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Evolving Supply Chain Patterns

December 2017



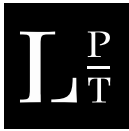


Liberty Property Trust:

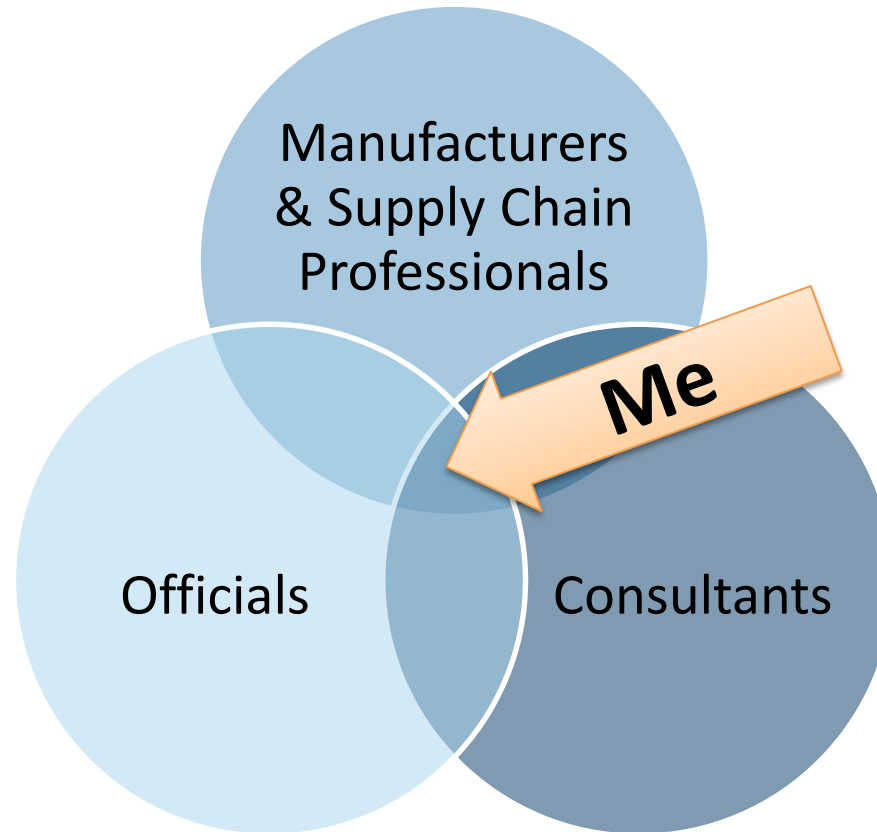
- Founded in 1990 (NYSE: LPT)
- US Industrial Portfolio: 100 Million SF
- 100+ eCommerce tenants

Pennsylvania Portfolio:

- 70 Tenants in 50 industrial buildings
- 27 million square feet
- 15 eCommerce tenants
- 6,000+- Jobs



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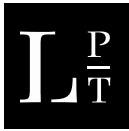
Michael Alderman

Liberty Property Trust

Vice President, Market Officer

malderman@libertyproperty.com





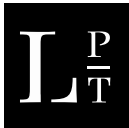
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What is a Supply Chain?

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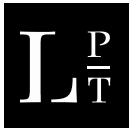


A supply chain is the network of all the individuals, organizations, resources, activities and technology involved in the creation and sale of a product, from the delivery of source materials from the supplier to the manufacturer, through to its eventual delivery to the end user.



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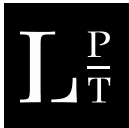
Transportation costs	\$ Billions
Full truckload	269.4
Less-than-truckload	58.0
Private or dedicated	268.1
Motor carriers	595.5
Parcel	86.3
Carload	52.6
Intermodal	19.3
Rail	71.9
Air freight (includes domestic, import, export, cargo, and express)	66.9
Water (included domestic, import, and export)	40.6
Pipeline	33.6
Subtotal	894.7
Inventory carry costs	
Storage	143.5
Financial cost (WACC x total business inventory)	143.4
Other (obsolescence, shrinkage, insurance, handling, other)	122.9
Subtotal	409.8
Other costs	
Carriers' support activities	44.7
Shippers' administrative costs	43.3
Subtotal	88.1
Total U.S. business logistics costs	1,392.64



