CS155a: E-Commerce

Lecture 10: October 9, 2001

B2C E-Commerce, Continued

Acknowledgement: H. Chiang
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)
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.
Revenue Models for Online Ads

- “Number of Impressions” (How many times does the user cause the advertiser’s content to be displayed?)
- “Click Through” (How many times does the user click on the ad to go to the advertiser’s site?)
- “Pay-per-sale” (How many times does the user click through and then buy something?)
Top Online Advertisers
(By Impressions) Source: Nielsen/NetRatings (9/23/01)

1. Microsoft Corp
2. Aol Time Warner Inc
3. Bertelsmann Ag
4. Yahoo! Inc
5. Providian Financial Corp
6. Nextcard Inc
7. Classmates Online Inc
8. Barnes & Noble Inc
9. Ebay Inc
10. Amazon.Com Inc
11. Cablevision Systems Corp
12. Cassava Enterprises Ltd
13. Citigroup Inc
14. Bank One Corp
15. Sony Corp
16. Zairmail Inc
17. American Red Cross
18. American Movie Classics Co
19. Coolsavings.Com Inc
20. Ediets.Com Inc
21. Ameritrade Holding Corp
22. Bonzi.Com Software
23. Homestore.Com Inc
24. Telefonica Sa
25. Microgaming Jackpot Network
Status as of 4th Quarter 2000

- 3% of all ads; radio twice as big
- 55% of online ads are by dot coms
- 79 companies place 1/2 of all online ads
- Most ads run on 1 site for <3 weeks
  - Portals and Search Engines host more ad impressions than any other type of site (44%).
  - 63% of ad impressions have a “branding focus”
## Top 25 National Advertisers

