CS 155b: E-commerce

Lecture 17: April 12, 2001
Introduction to B2C E-Commerce
(Acknowledgement: Helen Chiang)
E-Commerce Definitions

• Electronic commerce is a set of technologies, applications, and business processes that link business, consumers, and communities
  – For buying, selling, and delivering products and services
  – For integrating and optimizing processes within and between participant entities
What is B2C?

- B2C Commerce: Interactions relating to the purchase and sale of goods and services between a business and consumer—retail transactions.
- “Novelty” is that retail transaction is done on the Internet, rather than a “brick and mortar” store location.
- Technical evolution of B2C from “brick and mortar” model not new.
Revenue Models

• Sell goods and services and take a cut (just like B&M retailers).
  \textit{(e.g., Amazon, E*Trade, Dell)}

• Advertising
  – Ads only (original Yahoo)
  – Ads in combination with other sources

• Transaction fees

• Sell digital content through subscription.
  \textit{(e.g., WSJ online, Economist Intelligence Wire)}
A Different Approach to Location Retailing

• In 1886, a jeweler unhappy with a shipment of watches refuses to accept them
• A local telegraphy operator bought the unwanted shipment
• Used the telegraph to sell all the watches to fellow operators and railroad employees
• Becomes so successful that he quits his job and started his own enterprise, specializing in catalog sales
• Name: Richards Sears of Sears Roebuck
E-Commerce Retail Sales

Estimated Quarterly U.S. Retail E-Commerce Sales 4th Quarter 1999 - 4th Quarter 2000


Source: eMarketer
## Estimated Quarterly U.S. Retail Sales: Total and E-commerce

Data in millions of dollars. Not adjusted for seasonal, holiday, and trading-day differences.

<table>
<thead>
<tr>
<th>Period</th>
<th>Retail Sales</th>
<th>E-commerce</th>
<th>E-commerce as a Percent of Total Sales</th>
<th>Quarter to Quarter Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>E-commerce</td>
<td></td>
<td>Total Sales</td>
</tr>
<tr>
<td>4Q 1999</td>
<td>821,351</td>
<td>5,198</td>
<td>0.63</td>
<td>8035</td>
</tr>
<tr>
<td>1Q 2000</td>
<td>747,934</td>
<td>5,240</td>
<td>0.70</td>
<td>-8.9</td>
</tr>
<tr>
<td>2Q 2000</td>
<td>815,677</td>
<td>5,526</td>
<td>0.68</td>
<td>9.1</td>
</tr>
<tr>
<td>3Q 2000</td>
<td>812,158</td>
<td>6,393</td>
<td>0.79</td>
<td>-0.4</td>
</tr>
<tr>
<td>4Q 2000</td>
<td>856,234</td>
<td>8,686</td>
<td>1.01</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: Commerce Dept.
The State of B2C E-commerce in the U.S.

• U.S. consumers remain #1 the wired world as they increase frequency and volume of their online purchases
• But, the number of Internet purchases by U.S. consumers is second to the U.K.
• Among U.S. respondents using the Internet, 74% have purchased an item online in last 2 months, and 87% expect to make an online purchase in the next year.
US vs. the World

- Online buyers in the U.S. spent, on average, $898 last year shopping online.

- Worldwide: Median online expenditure total was $460.
Top Ten U.S. Purchase Categories

- Books: 52%
- Computers and computer-related products: 49%
- CD, recorded music: 49%
- Clothing: 37%
- Tickets/reservations: 29%
- Toys: 28%
- Electronic products, small "consumer": 28%
- Videos, filmed entertainment: 27%
- Cosmetics, fragrances, health and beauty aids: 25%
- Other: 18%
# Top 20 Internet Retailers (based on 1999 values)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Online Sales to U.S. Consumers</th>
<th>Past-Year Customers</th>
<th>Average 12-month Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>eBay</td>
<td>$3.5-3.7B</td>
<td>10M</td>
<td>$350</td>
</tr>
<tr>
<td>2</td>
<td>Amazon.com</td>
<td>1.7-1.9B</td>
<td>12M</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>Dell</td>
<td>1.1-1.3B</td>
<td>600K</td>
<td>2,000</td>
</tr>
<tr>
<td>4</td>
<td>buy.com</td>
<td>700-800M</td>
<td>3M</td>
<td>250</td>
</tr>
<tr>
<td>5</td>
<td>Egghead.com</td>
<td>500-600M</td>
<td>700K</td>
<td>800</td>
</tr>
<tr>
<td>6</td>
<td>Gateway</td>
<td>500-600M</td>
<td>350K</td>
<td>1,500</td>
</tr>
<tr>
<td>7</td>
<td>Quixtar</td>
<td>400-450M</td>
<td>600K</td>
<td>700</td>
</tr>
<tr>
<td>8</td>
<td>uBid</td>
<td>275-325M</td>
<td>600K</td>
<td>500</td>
</tr>
<tr>
<td>9</td>
<td>Barnes &amp; Noble</td>
<td>275-325M</td>
<td>3M</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>Cyberian Outpost</td>
<td>200-250M</td>
<td>425K</td>
<td>550</td>
</tr>
<tr>
<td>11</td>
<td>Value America*</td>
<td>200-250M</td>
<td>250K</td>
<td>900</td>
</tr>
<tr>
<td>12</td>
<td>MicroWarehouse</td>
<td>200-250M</td>
<td>175K</td>
<td>1,200</td>
</tr>
<tr>
<td>13</td>
<td>Office Depot</td>
<td>175-200M</td>
<td>250K</td>
<td>750</td>
</tr>
<tr>
<td>14</td>
<td>eToys.com</td>
<td>150-175M</td>
<td>1.7M</td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>Lands' End</td>
<td>150-175M</td>
<td>800K</td>
<td>200</td>
</tr>
<tr>
<td>16</td>
<td>The Spiegel Group</td>
<td>150-175M</td>
<td>450K</td>
<td>350</td>
</tr>
<tr>
<td>17</td>
<td>Fingerhut</td>
<td>150-175M</td>
<td>400K</td>
<td>375</td>
</tr>
<tr>
<td>18</td>
<td>CDW</td>
<td>150-175M</td>
<td>200K</td>
<td>800</td>
</tr>
<tr>
<td>19</td>
<td>JCPenney</td>
<td>150-175M</td>
<td>500K</td>
<td>300</td>
</tr>
<tr>
<td>20</td>
<td>Gap</td>
<td>125-150M</td>
<td>800K</td>
<td>175</td>
</tr>
</tbody>
</table>