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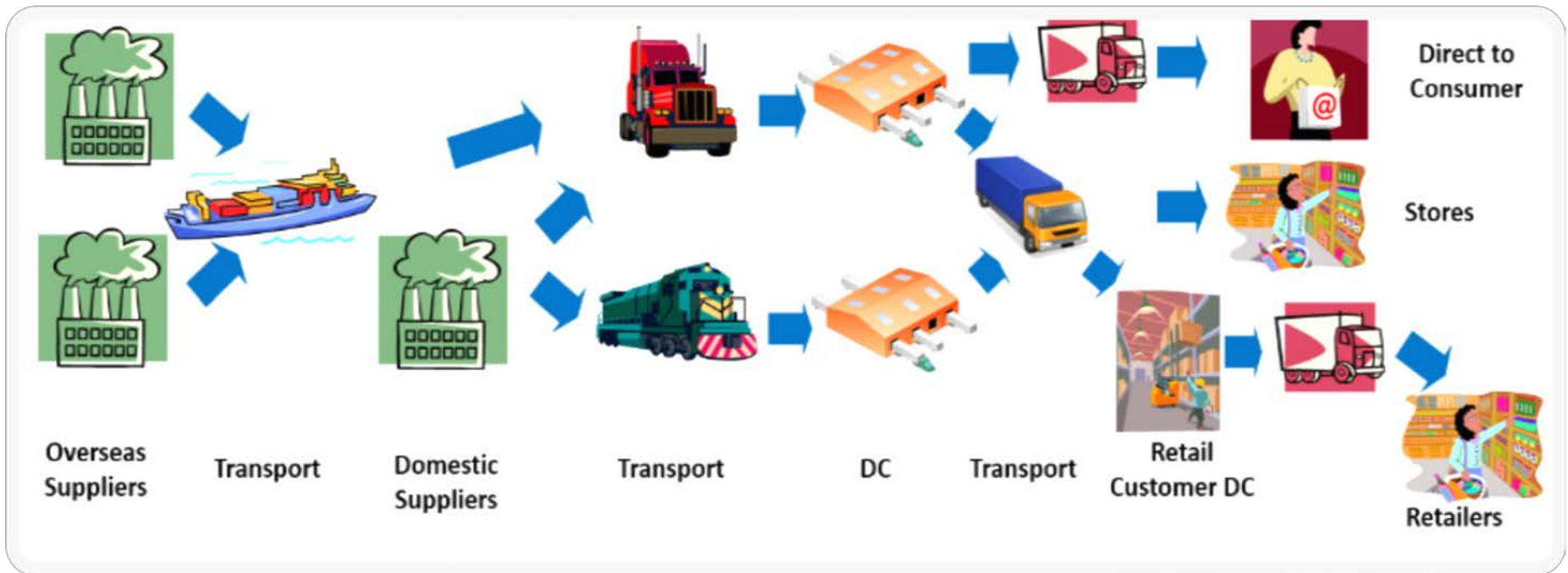
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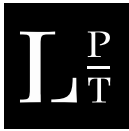
4.8% of GDP

8% of GDP

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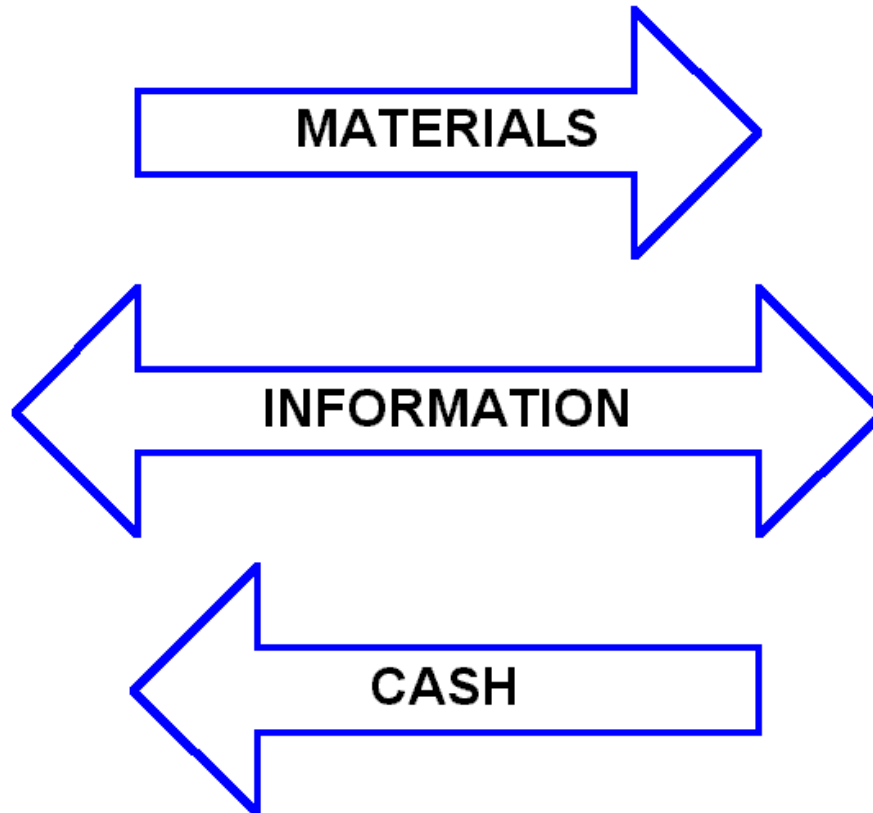
It's a Noun





