Business-to-Business e-Commerce: Overview, Taxonomy, Appraisal

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Overview of Talk

- Why B2B now?

- Huge Opportunity / Once in a lifetime.

- How do you characterize / classify B2B business models and eHubs?

- Implications and prospects for the future?
  - Valuations.
  - Macroeconomics.
Why B2B now?

• Need to answer key question:
  ➔ What can the internet do that phone / fax (i.e., the old economy) cannot do?
    Must have an affirmative answer to this for B2B e-commerce to make sense.
    Must have an affirmative answer for any start-up to win.
• Internet economizes on information costs:
  • More efficient / faster search across companies.
    • Less expensive for buyers to find sellers.
    • Less expensive for sellers to find buyers.
  • Better matching of buyers and sellers.
  • More efficient information transfer:
    • Efficient search for products of one company.
      On-line catalogs / databases.
    • Easier to change prices.
    • Easier to update products.
  • Allows any-to-any.
    • Participants can regulate information they reveal.
• Internet economizes on transaction costs:
  • Less time spent by people in purchasing / selling.
  • Greater standardization.
  • Fewer errors.
  • Less paper.
Bottom Line:
Internet Advantages are Huge for B2B

→ Huge opportunity / Once in a lifetime.
  • Internet changes the business world.
  • B2B predicted to be huge.
    • $1 to $2 trillion + of B2b e-commerce by 2003
      -- various estimates.
  • B2B e-commerce will appear at every inefficient interface on
    the supply chain.
    • Best places ==> where there are non-value added brokers / distributors.
→ Next several years determine what happens for decades.
  • Huge amount of $$ focused on B2B.
    • Attacking every interface.
  • Alliances forming that will be hard to break. (=Land Grab).
    • Bricks & mortar players do not want to be left without a seat.
      Allying with existing players.
      Forming new ones.

→ B2B start-up mania will be over in 2 years or less.
  • Land grab now / then consolidation.
  • Roughly two years behind B2C.
  • Amazing progress in 6 months.
    • September 1999 -- relatively few aware of B2B.
    • March 2000 -- no one is unaware.
What form does B2B take?  
**Electronic Hubs = eHubs**

- Electronic hubs (eHubs) are third-party Internet-based intermediaries that focus on specific *industry verticals* or specific *business processes*, **host** electronic marketplaces, and enable *any-to-any* transactions among businesses.  -- Sawhney and Kaplan.

- eHubs create value by:
  - Aggregating demand and supply
  - Increasing marketplace liquidity
  - Reducing transaction costs

B2C hubs = one-way (broadcast) networks: \( \text{Value created} \propto N \)

B2B hubs = two-way (Metcalfe) networks: \( \text{Value created} \propto N^2 \)
### eHubs (B2B) versus eTailers (B2C): A different kettle of fish...

<table>
<thead>
<tr>
<th></th>
<th>eTailers (B2 C E-Commerce)</th>
<th>eHubs (B2 B E-Commerce)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Connecting consumers to information, products, and services they want.</td>
<td>Improving the efficiency of buyer-seller transactions in business markets.</td>
</tr>
<tr>
<td><strong>Customer attractors</strong></td>
<td>Content, community, commerce.</td>
<td>Process automation, process outsourcing and hosting.</td>
</tr>
<tr>
<td><strong>Customer acquisition methods</strong></td>
<td>Mass communication - Advertising, affiliate programs.</td>
<td>Personal selling - Direct salesforce, trade shows.</td>
</tr>
<tr>
<td><strong>Entry barriers for competitors</strong></td>
<td>Low - Audience size, logistics capability, experience quality.</td>
<td>High - Domain expertise, buyer/supplier relationships.</td>
</tr>
<tr>
<td><strong>Switching barriers for customers</strong></td>
<td>Learning, user-generated content, affinity programs.</td>
<td>Process embeddedness, marketplace liquidity.</td>
</tr>
<tr>
<td><strong>Partners and complementors</strong></td>
<td>Content providers, logistics and fulfillment providers.</td>
<td>Logistics, credit approval, escrow, receivables, payment processing, inspection, etc.</td>
</tr>
</tbody>
</table>
How do you characterize eHubs?
Two broad types*

- **Marketplaces**
  - More efficient versions of existing processes.
    - Altra Energy / PaperExchange / PlasticsNet.

- **Workflow Redesigners**
  - Redesign existing processes.
    - Epotec / Starbelly.
  - May also obtain benefits of marketplaces.
    - Autodaq.

