AMAZON.COM

- Fortune 500 company
- Over 41M active customers accounts
- Order Fulfillment to More than 200 Countries
- World’s 74th most valuable brand ahead of Levi’s, Motorola, Boeing, J&J, Starbucks, FedEx, Barbie(*)
- Vision
  - Offer Earth’s Biggest Selection
  - Be Earth’s most customer-centric company
- American Customer Satisfaction Index gave Amazon.com a score of 88—the highest customer satisfaction score ever recorded in any service industry, online or off

Copyright 2004, Amazon.com

![Amazon.com sales graph](chart.png)
Business Strategy

• Low Prices
  – Leverage fixed-costs
  – Enable 3\textsuperscript{rd} party sellers to offer products, alongside ours, and set prices

• Convenience
  – Feature-rich content: recommendations, wishlists, registries, Search Inside the Book\textsuperscript{TM}
  – Secure and trusted transaction environment
  – Fast, reliable fulfillment

• Wide Selection of Merchandise
  – Millions of unique products available
  – We want to be the destination of first resort
Earth’s Biggest Selection

- Half a ton Jointer ships free with Super Saver Shipping

- Gold, Platinum, Opal, and Diamond "Nirvana" Necklace for $390,000
  (Please call credit card company first to pre-qualify purchase.)

- Caviar anyone?

- Yak cheese, highest altitude cheese, from Tibet

Copyright 2004, Amazon.com
Selection in Books

• Oxford: 22,000 pages in 20 volumes

• Bhutan: A Visual Odyssey (Real-life kid shown) 60”x44” book for $10,000 (1.5m x 1.1m)

• $2 book to help with Super Saver Shipping
Not Just a Retailer

• Technology company building platform
• Merchant.com
  – Utilize platform to operate another business’s website
  – Sometimes offer fulfillment services
  – Example: www.target.com

• Merchant@ and Marketplace
  – Allow other merchants to integrate their products into our website
  – Example: ToysRus.com

• In Q1 2004, 23% of world-wide units were sold by retailers other than Amazon.com
The Unique Advantage
Inventory Turns (TTM)

<table>
<thead>
<tr>
<th></th>
<th>Gross Margin</th>
<th>Inventory Turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon.com</td>
<td>24%</td>
<td>19</td>
</tr>
<tr>
<td>Barnes &amp; Noble</td>
<td>27%</td>
<td>3</td>
</tr>
<tr>
<td>Costco</td>
<td>12%</td>
<td>11</td>
</tr>
<tr>
<td>Home Depot</td>
<td>32%</td>
<td>5</td>
</tr>
<tr>
<td>Best Buy</td>
<td>25%</td>
<td>7</td>
</tr>
<tr>
<td>Wal-Mart</td>
<td>22%</td>
<td>7</td>
</tr>
</tbody>
</table>

Best of Both Worlds -- High Turns, High Margins

Source: MultexIR Stock Screener (Most Recent Available Data as of April 22, 2004) -- Inventory Turns = TTM COGS / TTM Average Inventory
Copyright 2004, Amazon.com
Capital Efficiency – Negative Operating Cycle*

Working Capital is a Source of Cash

* As of 3/31/04 -- TTM Average Inventory Turns, Approximate AR Days and Ending AP Days

Copyright 2004, Amazon.com
Amazon Web Services

• Mission
Enable innovation by exposing components of Amazon.com's technology platform and product data

• More than 50,000 registered developers
Running a Large Website

- Distributed development and deployment: pages call services for features
- Sites closely monitored:
  - Service availability monitoring
  - Per minute site revenue upper/lower bounds
  - Internal performance service-level-agreements: T% of the time, pages must return in X seconds (X varies by page type)
- Sites changes are mostly made by experimentation—A/B tests
A/B Tests

• A/B test basics
  – Control/treatment(s) test for limited time
  – Randomly show one or more treatments to visitors
  – Measure parameters, such units and revenue by category (and total), session time, session length, etc

• A/B tests insulate test from external factors

• Examples:
  – New home page design
  – Moving features around the page
  – Different algorithms for recommendations
  – Changing search relevance rankings

• Usually launch feature if desired metrics are (statistically) significantly better
Challenges to A/B Tests

• Multiple A/B tests are running every day
• Challenges
  – Conflicting A/B tests (two experiments touch same feature). Scheduling, QA’ing
  – Long term effects. Some features are “cool” for the first two weeks and may die down
  – Primacy effect. Changing navigation may degrade performance temporarily
  – Consistency. Same person may get different treatment when they work from home/work
  – Statistical tests. Distributions are far from normal. They have large mass at zero (e.g. no purchase)
Data Trumps Intuitions

- Amazon constantly tests ideas.
- Even with experienced employees, many ideas fail to show significant improvement.
- Many times a prototype is easier to build than a model that predicts user response.
- Examples in the next few slides.
The Secret Life of Tabs

Started with a few tabs and ended up with the tab mountain

Which grew and grew...

Ok, it didn’t really get this bad.