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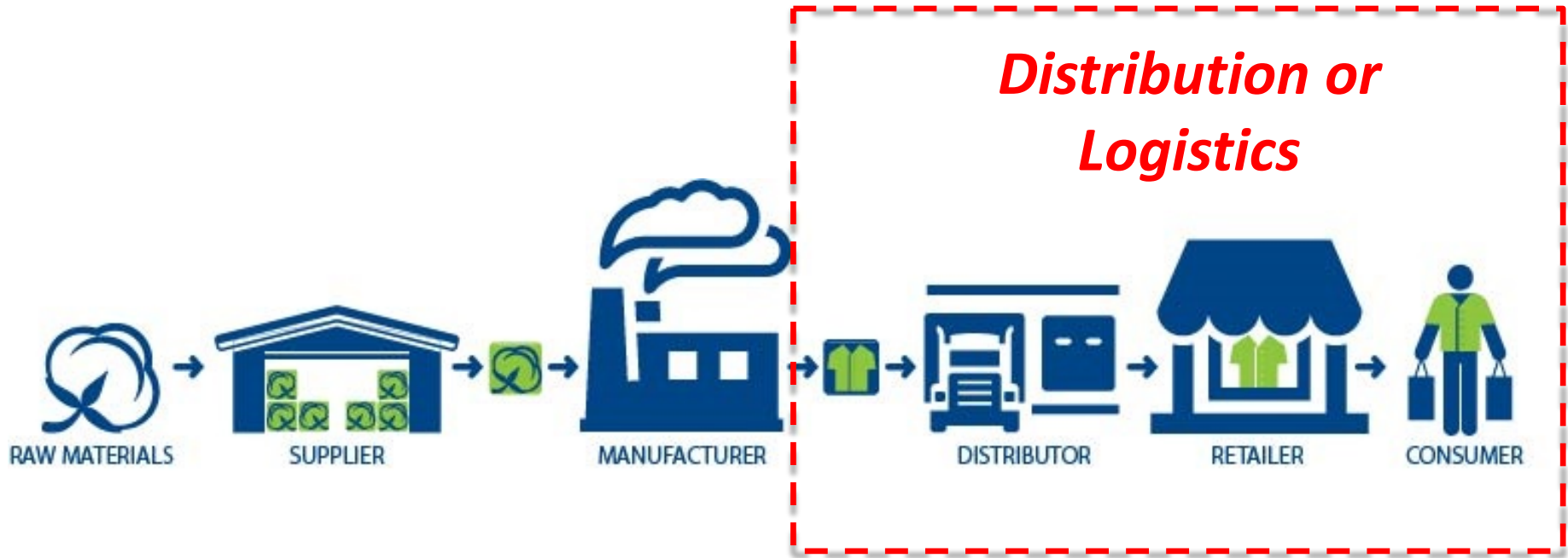
It's a Verb



It's an Equation

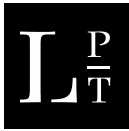
$$\begin{aligned} & a\%(\text{Materials}) \\ & b\%(\text{Transportation}) \\ & c\%(\text{Carry}) \\ & d\%(\text{Labor}) \\ + & \quad e\%(\text{Real Estate}) \\ \hline = & \text{Lowest Delivered Cost} * \end{aligned}$$

What is a Supply Chain?



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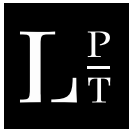
Supply Chain Evolution

**(From a dumb real estate guy's perspective.)*

Typical Industrial: 1985

150,000sf 24' Clear Height 1 Dock/10,000sf Sparse Parking

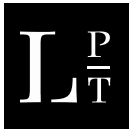




Typical Industrial: Today

600,000sf+ 36' Clear Height 1 Dock/5,000sf Dense Parking

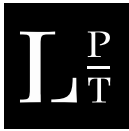




Supply Chain Evolution

Why?





Why?

