eCommerce, Last Mile and the Impact on Cities

Sucharita Kodali, VP & Principal Analyst

May 8, 2019
About Forrester and this research

› Forrester is a technology research firm that works with companies to help them with key strategic decisions

› We gather insights from quantitative and qualitative research

› Our research on eCommerce and last mile delivery has been ongoing for 10 years+
Agenda

› The state of eCommerce
› Last mile delivery now
› Solutions
› Other innovation
eCommerce is large and growing

Source: Forrester forecasts; includes most physical goods sales; excludes restaurants, travel, and auto sales
These countries have a double-digit percent of sales online already

Penetration of eCommerce as a % of all retail (2018)

Source: Forrester forecasts; includes most physical goods sales; excludes restaurants, travel, and auto sales
Three primary factors influence online shopping everywhere in the world

What It Means

Convenience
• 24/7 access
• Delivery direct to customer
• Opportunity to reach more customers
• Multichannel integration (e.g. in-store pickup, store inventory visibility)
• Payment flexibility (alternative payments, deferred payments)

Selection
• Depth of merchandise (more of best-selling items, fewer stockouts)
• Breadth of merchandise (variety of categories)
• Opportunity to configure merchandise
• Unique items unavailable in other channels
• Limited time, unique offerings

Value and price
• Value for money/"you get what you pay for"
• Merchant reliability
• Minimal shipping costs
• Lower pricing online
• Price transparency, growing with more mobile device penetration
## Top categories of eCommerce

### Total spent by shoppers in eCommerce

<table>
<thead>
<tr>
<th>US$B</th>
<th>China</th>
<th>US</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>$207</td>
<td>$81</td>
<td>$19</td>
</tr>
<tr>
<td>Electronics</td>
<td>$193</td>
<td>$68</td>
<td>$11</td>
</tr>
<tr>
<td>Household goods</td>
<td>$78</td>
<td>$33</td>
<td>$9</td>
</tr>
<tr>
<td>Food and drink</td>
<td>$92</td>
<td>$29</td>
<td>$10</td>
</tr>
</tbody>
</table>

Source: Forrester forecasts
These figures don’t include restaurant delivery, which is also growing

Total eCommerce sales (US$B, US only)

- Physical goods eCommerce
- Restaurant delivery

Source: Forrester forecasts
This will lead to a shakeout of the weakest stores and malls in the US

Source: ICSC
eCommerce results in a shakeout of stores, which leads to redevelopment

Struggling Westside Pavilion to be converted to office space for rent

New charter school comes to life inside former mall store
Amazon is a global eCommerce force

Total eCommerce in 2018 (US$B)

- **United States**: $360 ($179 for Amazon, $181 for Other eCommerce)
- **Germany**: $36 ($26 for Amazon, $10 for Other eCommerce)
- **Japan**: $78 ($18 for Amazon, $60 for Other eCommerce)
- **UK**: $70 ($18 for Amazon, $52 for Other eCommerce)
- **France**: $48 ($7 for Amazon, $41 for Other eCommerce)
- **China**: $678 ($6 for Amazon, $672 for Other eCommerce)
- **Canada**: $20 ($5 for Amazon, $15 for Other eCommerce)

Source: Forrester Online Marketplace Tracker; figures represent Amazon’s gross merchandise value in various markets
Prime is a big factor driving Amazon’s growth (US penetration)

Are you a member of a shipping club or program (i.e. Amazon Prime, Shoprunner)? (% responding yes)

OR % saying they subscribe to or use Prime

<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>12%</td>
<td>13%</td>
<td>21%</td>
<td>27%</td>
<td>36%</td>
<td>44%</td>
<td>55%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Source: Bizrate Insights/Connexity-Forrester Holiday Shopping Flash Survey; Forrester consumer surveys
Amazon’s profit pools help subsidize free shipping

Breakout of Amazon revenue in 2018

NA product: 45%
ROW product: 21%
Global 3rd party: 14%
Other revenue: 4%
AWS: 12%
Total: 100%

Global 3rd party includes marketplace and FBA; other revenue includes AMS and other marketing revenue; NA product includes all electronics, media, hardware, general merchandise and subscription fees from North America (non 3rd party) and ROW product includes all non-marketplace revenue not in the other categories outside of North America.
This has distorted the market for eCommerce

Faster shipping is the #1 priority of retailers

Drivers of why customer shop online

- Final price: 42%
- Free, no hassle returns: 34%
- Free expedited returns: 31%

Source: The State of Retailing Online 2018 (Forrester/NRF)
Agenda

› The state of eCommerce

› Last mile delivery now

› Solutions

› Other innovation
eCommerce translates into lots of packages being delivered

eCommerce package volume in US (billions)

Source: Forrester estimates (includes eCommerce and on-demand restaurant delivery)
eCommerce delivery has a number of problems

› **Expensive to execute**

› **Inefficient to execute**

  • Redelivery attempts, shipping items that were part of bigger and cheaper trips previously (e.g. meal kits), rural deliveries are mandatory for some carriers, seasonal needs drive disproportionate demand, higher rate of online orders are returned and unnecessary items shipped (i.e. shoppers bracketing sizes for home try-on)

› **Negative externalities for communities, especially cities**

  • Congestion, pollution/carbon footprint, roadway wear and tear, box and plastic package disposal
Shipping is expensive

Expenses for package delivery in the US

- No-promise ground delivery: $3
- Trackable ground: $9
- Express (e.g. 2 day): $15
- Same day: $20

Same-day delivery goes down substantially in developing markets (e.g. $1/delivery!)

