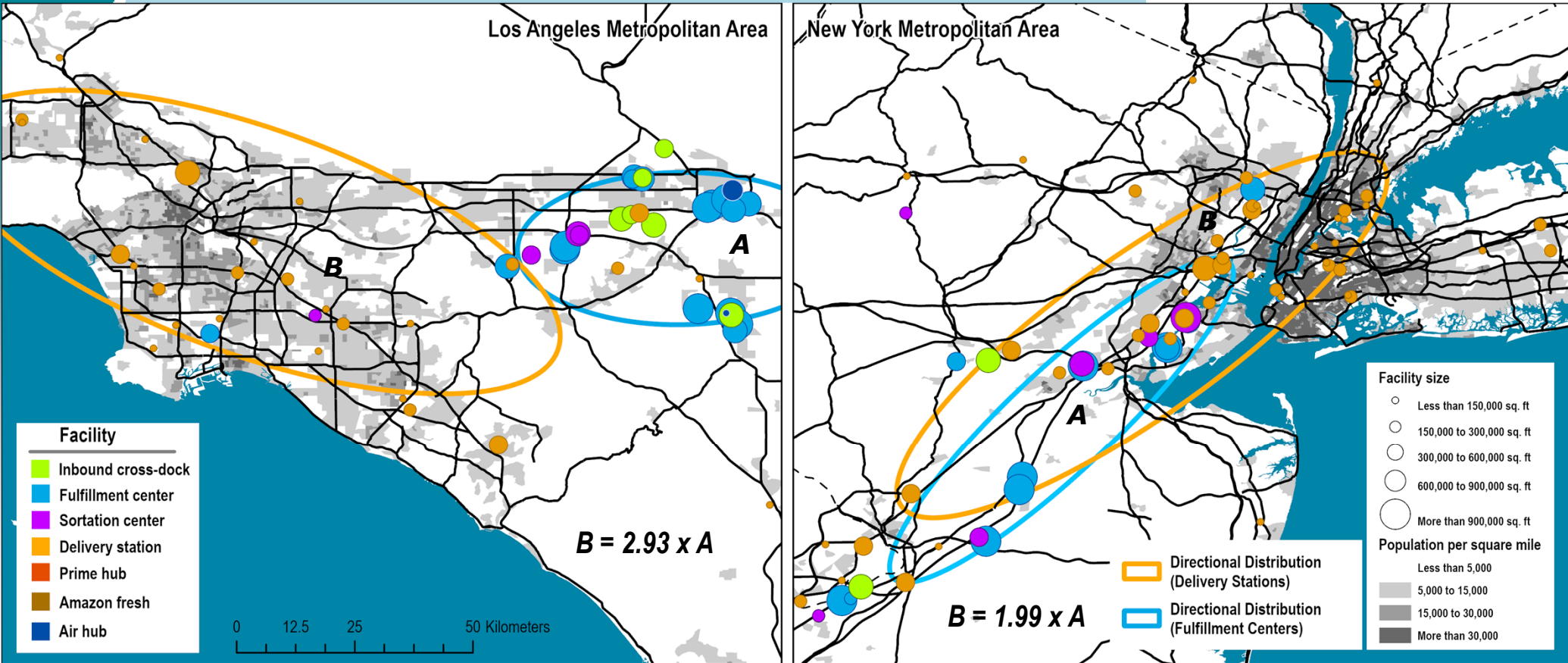
Amazon Sortation Centers Network



Amazon Delivery Stations Network



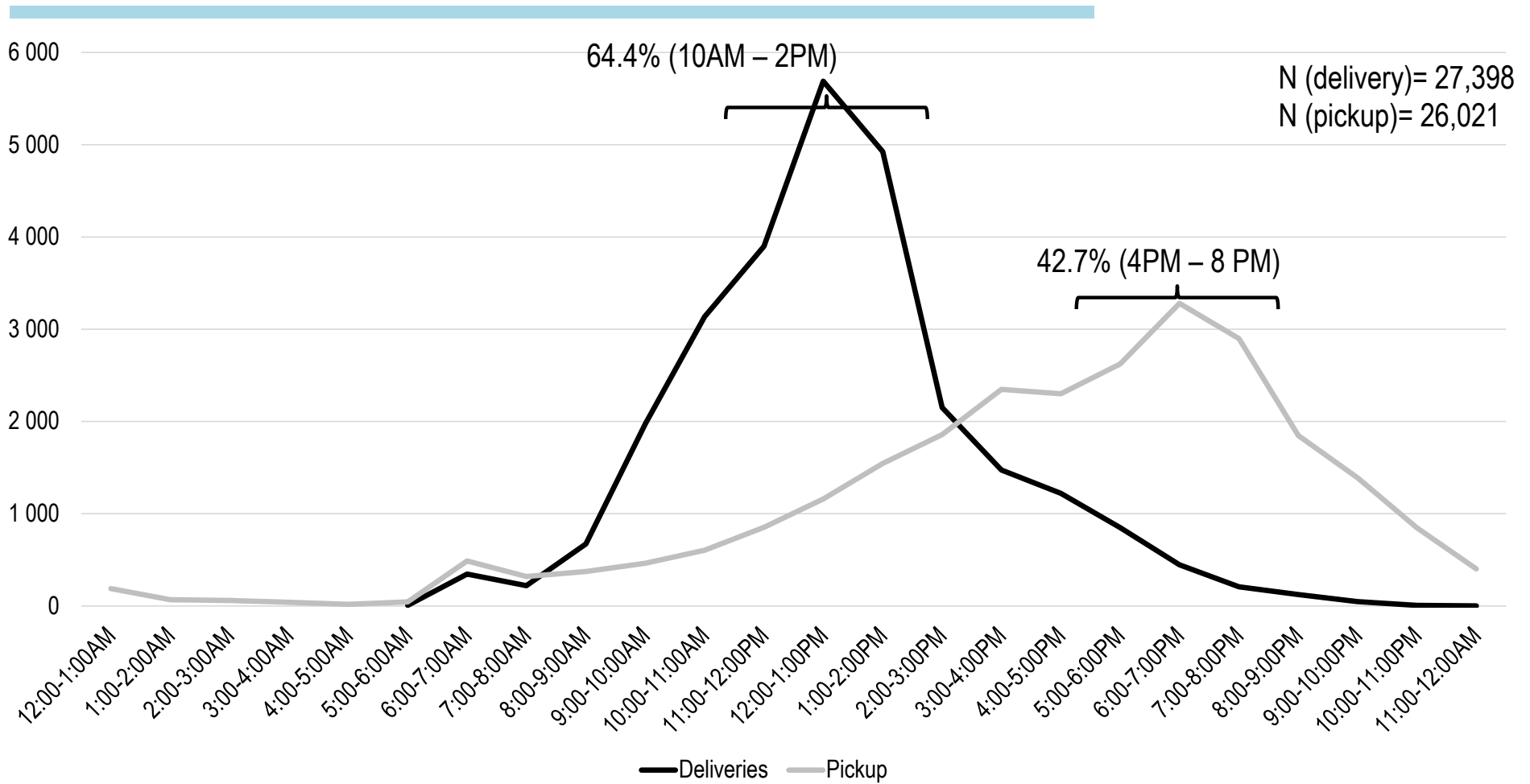
Location of Amazon's E-Commerce Facilities in the Los Angeles and New York Metropolitan Areas



A: Fulfillment cluster; IDX & EFC (75 km from CBD)