*Source: National Retail Association*
Open Issues in E-commerce

- Globalization
- Contractual and Financial Issues
- Ownership
- Privacy and Security
- Interconnectivity and Interoperability
- Deployment

Barriers to E-commerce (U.S.):
Old retail inconveniences and inefficiencies

1. Concern that credit card will be stolen
2. Item is still high cost
3. Item is very large
4. Personal sizing, fit are important
5. High shipping costs

source: Ernst & Young
First-Generation B2C

- Main Attraction: Lower Retail Prices
- “B2C Pure Plays” could eliminate intermediaries, storefront costs, some distribution costs, etc.
- Archetype: www.amazon.com
Basic Problems Encountered Immediately

- “Customer-Acquisition Costs” are huge.
- Service is technically commoditizable, and there are no significant network effects.
- Customers’ switching costs are tiny.
  (Lock-in to online book-buying is high. Lock-in to Amazon is low. Recall Netscape and IE.)
- Competition is fierce in almost all segments. Few e-tailers are profitable.
- Investors have run out of money and patience.
Internet Customer Acquisition Costs

Customer acquisition cost = total spent on advertising and marketing divided by the total number of new customers obtained

- Amazon.com ➔ $29
- DLJ Direct ➔ $185
- E*Trade ➔ $257
- Various E-Commerce Sites ➔ $34
E-tailing is Difficult in Low-Margin Businesses

• Toys (e-Toys.com)
  – Typical online order contributes $11 to gross revenues.
  – Warehouse, marketing, website, and other fixed overhead is high.
  – A pure-play e-tailer needs to capture at least 5% of the toy market to reach profitability.

• Groceries (Webvan.com, Peapod.com)
  – Typical online order contributes $9 to gross revenue (fulfillment costs are very high).
  – Steady customer orders ~30 times/year.
  – McKinsey/Salomon-Smith-Barney’s estimate of the value of one steady customer: ~$900 over 4 years.
Current Theories (after first shake-out)

- High order frequency and large order size are more important than large customer base.
- E-tailers should strive for average order sizes of $>50 and concentrate on high-margin product categories (>35%).
  [Traditional grocery margins: 2-3%.]
- Concentrate on making transactions profitable, not on VC-supported market-share wars.
- Combine e-tailing with B&M stores.
“Multi-Channel” Retail (B2C w/ B&M)

• Exploit multiple marketing and distribution channels simultaneously
  – B&M (“bricks and mortar”) stores: Customers browse on the web before going to the store.
  – Catalog sales, telephone, tv advertising,…

• In 1999, multi-channel retailers (i.e., B&Ms or traditional catalog companies that also sell online) made up 62% of B2C e-commerce. Mostly high-margin sales, e.g., computers, tickets, and financial service.

• Projected to reach 85% in next 5 years. (Source: Boston Consulting Group)
The beauty of bricks and mortar

Online marketing costs

Online sales
Advantages of Multi-channel Retail

- Leverage existing brands.
- Biggest B&M retailers have huge clout. (Walmart’s annual sales are $138B, much more than all e-tailers’ combined.)
- Profits from existing channels can subsidize e-tail start-up. No need to quit when VCs lose interest.
- Use established distribution and fulfillment infrastructure (e.g., LL Bean, Land’s End,…).
- Cross-marketing and cross-datamining.
E-tailers are Adding “Offline” Channels

- Alloy.com sold clothes and accessories, but it became a hit only after its catalog was launched.
- Drugstore.com once dismissed B&M retailing, but it agreed to sell a 25% stake to Rite-Aid not long after rival Soma.com was bought by CVS.
- Gateway sells computers through WWW and catalog, but it also has 164 stores across U.S. They carry little stock, but they allow customers to “get a feel for the product” before ordering it.