*I consider infrastructure providers a different category.*
A Taxonomy of Marketplaces: Characterized by four dimensions

• What do companies buy?
  • Manufacturing inputs or operating inputs.

• How do companies buy?
  • Spot or systematic.

• How is value value created?
  • Aggregation and / or matching.

• What is the bias?
  • Two sided / Neutral or One sided / Biased.
What do companies buy? Manufacturing inputs or operating inputs.

- **Manufacturing inputs:**
  - raw materials / components that go directly into the manufactured product or manufacturing process.
  - Tend to be *vertical* in nature, because the finished products that they go into are industry-specific.
  - Typically sourced from industry-specific suppliers and distributors.
  - Require specialized logistics and fulfillment mechanisms.

- **Operating inputs:**
  - indirect materials and services not in finished products.
    - MRO (Maintenance, Repair, and Operating) inputs.
  - Tend to be horizontal.
Manufacturing inputs versus Operating inputs or Vertical versus Functional eHubs

Vertical hubs (industry focus)

- Plastics
- Steel
- Chemicals
- Paper
- Energy
- Cattle
- Telecom
- Flowers

Functional hubs (process focus)

- Logistics management
- MRO procurement
- Capacity management
- Capital Equipment
- Human resource mgmt.
- Project management
- Media buying
- Credit management
How do companies buy? 
Spot or systematic.

• Systematic sourcing:
  • Pre-negotiated contracts with qualified suppliers.
    • Often long-term
    • Tends to be relationship-oriented.
    • Large proportion of manufactured inputs

• Spot sourcing.
  • Buying commodity-like products on the spot market.
  • Often anonymous sellers.
  • Traditional use of brokers.
## Classifying B2B eHubs

### WHAT businesses buy

- **Manufacturing inputs** (vertical emphasis)
  - Catalog Hubs
    - SciQuest
    - PlasticsNet.com
    - Chemdex
  - Exchanges
    - E-Steel
    - PaperExchange
    - Altra Energy
    - ChemConnect

- **Operating supplies** (horizontal emphasis)
  - MRO Hubs
    - Ariba.com
    - MRO.com
    - BizBuyer
    - Grainger.com
  - Yield Managers
    - iMark.com
    - CapacityWeb.com
    - NTE
    - Employease.com

### HOW businesses buy

- Systematic sourcing (static pricing)
- Spot sourcing (dynamic pricing)
Value creation mechanisms.

• Aggregation and matching.
  • Related to spot versus systematic.

• Aggregation.
  • The aggregation mechanism relies on bringing a large number of buyers and sellers under one roof, and reducing transaction costs by "one-stop shopping".
    • PlasticsNet allows plastics processors to issue a single purchase order for hundreds of plastics products,
    • PlasticsNet sources products from diverse set of suppliers.

• Matching.
  • Improved matching due to improved marketplace liquidity.

• Catalogs benefit only from aggregation mechanism,
• Exchanges benefit from both aggregation and matching.
Aggregation / matching - 2

- Aggregation mechanism appropriate when:
  - Cost of processing purchase order is high relative to cost of items procured.
  - Products are specialized and not commodity-like.
  - The number of SKUs (Stock Keeping Units) is extremely large.
  - The supplier universe is highly fragmented.
  - Buyers not sophisticated enough to understand dynamic pricing.
  - Most purchasing done on the basis of pre-negotiated contracts.
  - Can create a metacatalog of products carried by a large number of suppliers.
Aggregation / matching - 3

- Matching mechanism appropriate when:
  - Products are commodities or near-commodities.
  - Trading volumes are large, relative to transaction costs.
  - Products are relatively standardized and can be traded sight-unseen.
  - Buyers and sellers are sophisticated enough to deal with dynamic pricing.
  - Purchasing is often done on a spot/transactional basis.
  - Logistics and fulfillment can be conducted by third-parties, often without revealing the identity of the seller or buyer.
  - Demand and prices are volatile.
One other important dimension: Bias

- Two sided / Neutral
  - Neutral eHubs **do not** favor buyers over sellers or vice versa.
  - Substantial chicken and egg problem.
  - Previously mentioned eHubs neutral.

