

CPSC156: The Internet Co-Evolution of Technology and Society

Lecture 5: January 30, 2007
B2C and C2C E-Commerce

Web Brought Us 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

E-Commerce, cont.

- **Information** is anything that can be digitized, *i.e.*, encoded as bits. Examples include books, magazines, movies, music, web pages, software, and databases.
- **Information industries** are those that produce information goods and/or deliver information services.
- **Networked industries** are those that rely on customers' interaction. Networks can be real (as in the telecomm industry) or virtual (as in the PC-software industry).

Terminology

- **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

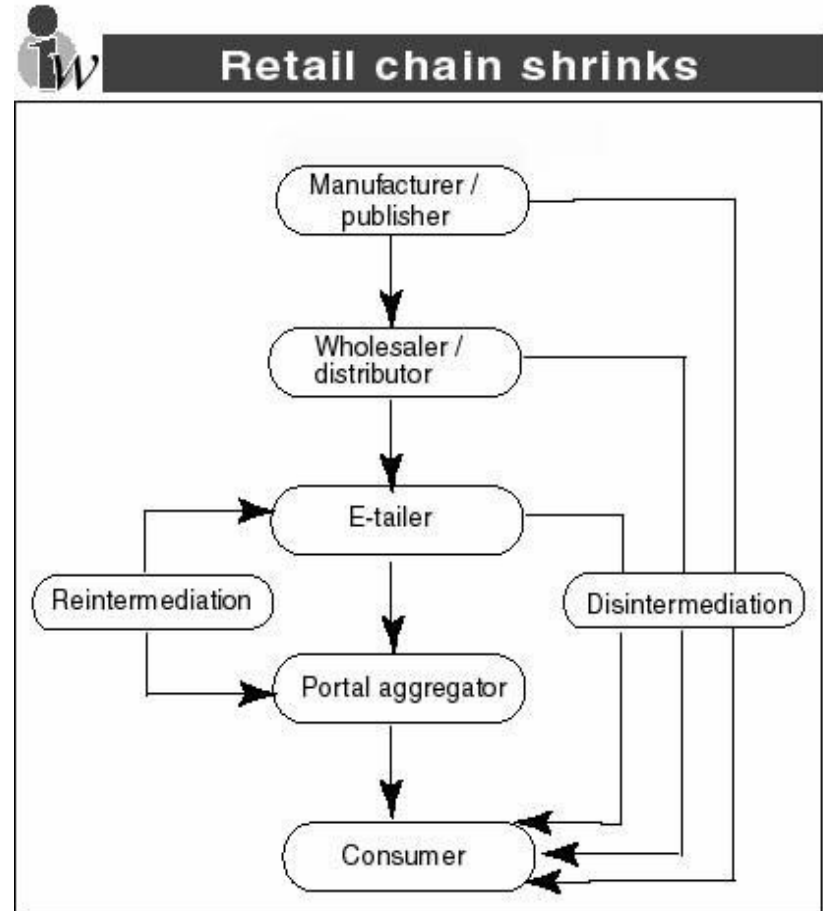
- In 1886, a jeweler unhappy with a shipment of watches refuses to accept them.
- A local telegraphy operator buys the unwanted shipment.
- He **uses the telegraph to sell** all the watches to fellow operators and railroad employees.
- Becomes so successful that he quits his job and started his own enterprise, **specializing in catalog sales**.
- Name: **Richard Sears** of Sears Roebuck

B2C 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

Many Failed B2C "Pure Plays"

eToys.com, pets.com, webvan.com,...

See <http://disobey.com/ghostsites>.

"Here's a radical thought: The future of the online grocery market belongs to grocery stores. They know the business, they can mix (sales) channels, and they can take their time."

W. Andrews (Gartner), 7/9/01,
commenting on the webvan.com
bankruptcy.

"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,...
- Since 2002, multi-channel retailers (*i.e.*, B&Ms or traditional catalog companies that also sell online) have accounted for most of B2C e-commerce. Originally, they focused mostly on high-margin sales, *e.g.*, computers, travel, and automotive.
- Multi-channel retailers are more profitable, on average, than web-based and store-based retailers.

(source: Boston Consulting Group)

Advantages of Multi-Channel Retail

- Leverage existing brands.
- Biggest B&M retailers have huge clout. (Walmart's annual sales are still much larger than all pure 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.



The World's Online Marketplace™

eBay Overview

- World's largest "online trading community"
- Current number of users:
Over 200M
(2M end of 1998; 34M in early 2003)
- Offers a global marketplace for individuals worldwide to buy and sell from one another.

eBay Business Model

- Sellers pay small fee (<\$2) per listed item.
- eBay takes a cut (~2.5%) of each sale.
 - Sellers are willing to pay this fee, because it's a very small price to pay compared to the global exposure they get.
- Although the percentage earned on any given item is small, this is profitable for eBay precisely because the market is global: Millions of new items are added to the site everyday.

Business Model (continued)

- Buyers and sellers handle exchange and payment (but, eBay offers support for PayPal exchanges).
- eBay has no inventory, no transportation, *no costs at all except website operation.*

Conventional wisdom: Service is *technically commoditizable*, but strong network effects favor eBay.

