CS155a: E-Commerce

Lecture 4: Jan. 23, 2003

Archetypal Internet Businesses: Netscape and Amazon
HTTP (Hypertext Transfer Protocol)

- Standard protocol for web transfer
- Request-response interaction
- Request methods: GET, HEAD, PUT, POST, DELETE, ...
- Response: Status line + additional info (e.g., a web page)
HTML (Hypertext Markup Language)

- Language in which web pages are written
- Contains formatting commands
- Tells browser what to display and how to display

<TITLE> Welcome to Yale </TITLE>
   - The title of this page is “Welcome to Yale”

<B> Great News! </B>
   - Set “Great News!” in boldface

<A HREF="http://www.cs.yale.edu/index.html"> Yale Computer Science Department </A>
   - A link pointing to the web page http://www.cs.yale.edu/index.html with the text “Yale Computer Science Department” displayed.
What does “http://www.cs.yale.edu/index.html” mean?

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Host, Domain Name</th>
<th>Local File</th>
</tr>
</thead>
<tbody>
<tr>
<td>http</td>
<td><a href="http://www.cs.yale.edu">www.cs.yale.edu</a></td>
<td>index.html</td>
</tr>
</tbody>
</table>
• **Late 1990:** WWW, HTTP, HTML, “Browser” invented by Tim Berners-Lee

• **Mid-1994:** Mosaic Communications founded (later renamed to Netscape Communications)

• **Summer of 1995:** Market share 80%+

• **August 1995:** Windows 95 released with Internet Explorer

• **January 1998:** Netscape announced that its browser would thereafter be **free**; the development of the browser would move to an **open-source** process
Estimated Market Share of Netscape

NOTE: data are from different sources and not exact
Perfectly Captures the *Essence* of Internet Business

- Enormous power of Internet architecture and ethos (*e.g.*, layering, “stupid network,” open standards)
- **Must** bring new technology to market quickly to build market share
- Internet *is* the distribution channel
  - First via FTP, then via HTTP (using Netscape!)
  - Downloadable version available free and CD version sold
Uses Many “Internet Business Models”
(esp. those that involve making money by “giving away” an information product)

Complementary products (esp. server code)

• Bundling
  - Communicator includes browser, email tool, collaboration tool, calendar and scheduling tool, etc. One “learning curve,” integration, compatibility, etc.

• Usage monitoring
  - Datamining, strategic alliances
  - “Installed base” ≠ “Active installed base”
Browser as “Soul of the Internet”

- “New layer” (Note Internet architectural triumph!)
- Portal business
  - Early “electronic marketplace”
  - Necessity of strategic alliances
  - “Positive transfers” to customers
- (Temporarily?) Killed R&D efforts in user interfaces
Pluses and Minuses of Network Effects

+ Initial “Metcalf’s Law”- based boom
+ Initial boom accelerated by bundling, complementary products, etc.

- Market share ≠ lock in
  high market cap ≠ high switching costs
- Network effects strong for “browser” but weak for any particular browser
Exposed the True Nature of Microsoft

• 1995: Navigator released, MS rushes IE to market
• 1996: Version 3.0 of IE no longer technically inferior (“Openness” and standardization begets commoditization)
• MS exploits advantage with strategic allies (Windows!)
  - Contracts with ISPs to make IE the default
  - Incents OEMs not to load Netscape products
  - Exclusive access to premium content (from, e.g., Star Trek)
• 1998: MS halts browser-based version of these “strategies” under DoJ scrutiny of its contracts with ISPs.
Internet-ERA Anti-Trust Questions are Still Open

- Can consumers benefit from full integration of browser and OS?
- How to prevent “pre-emptive strikes” on potential competitors in the Windows-monopoly universe?
  - (“post-desktop era” technical Solution?)
- Remember: DoJ case was not about protecting Netscape!
Definitions of E-Commerce

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 in a “brick and mortar” store location.
  - All the customer needs is a browser!
- Technical evolution of B2C from “brick and mortar” model not new.
A Different Approach to Location Retailing

- In 1886, a jeweler unhappy with a shipment of watches refuses to accept them.
- A local telegraphy operator buys the unwanted shipment.
- Uses 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
Revenue Models

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

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

• Transaction fees

• Sell digital content through subscription. (e.g., WSJ online, Economist Intelligence Wire)
First-Generation B2C

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

Source: Benchmark Capital Group \& The Economist
Amazon.com

- Full Name: Amazon.com, Inc.
- Employees: 7,200
- Stock Price:
  - $22.10 (at close December 17, 2002)
  - 52 Wk Range: $9.03 to $25.00
- 2001 Sales $3.12 B
  Sales growth: 33%
- Internet’s largest retailer. Best known for books, CDs, DVDs, and Videos.
## Brand Strength

Source: U.S. Bancorp Piper Jaffray (July 24, 2000)