Source: USPS; UPS and FedEx SEC filings; interviews with same-day delivery carriers
eCommerce should be more efficient than stores, but it’s not

<table>
<thead>
<tr>
<th></th>
<th>Fashion</th>
<th>Grocery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average order</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>$50</td>
<td>$80</td>
</tr>
<tr>
<td>SG&amp;A</td>
<td>$20</td>
<td>$10</td>
</tr>
<tr>
<td>Marketing</td>
<td>$20</td>
<td>$5</td>
</tr>
<tr>
<td>Shipping</td>
<td>$9</td>
<td>$7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1</td>
<td>-$2</td>
</tr>
</tbody>
</table>
eCommerce delivery has a number of problems

› *Expensive to execute*

› *Inefficient to execute*
  
  • Redelivery attempts, shipping items that were part of bigger and cheaper trips previously (e.g. meal kits), rural deliveries are mandatory for some carriers, seasonal needs drive disproportionate demand, higher rate of online orders are returned and unnecessary items shipped (i.e. shoppers bracketing sizes for home try-on)

› *Negative externalities for communities, especially cities*
  
  • Congestion, pollution/carbon footprint, roadway wear and tear, box and plastic package disposal
And it’s only going to get worse
On-demand mobility solutions in particular create congestion in urban environments

“significantly increased total driven distance”

Source: Study of Mobility on Demand solutions on congestion (Fiedler, Cap, Certicky, CTU in Prague, Czech Republic)
Agenda

› The state of eCommerce

› Last mile delivery now

› Solutions: reducing the impact of negative externalities

› Other innovation
1. Clustered local distribution from merchants

- Dark stores
- Commissary kitchens (e.g. Deliveroo)
- Postmates Party
2. Clustered pickup points for customers

› *Pickup at other stores*
› *Lockers*
› *Peach and Sweet Green*
› *Click and collect*
Click and collect has room for growth

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To avoid a wasted trip to the store</td>
<td>35%</td>
</tr>
<tr>
<td>I can collect my purchase the same day</td>
<td>34%</td>
</tr>
<tr>
<td>To avoid spending time finding the item I want in the store</td>
<td>34%</td>
</tr>
<tr>
<td>It's more convenient to collect from a store than have it delivered</td>
<td>26%</td>
</tr>
<tr>
<td>To avoid the mail-based return process if I end up not liking the item</td>
<td>19%</td>
</tr>
<tr>
<td>I don't have a good/safe place for a package to be delivered</td>
<td>9%</td>
</tr>
</tbody>
</table>

Source: Consumer Technographics® North American Retail And Travel 3 Survey, 2018
Shoppers are interested in alternative pickup points

Which of the following delivery options would you be interested in using when shopping online?

- Collect at a nearby convenience store: 26%
- Collect from a nearby locker: 23%
- Collect at a nearby coffee shop: 22%
- Collect at a nearby petrol/gas station: 19%

Source: Consumer Technographics® North American Retail And Travel 3 Survey, 2018
3. Carrots and sticks to shift demand

- Congestion fines during peak hours; no delivery to CBDs during peak hours
- Benefits for off-peak/nighttime deliveries
- On-demand pickup lanes/areas

Austin airport: 3,700 fewer cars causing congestion; +5 minute walk for passengers
4. Alternative vehicles to utilize sidewalks and/or reduce pollution

› Green vehicles

› Electric delivery trikes

› Sidewalk robots

› Scooters
5. Carrier-to-customer interfaces

**Receive alerts whenever a FedEx® package is sent to you.**
Sign up and see FedEx packages coming your way, including things you buy online. View arrival dates and take more control of delivery options. Don’t miss another delivery!

**Request to hold packages for pickup at a FedEx location, Walgreens and more.**
Use our Hold at Store option to pick up a package at a convenient location.

**Request a vacation hold.**
Going out of town? Request a vacation hold for your packages.

---

**How does it work?**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Member (Free)</th>
<th>Premium (Paid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Alerts</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Delivery Planner</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Estimated Delivery Time</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Authorize Shipment Release</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Hold for Will Call (UPS Customer Center)</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>&quot;Leave at&quot; Instructions</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Leave with Neighbor</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Deliver to a UPS Access Point™ location</td>
<td>✔️</td>
<td>☑️</td>
</tr>
<tr>
<td>Deliver my Package on Another Day</td>
<td>$</td>
<td>☑️</td>
</tr>
<tr>
<td>Deliver my Package to Another Address*</td>
<td>$</td>
<td>☑️</td>
</tr>
</tbody>
</table>
6. High prices overall

Amazon
$0.23/ounce

Target
$0.09/ounce
Agenda

› The state of eCommerce
› Last mile delivery now
› Solutions
› Other innovation
Last mile innovation is gradually coming

Maturity

- Delivery to cars
- Autonomous vehicles
- Robotic picking arms
- Drones

Curbside alerts for click and collect
Flex warehouse space

Impact on efficiency and cost reduction
Planners need to address the negative outcomes from eCommerce

- Free shipping has distorted the market for eCommerce and has resulted in negative externalities along the way

- Innovation is coming but it is years away, and does not diminish the need for community-devised parameters

- Urban planners need to act sooner rather than later to incent behavior that is beneficial to cites and to disincent bad behavior (e.g. congestion-inducing delivery of non-essential items during peak traffic hours)

- The customer experience for shoppers may decline, but the overall welfare of communities goes up
Thank you