Terminology

- A product or service is **technically commoditizable** if it is built using standard parts or protocols (*i.e.*, “commodities”), and its functionality can easily be reproduced by competitors. Examples:
 - eBay auctions
 - Netscape browser
- A product or service that requires significant proprietary or specialized knowledge to produce, deliver, or maintain is **not technically commoditizable**. Examples:
 - MS Windows
 - Mac OS

Market Characteristics

- eBay was rather unique at its inception in 1995, but many alternatives exist today.
- eBay's original dominance causes a network effect and perpetuates its continued dominance:
 - 1) Sellers want to sell their item on the auction service with the most buyers, so they put their items up for sale on eBay.
 - 2) Buyers want to find the best prices with many sellers, so they go to eBay.
 - 3) Because of (1) and (2), eBay is even bigger than it was before. Repeat from (1).

"eBay is a Venue"

Source: (1 version of) eBay User Agreement

- "We are not involved in the actual transaction between buyers and sellers. As a result, we have no control over the quality, safety or legality of the items advertised, the truth or accuracy of the listings, the ability of sellers to sell items or the ability of buyers to buy items. We cannot ensure that a buyer or seller will actually complete a transaction."
- "... because user verification on the Internet is difficult, eBay cannot and does not confirm each user's purported identity. Thus, we have established a user-initiated feedback system to help you evaluate with whom you are dealing..."

The eBay Rating System

- Every registered user ID has a public feedback profile attached to it.
- eBay members can fill out a feedback form to voice comments about a user:
 - to indicate a successful transaction
 - to express unusually good qualities
 - to make complaints
- Members receive points based on the rank (positive or negative) of comments. Feedback cannot be erased.

Acquisition of PayPal

- PayPal uses existing electronic infrastructure of bank accounts and credit cards to allow "small" monetary exchanges online.
- PayPal is convenient for small businesses and individuals, because they can collect online payments without difficult set-up.
- eBay acquired PayPal in 2002 and has integrated it throughout its website as a payment option for auctions.

eBay Branches Out

- Acquired Half.com, a fixed-price online marketplace, in July, 2000.
 - Identical to eBay in all respects except that prices are fixed.
 - It grew tremendously, eventually listing over 100 million items. eBay users could be offered fixed-price option up front, and some found this more comfortable.
- Sale of "distressed inventory" from companies through eBay stores (<http://stores.ebay.com>)
- Attempts to auction art and/or luxury goods
- Acquisition of VOIP provider Skype.com

Technical Foundations of Internet C2C Commerce

- Market Design (e.g., Auction Types)
- Payment Systems (can't always use credit cards)
- E-Market Operations
 - Website Design Issues (e.g., UI)
 - ★ System Reliability and Availability

Massive Scale Commercial-Website Operation

eBay scale:

Hundreds of millions of users.

Millions of items added each day.

Massive strain on website reliability and availability.

Major issue for high-traffic B2C sites, too.

June 1999: Three eBay Crashes

- eBay service unavailable for "prolonged" periods of time.
 - Revenue-loss estimates: \$3M to \$5M
 - Stock-price fall: 20%
 - Blamed on ISP router failure and SUN OS "memory bugs."
- eBay started outsourcing (using Exodus, before its bankruptcy).

Auction Types

- Ascending bid structure
- Descending bid structure
- First-price, sealed bid
- ★ Second-price, sealed bid (Vickrey):
 - Highest bidder gets item
 - Pays second-highest bid price
 - Advantages: "Strategyproof," user-friendly

Auction Design in C2C Commerce

Why Auctions?

Hard for typical C2C seller to do market research and set optimal fixed price. Auctions allow seller to maximize revenue.

eBay ascending-bid auctions include:

- Starting Price
- Ending Time
- Bid Increment
- (Sometimes) reservation price
- "Proxy bidding agents"

eBay Ascending-Bid Auctions (continued)

- Technically equivalent to 2nd-price Vickrey
- Importance of “strategyproofness”:
 - Buyers, like sellers, will have little or no information about others’ valuations of the items; so “dominant-strategy solution concept” is appropriate.
 - “Truth telling is a dominant strategy” helps sellers maximize revenue.
- Seller can choose to use a descending bid structure (“Dutch Auction”).

eBay vs. Bidders Edge

- Bidders Edge was a company that used **web bots** to scour Internet auction sites and collect information.
- Bidders Edge would post, on its website, product and price information for goods found on eBay and its rivals.
- eBay sued Bidders Edge, claiming that the company **trespassed** - that the bots were an unauthorized and intentional misuse of the eBay site.
- Bidders Edge was stopped: The judge decided that it did **trespass**, because the search bots could disrupt eBay's system capacity. Showing that eBay was harmed was enough to justify an injunction.
- However, the injunction did not prevent Bidders Edge from accessing eBay information using different means.

eBay-inspired Questions that We Will Explore Further

- Property-Rights Issues Are Inescapable
 - Failed Monroe-photos auction (1999)
 - Attempted kidney auction (1999)
- Online identity is hard to manage.
 - Fraud is an ongoing problem.
- Relationship with law-enforcement
 - International community
 - Political & security issues as well as commercial ones?

Assignments

- Remember that the first written assignment is due this Thursday, February 1, 2007. See course website for submission instructions and for announcements about this week's office hours. Due date is due, and lateness will be penalized.
- Reading assignment: Chapter 1 of Information Rules, by Shapiro and Varian. Available in paper form only.