- One sided / Biased.
  - Biased hubs **do** favor buyers over sellers or vice versa.
  - Buyers: Freemarkets, Fob.
  - Sellers: eChemicals, Ingram Micro.
FobChemicals.com as a reverse aggregator
## Taxonomy of market makers

<table>
<thead>
<tr>
<th>Aggregation mechanism (systematic purchasing)</th>
<th>Matching mechanism (spot purchasing)</th>
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<tbody>
<tr>
<td><strong>Two-sided (neutral)</strong></td>
<td><strong>One-sided (biased)</strong></td>
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<td>Two-way aggregators</td>
<td>Seller aggregators (forward aggregators)</td>
</tr>
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<td>• Negotiated catalog-based prices</td>
<td>Buyer aggregators (reverse aggregators)</td>
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<td>• Need to maintain neutrality</td>
<td>• Primarily benefit buyers * or sellers by aggregating demand * or supply</td>
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<td>• Need bilateral participation</td>
<td>• Can be biased, as they represent buyers * or sellers in aggregation</td>
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<td>• Ideal for <em>systematic</em> purchasing</td>
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<td>• Ideal for markets with <em>unilateral</em> fragmentation (demand or supply)</td>
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<td>Dynamic Market Makers</td>
<td>Forward Auctioneers (seller-driven auctions)</td>
</tr>
<tr>
<td>• Dynamic market-based prices (two-way auctions or exchanges)</td>
<td>Reverse Auctioneers (buyer-driven auctions)</td>
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<td>• Benefit buyers and sellers by aggregating supply * and demand</td>
<td>• Dynamic market-based prices</td>
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<td>• Benefit buyers and sellers by improved matching and liquidity</td>
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<td>• Need to maintain neutrality</td>
<td>• Can be biased, as they represent buyers * or sellers in match-making</td>
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### Examples of market makers

#### Aggregation mechanism (systematic purchasing)

<table>
<thead>
<tr>
<th>Vertical aggregators (mfg. Inputs)</th>
<th>Horizontal aggregators (MRO)</th>
<th>Exchanges</th>
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<tbody>
<tr>
<td>SciQuest</td>
<td>MRO.com</td>
<td>PaperExchange</td>
</tr>
<tr>
<td>PlasticsNet</td>
<td>Grainger</td>
<td>E-Steel</td>
</tr>
<tr>
<td>Chemdex</td>
<td>BizBuyer.com</td>
<td>NTE</td>
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#### Matching mechanism (spot purchasing)

<table>
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<tr>
<th>Two-sided Auctioneers</th>
<th>One-sided (biased)</th>
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<td>IMark.com</td>
<td>Seller aggregators</td>
</tr>
<tr>
<td>CapacityWeb.com</td>
<td>Ingram Micro</td>
</tr>
<tr>
<td>TradeOut.com</td>
<td>Fruit of the Loom</td>
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<tr>
<th>Exchanges</th>
<th>Forward Auctioneers (seller-driven auctions)</th>
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<tr>
<td>PaperExchange</td>
<td>Company-specific auction sites</td>
</tr>
<tr>
<td>E-Steel</td>
<td>Liquidators and brokers</td>
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Key issues in building a marketplace / eHub:

- **Creating liquidity.**
  - Ahead of existing / potential competitors.
  - Managing cost and speed of customer acquisition.
  - Dealing with inertia and ingrained business practices.
  - Deciding scope of the offering (e.g., title, receivables).
  - Managing logistics and fulfillment.
  - Managing credit.
  - Choosing the software platform.
  - Deciding initial focus (content, commerce, community).
What makes a marketmaker / eHub successful?

• Key success factors for vertical eHubs
  • Depth of domain expertise.
    • Every industry is different.
  • Degree of fragmentation on the buyer and seller side
    • Determines desired bias.
  • Degree of inefficiency in existing supply chain.
    • Look for brokers who do not add value.
  • Relationships with buyers and sellers.
  • Quality of direct selling efforts to early adopters.
  • Ability to create industry-wide master catalogs and metadata schemes for searching across catalogs.
• Key success factors for functional eHubs
  • Degree of process standardization and generalizability.
  • Process knowledge and workflow automation expertise.
  • Ability to complement process automation with industry-specific content.
  • Ability to customize the business process to respond to industry-specific differences.
Workflow Redesigners

• What they do:
  • Redesign existing processes.
  • May also obtain benefits of marketplaces.

