DYNAMIC WAREHOUSING STRATEGIES FOR ECOMMERCE FULFILLMENT

[Pictures removed for ease of printing.]

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Agenda

- What is dynamic warehousing?
- Illustrative example
- Pros, cons, and trends

Story of one company

ThredUp: Ecommerce for used clothes (Recommerce).

Started in 2009. Until 2015: Single warehouse in California. Delivery times slow.

2015: New funding, open two new warehouses, to get items to customers as quickly as possible.

- Investors Business Daily, June 4, 2016.

Story of one company

"The first thing online clothing reseller ThredUp did after clinching a new round of funding last year? Hunt for strategic warehouse space to get the goods to its customers as fast as possible. Amazon.com has spoiled consumers for anything less."

- Investors Business Daily, June 4, 2016.

Amazon

As of June 2016, according to MWPVL Logistics, Amazon US has:
77 Fulfillment centers
26 Sortation centers
42 Prime Now hubs
18 Delivery/sortation centers

Plus 25 more planned.

How can any other retailer possibly compete on service?

Dynamic warehousing

What if you could rent warehousing space and service …
… on an on-demand basis,
… in small increments,
… from a large pool of geographically spread warehouses,
… on a pay-as-you-go basis?

This is the premise of dynamic warehousing.

Part of larger trend of Uberization / sharing economy / platform capitalism in the B2B space.

Flexe.com

Flexe.com: Provides on-demand warehousing services in an online marketplace.

Founded 2013, based in Seattle.

Currently, in approximately 250 locations in US.

Disclosure: This study was supported (funding and data) by Flexe.com.

LA-based business at startup

- $50M sales
- SKUs: 500
- Orders per year: 1M
- Units per order: 1.5
- Customer demand map: mirrors US population
- 1 current DC: 95k sqft in Ontario, CA
- Current delivery: 12% orders 2 days or less
- Transportation Cost-per-Order: $9.53
- Goal: 70-90% of orders delivered in 2 days or less

Scenario A: 70% orders within 2 days

	Within 2 days	Trans. cost / order
1 DC	12%	$9.53
3 DCs	70%	$7.76

3 DCs needed: Fullerton CA, Decatur IL, Statesville NC.
Standard ground parcel rates used for outbound transportation.

Network optimization and visualization on Starboard Solution's Tactician program.

Scenario B: 90% orders within 2 days

	Within 2 days	Trans. cost / order
1 DC	12%	$9.53
3 DCs	70%	$7.76
8 DCs	90%	$7.48

8 DCs needed.
Standard ground parcel rates used for outbound transportation.

Network optimization and visualization on Starboard Solution's Tactician program.

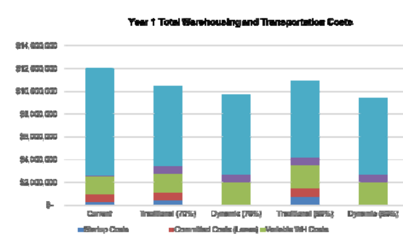
Scenario C: 90% orders within 1 day

16 DCs needed.

Cost comparisons

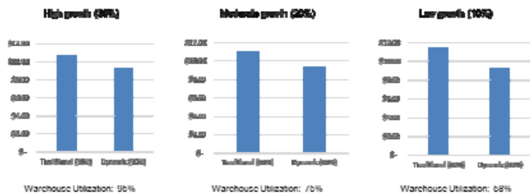
Lease term: 3 years (no growth)
Labor: 120 orders/day per FTE
Inbound transportation: FTL

Lease cost: $0.60/sqft per month
Dynamic WH costs: current Flexe rates
Outbound transportation: Standard parcel



Growth uncertainty

Suppose you've built up assuming 30% annual growth, but actual growth is different.



Dealing with Variability

If actual demand is highly variable compared to forecasts used for capacity planning, then cost per order can increase significantly.

Variability can arise in many forms:

- Growth rates different from forecast
- Products of some suppliers selling much faster than others
- Differences in cost structure [e.g. labor wage inflation much higher in some places than others]
- Geographical differences in demand

Geographical differences in demand

Q1: East Coast high

Geographical differences in demand

Q2: Shifting West

Geographical differences in demand

Q3: More West

Geographical differences in demand

Q4: West Coast high

What's not to like?

- Potentially higher cost
  - Although in this study marketplace rates suggested no cost differential, individual firms may well find self-owned/operated networks cheaper.
- Lack of cost certainty
  - Surge pricing?
- Systems integration
  - Order processing, integration with WMS and TMS, accounting, shrink, quality control, …

Hybrid system

Mix-and-match strategy:

- Use self-owned/operated or long-term 3PLs for base demand.
- Use dynamic warehousing to top-up and manage variability.
- List excess capacity on dynamic warehousing platform.

Most current listings on Flexe.com are for unused space in warehouses that already have long-term 3PL contracts.

Broader trends

Platform capitalism (also called sharing economy, gig economy, 1099 economy, etc.) is "disrupting" many B2C activities.

But, same economic rationale also operates in B2B space, with some bigger challenges.

for ocean freight,

for domestic trucking,

for last-mile and local deliveries, etc.

Changing economy

Economy is moving from big, integrated companies towards smaller atomic service providers connected by online marketplaces (platform capitalism).

Do you see this affecting your industries?

What are some interesting questions facing you?

Thank you!

Feedback, comments, questions welcome.

White Paper available by email to amitabh@umich.edu.