“Five Game-Changers”

“ Five Game-Changers ”

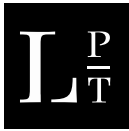
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“ Five Game-Changers ”

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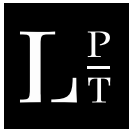
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3. **China Enters the WTO (2001)**

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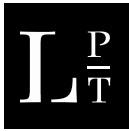
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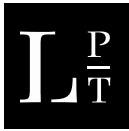




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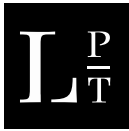
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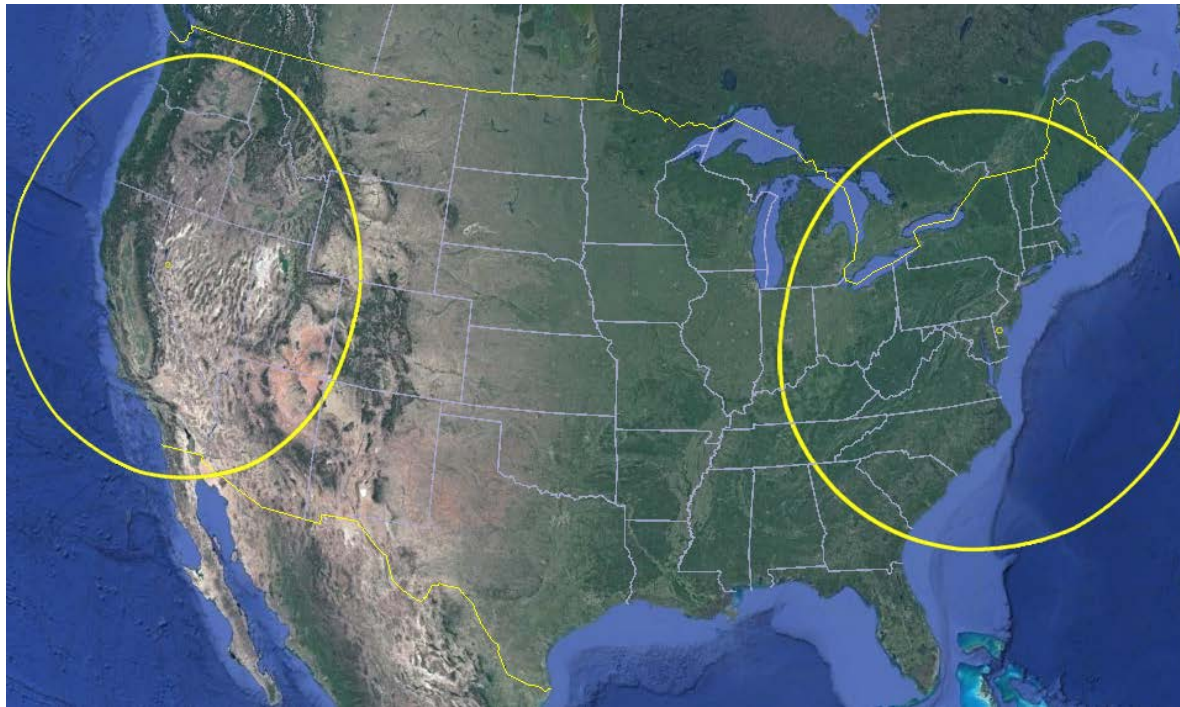
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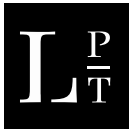
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4. eCommerce (2000 -)



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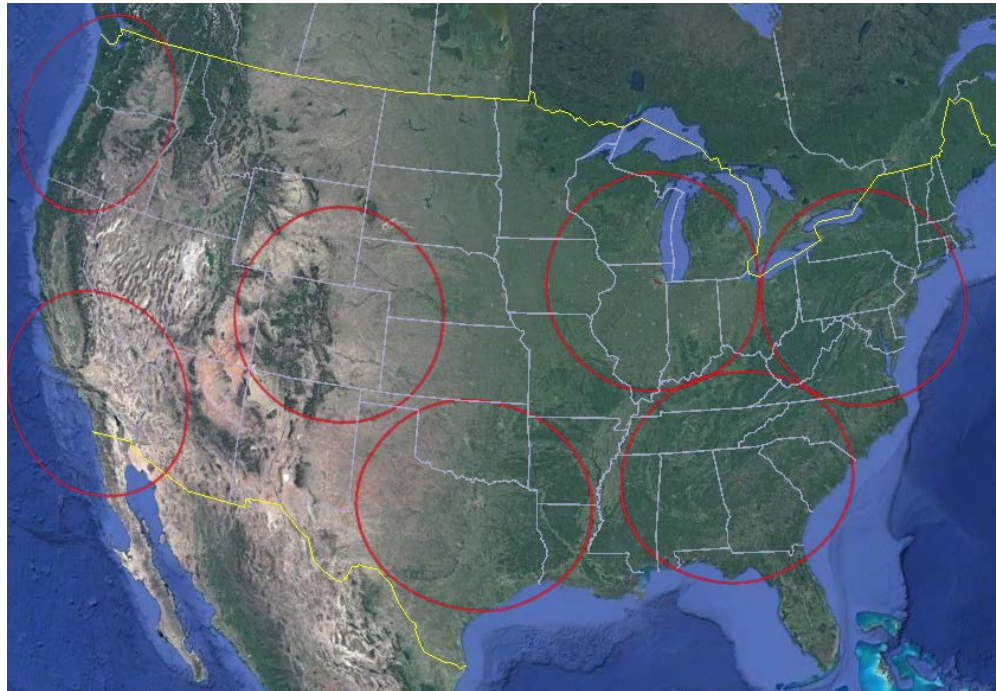
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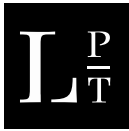