• Examples:
  • Autodaq.
  • Buildpoint.
  • Epotec.
  • Starbelly.
Existing Wholesale Auto Auction Channel

Total Channel Costs Estimated at 10% of Car Value = $10 billion per Year
Existing Construction Project Bidding & Procurement Workflow

(1 Project)

Owner

Determine requirements and draft plans

Architect/Engineer

E-mail

Phone

Bid

Plans

ITB

(5 GC's)

General Contractor

Fax

ITB

Plans

Bid

ITB

(500 Subs)

Sub Contractor 1

RFQ

BOM → PO

Quote

Fax

Sub Contractor 2

Distributor 1

Sub Contractor 3

Distributor 2

Sub Contractor N

Distributor 3

Distributor N

...
Future and Long Run

BuildPoint value added:
- Lower prices
- Better credit terms
- More accurate billing
- Shortened lead times
- Faster order execution
- Superior order tracking
- Improved inventory mgmt.

?% margin
Epotec

- B2B Psychological Care.
- Old System:
  - Employee reads self-help book.
  - Employee tries to see therapist.
    - Goes through health plan channels.
- Epotec:
  - Initial contact for employee and psych. care is website.
  - Employee walks through expert system. System:
    - makes self-improvement suggestions for some.
    - recommends e-mail therapy session for some.
    - Administered by Epotec.
  - recommends therapy for some.
  - Appointments, insurances, etc. administered by Epotec.
Starbelly -- Decorated Products

**Offline**

1. Contact ad specialty distributor
2. Meeting with ad specialty distributor
3. Review 10-20 catalogs
4. Follow-up meeting and product selection
5. Blank product received by ad specialty firm; sent with specs to decorator
6. Ad specialty firm orders blank product
7. Order submitted by customer
8. Decorator submits prototype to ad specialty firm
9. Ad specialty firm meeting with customer for approval
10. Outsourced Decoration begins
11. Delivery in 14-35 days

**Online**

1. www.Starbelly.com
2. 1) Select blank
3. 2) Select Art
4. 3) Approve Sample
5. “Click”
6. Shipment in 4-7 days
7. 1 week; direct to factory
8. “dell.com experience”

3-6 Weeks; 4 Markups; 3-4 Meetings; High price
Workflow Redesigners Summary

- All use internet in innovative ways to redesign workflow across businesses in specific industries.
- All obtain potentially large reductions in transaction costs / increases in service.
Implications and prospects for the future?

• What are these things worth?

• What does B2B mean for the overall economy?
Valuation

• B2B eHubs will have substantial value.
  • Network externality ==> strong winner-take-all characteristics
  • Aided by equity deals with key buyers / suppliers.

• How will they be valued?
  • In an irrational world? Palm reading.
  • In a rational world?

• Key ingredients:
  • How large is the overall market?
  • How much of overall market can potentially go to the eHub?
  • Transaction fee?
    • Typically related to existing fees / inefficiencies.
  • Other revenue sources?
Valuation - 2

• Hypothetical paper market example:
  • $250 Billion market.
  • Transaction fee of 3%.
  • For each $2.5 billion of trade -- 1% of mkt:
    • $2.5 billion of paper traded.
    • Revenues of $75 million based on 3% fee.
    • EBIT of $50 million?
    • At steady state EBIT multiple of 12X.

      Steady state market cap = 12 X $50 = $600 M.

→ For every 1% of the paper market that goes to the web, $600 million of market cap is created.
Valuation - 3

• Key question: how much of mkt. can potentially go to web?
  • 5%? ==? $3 billion market cap.
  • 10%? ==? $6 billion market cap.
  • 20%? ==? $12 billion market cap.
Valuation - Overall

• Good News: Successful eHubs will have substantial value.
• Does not matter what market does.
  • Rational?
    • Values are substantial.
  • Irrational?
    • Values are very substantial.
Implications and prospects for the future?

Overall Economy

• Macro accounts likely to be very positive.
  • Just think about Autodaq example.
    • At least $2.5 billion of pure productivity each year.
    • From one B2B interface.

• Strong productivity growth will continue
  • Very likely for next 3 to 5 years.

• Transaction cost reduction puts downward pressure on costs.
  • Downward pressure on inflation.
  • Greenspan should worry less re inflation?
Summary

• Why B2B now?
  • Internet reduces costs of information flows.
  • Internet reduces transaction costs.
  • Internet facilitates many-to-many interactions.
  • Internet facilitates workflow process redesign.
• Huge Opportunity / Once in a lifetime.
• B2B Taxonomy:
  • Marketplaces:
    • Manufacturing inputs vs. operating inputs.
    • Spot sourcing vs. systematic sourcing.
    • Aggregating and matching.
    • Neutral and biased.
  • Workflow redesigners.
Implications and prospects for the future?

→ Successful firms will receive substantial valuations irrespective of market.

→ B2B e-commerce will drive positive macroeconomic results.