<table>
<thead>
<tr>
<th>Rank</th>
<th>Advertiser</th>
<th>Total U.S. ad spending in 1999</th>
<th>Network TV</th>
<th>Spot TV</th>
<th>Network radio</th>
<th>National spot radio</th>
<th>Internet</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Motors Corp.</td>
<td>4,040,374.00</td>
<td>887,893.20</td>
<td>503,807.40</td>
<td>5,963.20</td>
<td>28,189.50</td>
<td>25,074.10</td>
<td>0.62%</td>
</tr>
<tr>
<td>2</td>
<td>Procter &amp; Gamble Co.</td>
<td>2,611,766.60</td>
<td>621,527.30</td>
<td>113,294.70</td>
<td>10,265.90</td>
<td>10,838.70</td>
<td>8,039.30</td>
<td>0.31%</td>
</tr>
<tr>
<td>3</td>
<td>Philip Morris Cos.</td>
<td>2,201,600.90</td>
<td>383,215.50</td>
<td>200,873.10</td>
<td>2,995.30</td>
<td>10,613.00</td>
<td>873.00</td>
<td>0.04%</td>
</tr>
<tr>
<td>4</td>
<td>Pfizer</td>
<td>2,142,433.70</td>
<td>364,704.20</td>
<td>59,059.30</td>
<td>11,805.10</td>
<td>1,425.90</td>
<td>1,254.20</td>
<td>0.06%</td>
</tr>
<tr>
<td>5</td>
<td>AT&amp;T Corp.</td>
<td>1,950,871.20</td>
<td>258,716.10</td>
<td>100,987.90</td>
<td>8,249.80</td>
<td>32,705.00</td>
<td>13,644.80</td>
<td>0.70%</td>
</tr>
<tr>
<td>6</td>
<td>DaimlerChrysler</td>
<td>1,804,055.50</td>
<td>286,520.60</td>
<td>664,880.60</td>
<td>2,068.30</td>
<td>23,610.50</td>
<td>9,958.30</td>
<td>0.55%</td>
</tr>
<tr>
<td>7</td>
<td>Ford Motor Co.</td>
<td>1,639,761.50</td>
<td>364,899.10</td>
<td>229,678.40</td>
<td>4,959.40</td>
<td>16,981.00</td>
<td>13,638.50</td>
<td>0.83%</td>
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<tr>
<td>8</td>
<td>Sears, Roebuck &amp; Co.</td>
<td>1,505,205.50</td>
<td>186,855.70</td>
<td>48,573.40</td>
<td>12,343.00</td>
<td>7,859.90</td>
<td>1,444.40</td>
<td>0.10%</td>
</tr>
<tr>
<td>9</td>
<td>PepsiCo</td>
<td>1,315,712.50</td>
<td>189,049.90</td>
<td>62,371.00</td>
<td>0</td>
<td>5,454.30</td>
<td>581.30</td>
<td>0.04%</td>
</tr>
<tr>
<td>10</td>
<td>Verizon Communications</td>
<td>1,312,749.00</td>
<td>1,690.50</td>
<td>135,634.90</td>
<td>0</td>
<td>74,497.40</td>
<td>1,876.20</td>
<td>0.14%</td>
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<tr>
<td>11</td>
<td>Walt Disney Co.</td>
<td>1,304,002.20</td>
<td>242,015.30</td>
<td>128,353.70</td>
<td>1,578.80</td>
<td>23,867.90</td>
<td>16,360.50</td>
<td>1.25%</td>
</tr>
<tr>
<td>12</td>
<td>Time Warner</td>
<td>1,202,905.90</td>
<td>189,959.60</td>
<td>97,659.40</td>
<td>1,999.20</td>
<td>35,172.00</td>
<td>7,487.40</td>
<td>0.62%</td>
</tr>
<tr>
<td>13</td>
<td>Diageo</td>
<td>1,198,445.20</td>
<td>269,970.40</td>
<td>78,186.80</td>
<td>0</td>
<td>34,430.10</td>
<td>80.7</td>
<td>0.01%</td>
</tr>
<tr>
<td>14</td>
<td>McDonald's Corp.</td>
<td>1,134,802.30</td>
<td>296,766.10</td>
<td>179,444.60</td>
<td>36.9</td>
<td>3,238.90</td>
<td>599.60</td>
<td>0.05%</td>
</tr>
<tr>
<td>15</td>
<td>IBM Corp.</td>
<td>1,128,462.30</td>
<td>105,545.30</td>
<td>10,526.60</td>
<td>0</td>
<td>11,748.40</td>
<td>32,158.80</td>
<td>2.85%</td>
</tr>
<tr>
<td>16</td>
<td>Intel Corp.</td>
<td>1,119,330.40</td>
<td>77,448.20</td>
<td>2,573.00</td>
<td>0</td>
<td>7,391.20</td>
<td>13,464.10</td>
<td>1.20%</td>
</tr>
<tr>
<td>17</td>
<td>WorldCom</td>
<td>1,108,381.50</td>
<td>274,400.00</td>
<td>21,760.20</td>
<td>0</td>
<td>5,030.10</td>
<td>5,581.50</td>
<td>0.50%</td>
</tr>
<tr>
<td>18</td>
<td>Viacom</td>
<td>1,064,529.80</td>
<td>115,080.10</td>
<td>192,982.50</td>
<td>10,332.20</td>
<td>32,321.90</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Toyota Motor Corp.</td>
<td>1,025,231.70</td>
<td>227,478.10</td>
<td>201,210.70</td>
<td>0</td>
<td>4,009.20</td>
<td>9,769.90</td>
<td>0.95%</td>
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<tr>
<td>20</td>
<td>Johnson &amp; Johnson</td>
<td>1,004,497.00</td>
<td>466,870.70</td>
<td>33,974.10</td>
<td>32.1</td>
<td>3,036.90</td>
<td>3,484.80</td>
<td>0.35%</td>
</tr>
<tr>
<td>21</td>
<td>U.S. Government</td>
<td>998,050.90</td>
<td>239,004.60</td>
<td>37,917.30</td>
<td>12,703.90</td>
<td>21,972.30</td>
<td>4,533.10</td>
<td>0.45%</td>
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<tr>
<td>22</td>
<td>J.C. Penney Co.</td>
<td>995,868.40</td>
<td>114,657.30</td>
<td>15,517.90</td>
<td>5,526.30</td>
<td>10,489.80</td>
<td>1,652.00</td>
<td>0.17%</td>
</tr>
<tr>
<td>23</td>
<td>SBC Communications</td>
<td>926,103.60</td>
<td>7,472.60</td>
<td>127,474.60</td>
<td>0</td>
<td>43,552.30</td>
<td>2,851.20</td>
<td>0.31%</td>
</tr>
<tr>
<td>24</td>
<td>Sony Corp.</td>
<td>922,678.80</td>
<td>149,800.30</td>
<td>65,719.20</td>
<td>292.7</td>
<td>12,763.80</td>
<td>9,719.90</td>
<td>1.05%</td>
</tr>
<tr>
<td>25</td>
<td>L'Oreal</td>
<td>899,815.10</td>
<td>209,916.90</td>
<td>19,719.80</td>
<td>0</td>
<td>3,126.00</td>
<td>402.7</td>
<td>0.04%</td>
</tr>
</tbody>
</table>
WWW Growing Faster Than Ad Supply