…then the “chicklets” arrived to save us – orders significantly higher

…and now we’re back to tabs again because new version performed better
Our Final Proposal

Inspired by the Palm Beach County, Florida, ballot form, live at http://www.amazon.com/exec/obidos/subst/home/all-stores-ballot.html
Things Which Didn’t Fly

- Trying to scale tabs (part 1)
- The February 2000 gateway that never was
  - Searches increased
  - Orders reduced (statistically significant)
Things Which Didn’t Fly

• Trying to scale tabs (part 2)
• Another attempt from 2000
  – Orders reduced again (statistically significant)
Keeping it Simple

• Simpler is better, right?

• No. Orders significantly down
Keeping it Simple

• Take two?

• No
  – Abandonment up
  – Cart adds down

Maybe it was the sickly green color…
Small Change, Big Difference

• Spot the difference?

• Promotion of a highly effective area

• Cart adds up significantly
Data Driven Automation

• Data is king at Amazon
• Many examples of data driven automation
  – Channel management
    • Website real estate management system
    • Automated email measurement and optimization
  – Merchandising
    • Customers who bought X also bought…
    • Recommendations
    • New releases, top sellers
    • Purchase Circles™
  – Advertising
    • Automatic ad generation and bidding
Home Page Slots

- Amazon’s home page is prime real-estate
- The past:
  - Every category VP wanted top-center
  - Friday meetings about placements for next week were getting too long, too loud, and lacked performance data
- Today: automation replaces intuitions
  - Home page is made up of slots
  - Anyone can submit content for a slot
  - Content is chosen based on real-time experimentation
Email Channel Management

• Campaign calendar used to be manually managed
  – Weak measurement
  – Costly to schedule and use

• New system
  – Automatically optimizes content to improve customer experience
  – Avoids sending an e-mail campaign that has low clickthrough or high unsubscribe rate
  – Includes inbox management (avoid sending multiple emails/week)
  – Has growing library of automated email programs
    • New releases
    • Recommendations

• Challenges
  – Minimum circulations for emails
  – Targeted inventory management
Customers Who Bought X…

- Amazon’s signature feature
- Relies on having and crunching massive data
  - Every purchase, every page, every search
  - Techniques for sifting patterns from noise
- Two additional examples
  - Customers who shopped for X also shopped for…
  - Customers who searched for X also bought…
- Challenges
  - Sensitivity filtering
  - Data needs especially high in some areas
    - Apparel and toy catalogs “turn” very quickly
Your Recommendations

Hello, Matt Round. We have recommendations for you. (If you're not Matt Round, click here.)

• Amazon’s recommendations widely recognized as being amongst the best in world
  – IEEE paper published on underlying item-to-item correlations
  – Relatively simple algorithm fed off of massive dataset
  – The secret sauce is in the small tweaks to the basic idea

• Challenges
  – Massive data size
    • millions of customers
    • millions of items
  – Recommendations made in real time
Goldbox

- Goldbox is a cross-sell and awareness raising tool
- We allow customers to buy items at an additional discount
- We get a lot of suggestions on how to improve our goldbox offers to make them more personalized, but…

- It’s by design. We discount items to encourage purchases in new categories!

Ron, you now have 60 minutes before these deals expire!
Order now for special Gold Box™ savings, or hold the deal you prefer to see another.

Le Creuset 9 1/2-Inch Nonstick Omelet Pan, Cherry Red [Kitchen & Housewares]
Special Gold Box Price: $42.49
You Save: $47.51
Availability: Usually ships within 24 hours
See full product details
Avg. Customer Rating:

Pirates of the Caribbean - The Curse of the Black Pearl [DVD]
Special Gold Box Price: $17.54
You Save: $12.45
Availability: Usually ships within 24 hours
See full product details
Avg. Customer Rating:
Intro to Sponsored Links

• Short, text-only ads
• Pay per Click / Cost per Click (PPC/CPC)
• Sold in real-time auctions
• Keyword targeted at search keywords
Automated Bidding

- Sponsored links initially done by humans
- Automated program
  - Generates keywords
  - Writes ads (creative)
  - Determines landing page
  - Manages bids
    - Measure conversion rate
    - Profit per converted visitor
    - Update bid
Challenge: Quick Cycle

• This automated ad:

  How to Make Love Like a Porn Star

• Received tens of thousands of clicks from porn searches, but few actually purchased the book

• Update cycle must be quick to avoid large losses
Organized for Execution

• How it used to be
  “Technically infeasible”
  “Fully booked this year”
  “Plain dumb idea”
  “Do this”

• This works rather better

• Small, cross-functional teams
  – Able to execute end-to-end

• Self directed
  – Established group goals and measure progress
Shameless Plug! We’re Hiring

- amazon.com/jobs
  - Engineers, team leads, technical Project managers
  - Amazon offers an unmatched opportunity
    - Operate at extreme scale
    - Data trumps intuition and there is a lot of data
    - Unbeatable visibility for your work
    - See results in days not months or years
    - It’s fun. Honest
- Merchant.COM – launch your site on the Amazon platform