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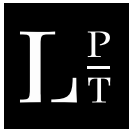


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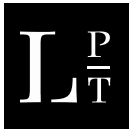


A perfect fit of Supply Chains designed on the assumptions of 3-day delivery by Regional Truckload and **Less-Than-Truckload** Volumes & Networks !



Typical Functions Performed by Light Industrial Facilities (1985 – 2010):

	ITE #'s (9 th)
Raw Materials Staging for Manufacturing	150
Assembly / Light-Manufacturing	150, 152
Finished Goods Inventory Buffer Inventory & Sales	152
Consolidation Point Fulfillment, Omni-Channel, Mixing	150
Import Center	152

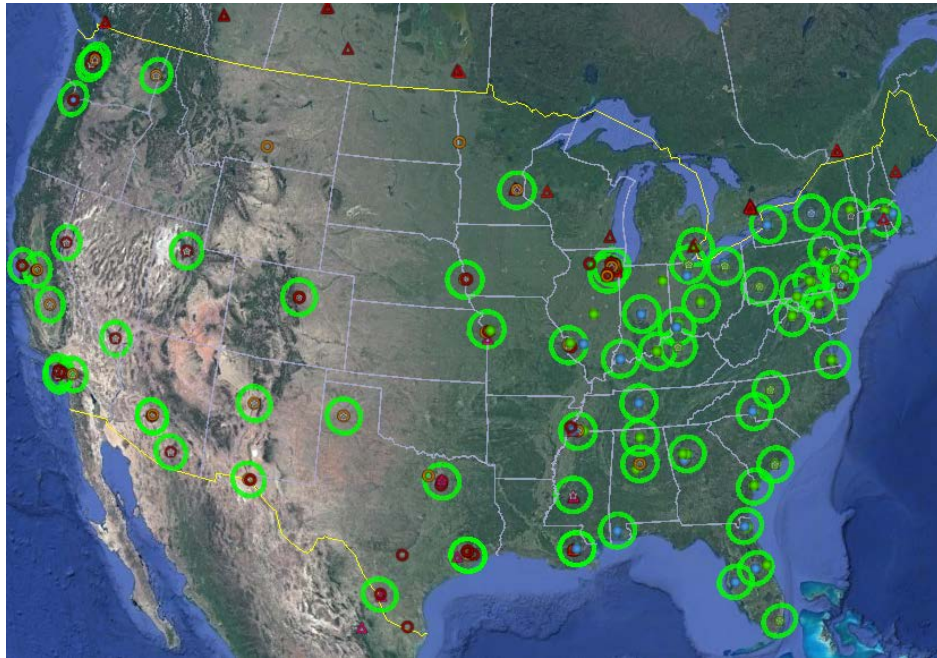


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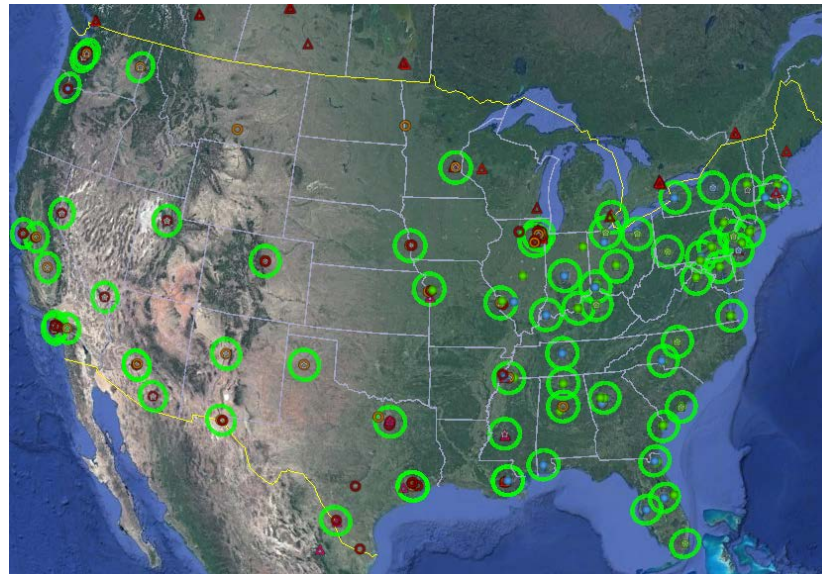
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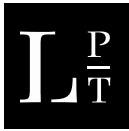
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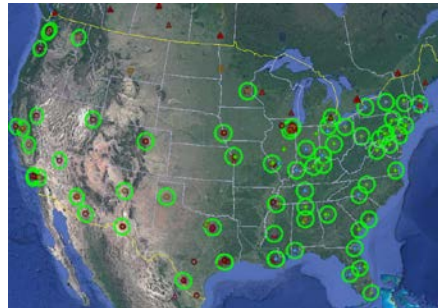
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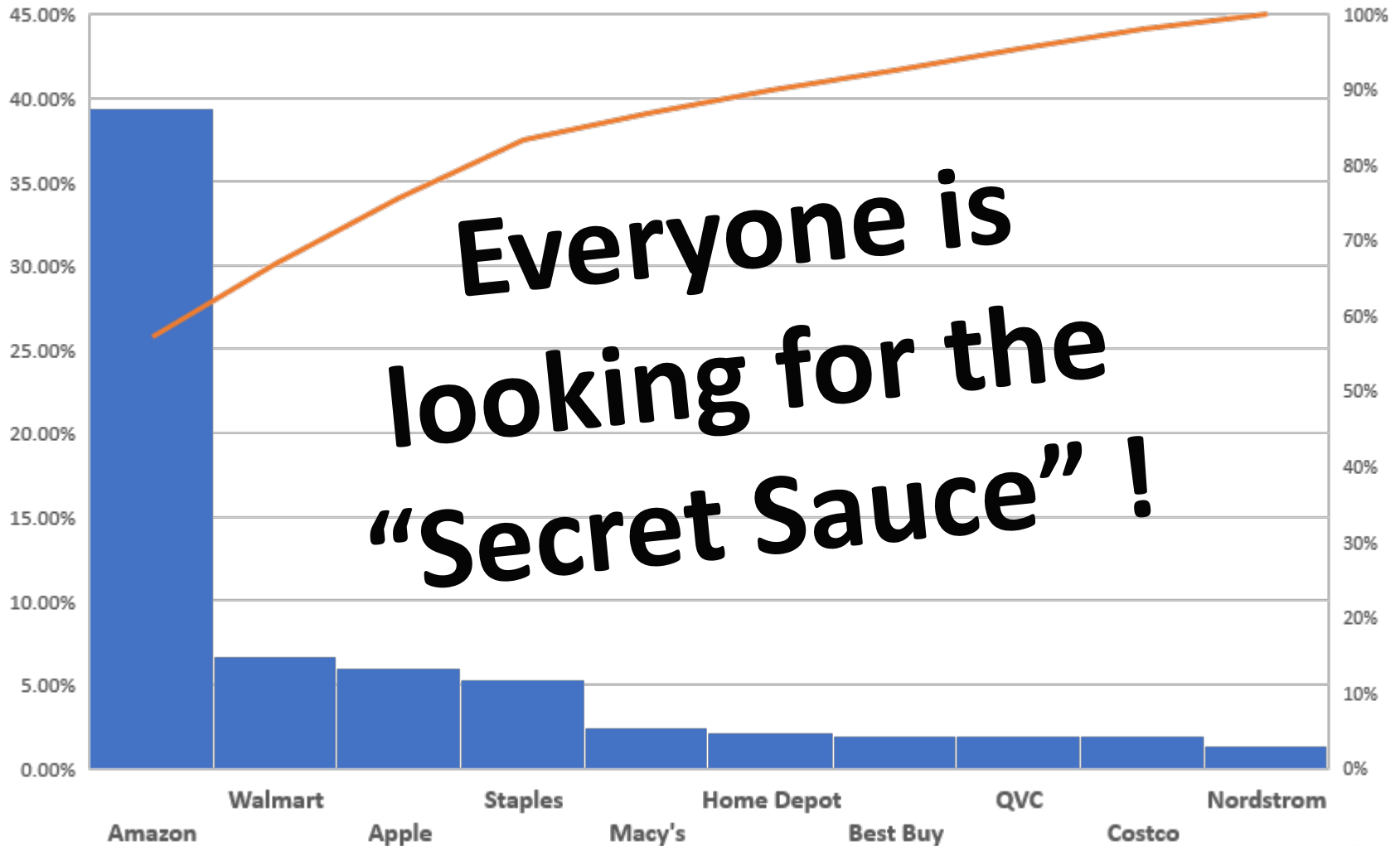
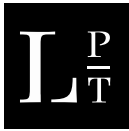