- Immediate problem: Too many pages, too few advertisers
- Current Price: $1 per thousands of impressions
- Price ~3 Years Ago: $10 to $50 per thousands of impressions

Sources: Veronis Suhler; Internet Advertising Bureau; The Economist
Inherent Difficulty with Online Ads

• Downward Spiral
  - Banner ads easy to ignore
  - Average click through has fallen to less than 1 in 200
  - Leads to creation of more obnoxious ads, e.g., “pop-ups”

• Entertaining?
  - Getting the “right” ads requires time, effort, and money.
  - Internet market not large enough to justify it.
  - 5 of the world’s top 10 advertisers each spent less than $1 million on online ads last year.
Inherent Difficulty (continued)

• Accountability: Advertisers can tell immediately whether their ads “work.”

• High Expectations: “Well-targeted” ads cost up to 100 times as much as generic ads. But how precisely can one target?

Discussion Point: Will online advertising survive the dot com crash and the unrealistic expectations? Will it stabilize as just one more “branding medium”? 
B2C E-Commerce Information Systems

Millions of users on day one
- Functionality
- Capacity
- Continuous availability

Bricks and Mortar environment Users
- Causal Store Visitors
- Prospecting Store Visitors
- Ad/Marketing Targets
- Store Customers

B2C e-commerce environment users
- Casual site visitors
- Prospecting Site visitors
- Ad/Marketing targets
- Registered Site Users
- Site Customers

Behavior not recorded or analyzed
Ad/Market Target Behavior only recorded if they become actual customers
Bricks-and-Mortar Customer Relationship Management (CRM) Systems typically record and analyze at least some of these behavior profiles
Note the increased scope of possible behavior analyses in an e-commerce User Relationship Management System
E-commerce User Relationship Management System record and analyze all aspects of user behavior
Fulfillment Mechanisms

5 Business Activity Categories

- Getting external user acquisition method
- General Internal User Access Interfaces
- Targeted User Modification Mechanisms
- User/Customer Fulfillment Interfaces
- Enterprise Management Interfaces

12 Fulfillment Mechanisms

- Search Engine
- Targeted-E-mail
- Advertising (web, print other)
- Web Application servers
- Toll-free call center application servers
- User-behavior-driven web ad banners
- User-behavior-driven web page presentation
- User-behavior-driven call center scripts
- Order-entry, tracking and fulfillment status
- Financial Reporting
- Marketing Trends
- Site user behavior analysis and behavior modification
Life After Fulfillment

Search Engine
Targeted-E-mail
  Advertising (web, print other)
Web Application servers
Toll-free call center application servers
User-behavior-driven web ad banners
User-behavior-driven web page presentation
User-behavior-driven call center scripts
Order-entry, tracking and fulfillment status
Financial Reporting
Site user behavior analysis and behavior modification
External user acquisition systems and media
Internal front-end web servers
Call center front-end servers
Operational order entry/order fulfillment back-end servers
Enterprise financial management system
Clickstream/call stream data warehouse
Principle Goals of E-Commerce Information Systems

• Highly available and highly scalable operational infrastructure
  * Massive-scale clickstream/call stream data warehouse

• Alignment of information technology vendor and e-commerce enterprises business goals
Trends in E-Commerce Solutions

- Early adopters of B2C information systems spent large amount of time and money to customize solutions.
- Now, merchants and Web-application-server vendors are focusing on vertical markets and tailoring offerings to meet specialized business needs.
- Software solutions will differentiate themselves by focusing on different vertical markets and by the way they choose to link components of their solutions.
B2C Infrastructural Software

- $3.1B market in 1999
- Projected to grow to $14.5B by 2003
- Broad price range
  - Low-end to mid-range products: <$50K
  - High-end: $100K - $1M
- Two types of vendors
  - “Usual suspects”: IBM, Microsoft, Netscape
  - Start-ups: Blue Martini, Open Market, Broadvision
Technical and Business Challenges

• Ideal: Platform core and customized periphery.
  - Core still not standardized
  - Customization still very expensive (because it’s labor-intensive)

• Patents
  - “One-click shopping” (Amazon)
  - Online credit-card verification (Open Market)

• Legacy technology, especially dbs and other “back-end” modules
Reading Assignment for October 11, 2001