B: Last-mile cluster; PH, AFP, DS

Parcel Delivery and Pickup Time, 2019



Conclusion: Real Estate Economics of E-commerce

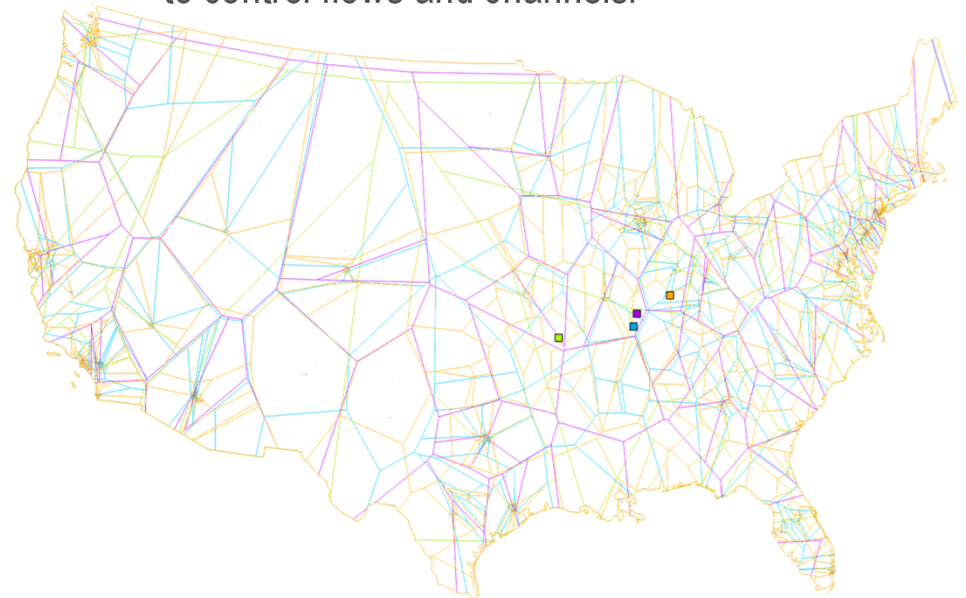


■ Logistical facilities (places)

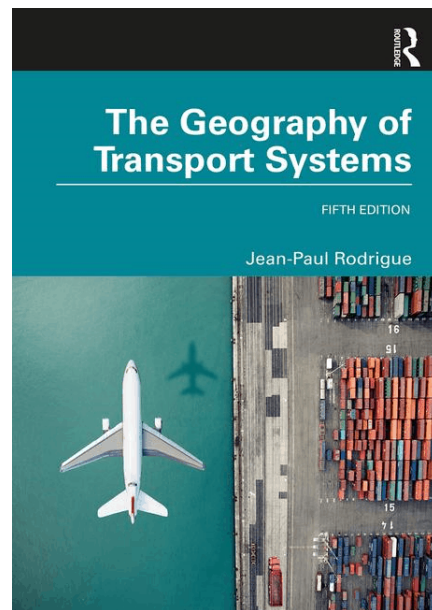
- Emergence of a hierarchy of specialized facilities.
- Distributional places fulfilling a role along the e-commerce supply chain:
 - Procurement & fulfillment.
 - Distribution.
 - Last mile.
- Function related to size.
- Functional specialization for e-fulfillment centers (e.g. sortable, non-sortable).

■ Horizontal and vertical integration

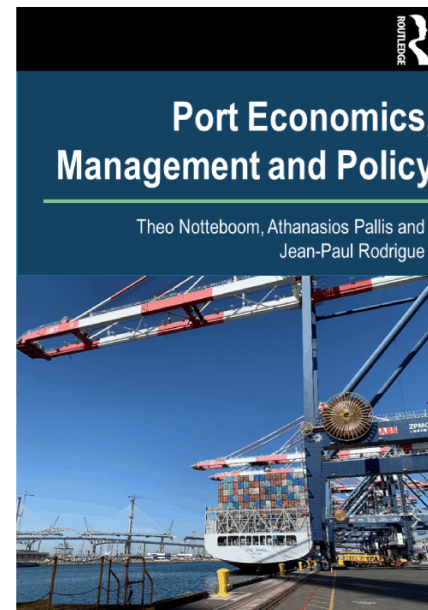
- Horizontal integration: using logistical facilities to expand market coverage and lead time.
- Vertical integration: using logistical facilities to control flows and channels.



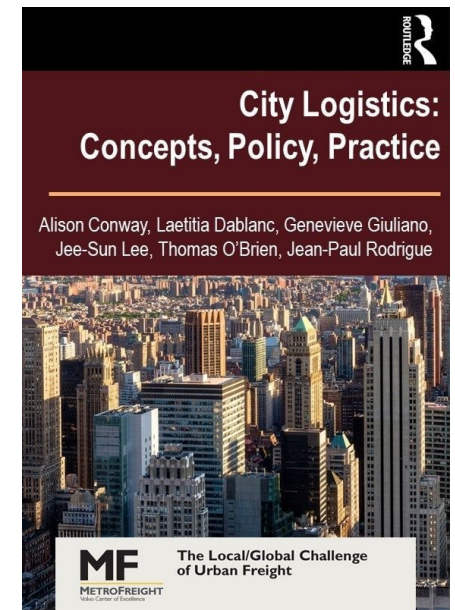
Thank you for your attention!



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