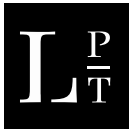
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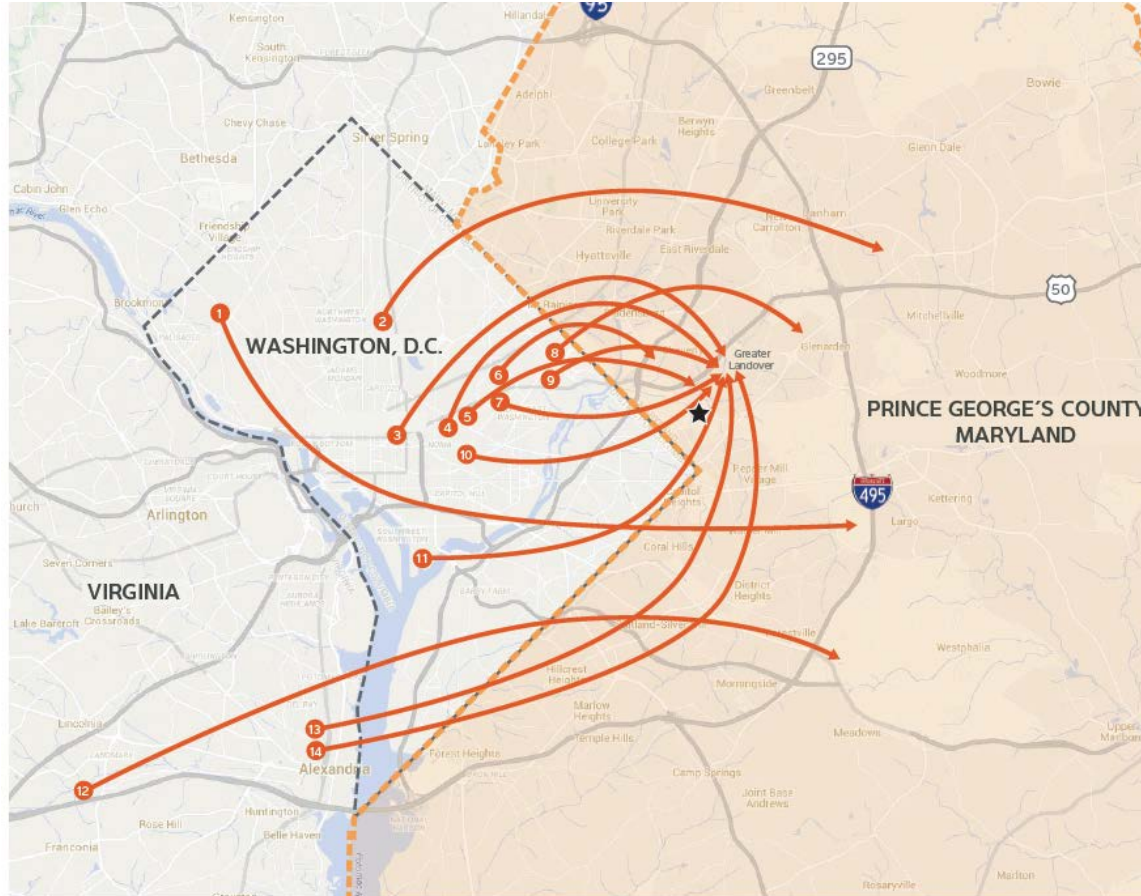


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Looking for the “Secret Sauce”

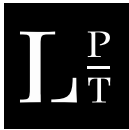


How to profitably deliver into urban areas?

Looking for the “Secret Sauce”

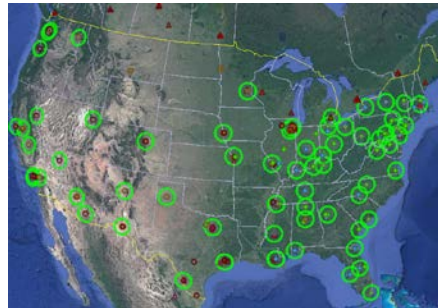
Facility Type	Currently Active Facilities	Future Facilities	Active Square Feet	Future Square Feet
Fulfilment Centers, Supplemental Centers & Return Centers	116	29	90,712,241	24,554,208
Pantry/Fresh Food FCs	20	3	3,560,803	713,917
Whole Foods Retail Grocery DCs	12	0	1,043,850	-
Prime Now Hubs	51	2	1,747,291	110,134
Inbound Sortation Centers	8	1	4,116,364	615,440
Outbound Sortation Centers	38	3	11,132,694	531,000
Delivery Stations	51	2	4,197,398	154,970
Other	3	0	112,665	-
Airport Hubs	0	1	-	3,350,000
SubTotal USA	299	41	116,623,306	30,029,669

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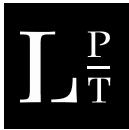
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A *mix* of functioning Supply Chain operations and *parcel-delivery experimentation* by participants unwilling to collaborate !