<table>
<thead>
<tr>
<th>Company</th>
<th>Mind Share</th>
<th>Company</th>
<th>Company Online Purchaser Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon.com</td>
<td>24.1%</td>
<td>Amazon.com</td>
<td>18.7%</td>
</tr>
<tr>
<td>eBay.com</td>
<td>16.1%</td>
<td>eBay.com</td>
<td>15.8%</td>
</tr>
<tr>
<td>Yahoo.com</td>
<td>4.9%</td>
<td>BarnesandNoble.com</td>
<td>6.0%</td>
</tr>
<tr>
<td>priceline.com</td>
<td>2.7%</td>
<td>BMG.com</td>
<td>3.9%</td>
</tr>
<tr>
<td>buy.com</td>
<td>1.9%</td>
<td>CDNow.com</td>
<td>3.3%</td>
</tr>
<tr>
<td>BarnesandNoble.com</td>
<td>1.8%</td>
<td>ColumbiaHouse.com</td>
<td>3.1%</td>
</tr>
<tr>
<td>CDNow.com</td>
<td>1.3%</td>
<td>JCPenney.com</td>
<td>3.0%</td>
</tr>
<tr>
<td>AOL.com</td>
<td>1.1%</td>
<td>priceline.com</td>
<td>2.7%</td>
</tr>
<tr>
<td>Egghead.com</td>
<td>1.0%</td>
<td>buy.com</td>
<td>2.6%</td>
</tr>
<tr>
<td>lwon.com</td>
<td>0.9%</td>
<td>Yahoo.com</td>
<td>2.3%</td>
</tr>
<tr>
<td>JCPenney.com</td>
<td>0.9%</td>
<td>1800flowers.com</td>
<td>2.3%</td>
</tr>
</tbody>
</table>
Main Lines of Business

- **Retail**
  - Broad product range, from textbooks to household tools

- **Shopping Mall**
  - Individuals and companies pay Amazon.com to offer their products on its site.

- “Overseeing” other websites
  - Has invested in some of them
  - Broad range of offerings, from prescription drugs to wedding planning

- **2001 Sales**
  - 54% Books, music, video
  - 71% North America
Amazon.com History

• Founded: 1994
• Website launched: July, 1995
• 1997
  - IPO: 3 million shares, $54.0 million
  - Moves to “cement the Amazon.com brand.”
  - Becomes the sole book retailer on America Online’s public website and on Netscape’s commercial channel.
History (continued)

• 1998: Expansion
  - Launched online CD and video stores.
  - Began selling toys and electronics.
  - Bought online booksellers in the UK and Germany.
  - Bought Internet Movie Database.
  - Expanded online services, buying Junglee (comparison shopping) and PlanetAll (address book, calendar, reminders).
  - Attracted so much attention that its market capitalization equaled the combined values of profitable bricks-and-mortar rivals Barnes & Noble and Borders Group, even though their combined sales were far greater than Amazon’s.
History (continued)

• 1999: More Expansion
  - Raised $1.25 billion in a bond offering.
  - Spending spree with deals to buy all or part of several dot-coms
    • Some have since been sold (HomeGrocer.com), and others have gone out of business or bankrupt -- Pets.com, living.com
    • It also bought the catalog businesses of Back to Basics and Tool Crib of the North.
  - Began conducting online auctions and partnered with Sotheby’s.
  - Added distribution facilities, including one each in England and Germany.
History (continued)

• 2000: Yet More Expansion
  - Placed a link to drugstore.com on its homepage; drugstore.com paid more than $100 million for that access.
  - 10-year deal with toysrus.com to set up a co-branded toy and video game store.
  - Added foreign-language sites for France and Japan.
2001: End of the Beginning

- Investors demand profits
- Amazon announces plans to restructure and layoff of 15% of its workforce.
- Takes a $150 million charge.
- Announces a deal with Borders to provide inventory, fulfillment, content, and customer service for borders.com

Percent Growth From Same Quarter Previous Year
Source: SEC Filings

% Growth

<table>
<thead>
<tr>
<th>Quarter</th>
<th>2Q99</th>
<th>4Q99</th>
<th>2Q00</th>
<th>4Q00</th>
<th>2Q01</th>
<th>4Q01</th>
<th>2Q02</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2002: Growth Renewal

- U.S. books, music, and video segment is profitable for consecutive quarters.
- Sales growth is accelerating again.
- New segments (e.g., apparel & accessories)
- New international markets (e.g., Europe marketplace, Japan, Canada)
- New services (e.g., wedding registry)
- Strengthening partnerships (including services for other retailers, e.g., Target)
Amazon.com, Inc.
Stock Quotes (AMZN)
Source: Quicken.com (12/18/2002)

Period: Dec-17-1997 - Dec-17-2002

[S] = Stock Split
Amazon.com, Inc. Financials

Historical Financials

Year

Revenue ($mil.)
Net Income ($mil.)
# Financials and Employees

(“Long March to Profitability”)

Source: Hoovers and SEC Filings

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($mil.)</th>
<th>Net Income ($mil.)</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 (Q1-3 only)</td>
<td>2,504.3</td>
<td>-151.8</td>
<td>7200</td>
</tr>
<tr>
<td>2001</td>
<td>3,122.4</td>
<td>-567.3</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>2,762.0</td>
<td>-1,411.3</td>
<td>9000</td>
</tr>
<tr>
<td>1999</td>
<td>1,639.8</td>
<td>-720.0</td>
<td>7600</td>
</tr>
<tr>
<td>1998</td>
<td>610.0</td>
<td>-124.5</td>
<td>2100</td>
</tr>
<tr>
<td>1997</td>
<td>147.8</td>
<td>-27.6</td>
<td>614</td>
</tr>
<tr>
<td>1996</td>
<td>15.7</td>
<td>-5.8</td>
<td>151</td>
</tr>
<tr>
<td>1995</td>
<td>0.5</td>
<td>-0.3</td>
<td>33</td>
</tr>
<tr>
<td>1994</td>
<td>0.0</td>
<td>-0.1</td>
<td></td>
</tr>
</tbody>
</table>
Reminder: First Written Homework Assignment

- Due in class on Tuesday, Jan. 28
- Covers readings and lectures through today
- Available online
  (http://zoo.cs.yale.edu/classes/cs155/spr03/hw1.pdf)