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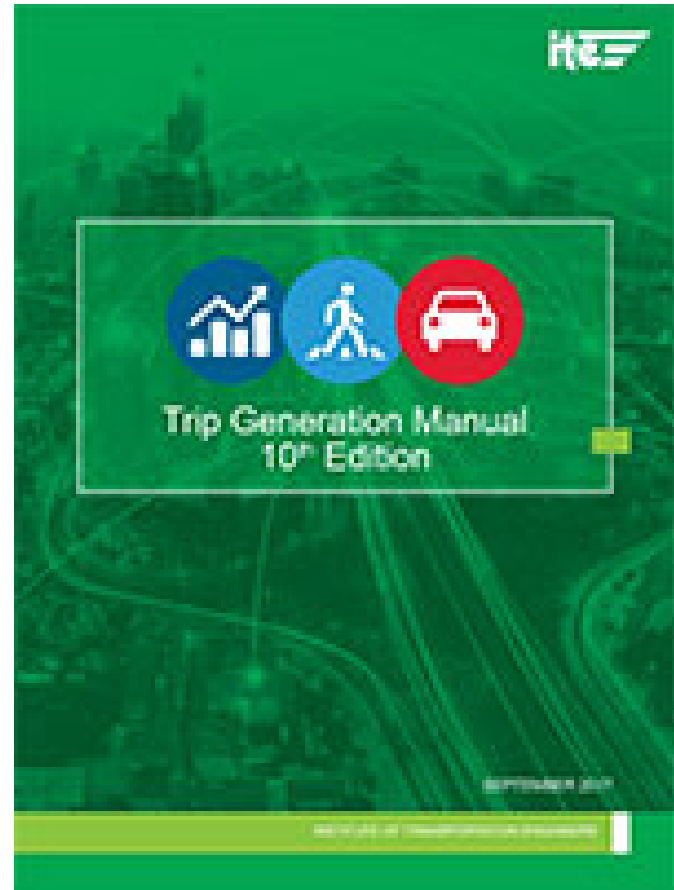




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Supply Chain Evolution

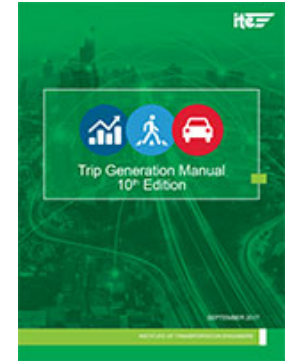


Supply Chain Evolution

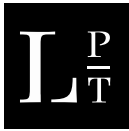


	Land Use
9th Edition Trip Generation Manual	Warehouse (ITE #150)
	High-Cube Warehouse/Distribution Center (ITE #152)
10th Edition Trip Generation Manual	Warehouse (ITE #150)
	High-Cube Transload and Short-Term Storage Warehouse (ITE #154)
	High-Cube Fulfillment Center Warehouse (ITE #155)
	High-Cube Parcel Hub Warehouse (ITE #156)
	High-Cube Cold Storage Warehouse (ITE #157)

Supply Chain Evolution



	Land Use	
9th Edition Trip Generation Manual	Warehouse (ITE #150)	<i>TL & LTL Trucking</i>
	High-Cube Warehouse/Distribution Center (ITE #152)	
10th Edition Trip Generation Manual	Warehouse (ITE #150)	<i>TL, LTL & Parcel Trucking</i>
	High-Cube Transload and Short-Term Storage Warehouse (ITE #154)	
	High-Cube Fulfillment Center Warehouse (ITE #155)	
	High-Cube Parcel Hub Warehouse (ITE #156)	
	High-Cube Cold Storage Warehouse (ITE #157)	



Evolving Expectations =

Faster

80% of Product Offerings

Multi-Channel / Omni-Channel

New Locations

New Building Types

New Freight Movements



eCommerce Facility Form Factors

Evolved:

Sortable

800,000sf

1000 – 2000 employees

30-100 trucks per day

Non-Sortable

500,000sf+

150 – 300 employees

10 – 50 trucks per day

Local hubs

100,000 – 300,000sf

100-300 employees

100+ trucks per day



eCommerce Facility Form Factors

Evolving

Fresh Food Fulfillment Centers 150,000sf +-

Subscriber Pick-up Hubs 50,000sf +-

Import Centers 500,000sf +-

Air Cargo facilities



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Thank you.

