Business Case Study
Amazone.com and ZheJian.com

Final Exam Review

Lecture 20
TIM 50  Autumn 2012

Tuesday December 4, 2012
Final Exam

**December 10, Monday 0800 - 1000AM**

Format is same as Midterm

<table>
<thead>
<tr>
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<th>Up to Midterm</th>
<th>After Midterm</th>
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<td>Percentage</td>
<td>25- %</td>
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Case Study;

Amazone.com
Amazon Overview

• Founded in 1994; Started selling books online and now operate Web sites that offer various products and services, which include: music, DVDs, videos, electronics, camera and photography, clothing apparel, shoes, etc.

• Features include: one-click shopping, customer review and e-mail order verification.

• The company is in coalition with other retailers and offer various new, refurbished, and used items in categories.

• Headquarters is in Seattle (Washington) with an additional office in Coffeyville, Kansas. It has six global websites to serve domestic customers in the US, the UK, Germany, France, Japan and Canada.
History

- November 1994 CEO Jeff Bezos and two associates set up shop in a converted garage.
- Founder and Bezos opened the virtual doors of Amazon.com's online store in July 1995 and began selling public.
- In May 1997 Amazon.com completed its initial public offering (IPO).
- April 1998 the company acquired online bookstores in U.K. and Germany (Bookpages and Telebuch): first international expansion
- In 1999 the company launched its own auction site
- In 2000 Amazon.com launched amazon.co.jp and amazon.fr (Japan and France)
- In 2002 e-commerce strategic alliances were performed with Virgin and Office Depot.
- In January 2003 announced the Free Super Saver Shipping
- September 2003 launched new Sporting Good store.
In 15 years,
Amazon went from 1 category (books) to 16 main categories

1. LIMITLESS INVENTORY
these companies belong to Amazon...
Amazon is also...

AmazonBasics
Amazon-branded electronic products

AmazonFresh
sells and delivers groceries in Seattle

Amazon Studios
online social movie studio

Amazon Warehouse Deals
offers discounts on refurbished products
Amazon Web Services drives these companies...
and a digital colossus.
Amazon has had one of the fastest growths in the Internet’s history...

Revenues reached within first 5 years

- eBay: $0.4 bn
- Google: $1.5 bn
- Amazon: $2.8 bn
Did you know:
Amazon.com is a giant...

Y/Y growth for Q1 2011 +38%  3 × growth of
Market cap $90 bn  2 × market cap
Customers 137 m  2 × # customers
Employees 33,700  15 × more than
Annual revenue $34 bn  16% more than
Internet traffic rank 16th before
Retail brand 1st before
Paid out $1.2 bn to buy
Company Structure

Amazon.com, Inc
1320 Second Ave, Seattle

Distribution Centres
- Delaware (200,000 sq ft)
- Seattle (91,000 sq ft)
- Kentucky (770,000 sq ft)
- Nevada (325,000 sq ft)
- Georgia (890,000 sq ft)
- Kansas (750,000 sq ft)
- United Kingdom (41,000 sq ft)
- Germany (32,000 sq ft)

Shop the Web
- Amazon.co.uk
- Amazon.de

Traffic Generation
- Associates (260,000)
- Major Portals (e.g. Altavista)

Strategic Technologies
- Livebid.com (100%)
- Auctions
- Sotheby's auction house (545m)
- PlanetAll.com (100%)
- Alexa Internet (100%)
- Strategic Technologies
- Jungles (100%)
- Accept.com (130%)

Web Retailing Properties
- Exchange.com (100%)
- Pets.com (54%)
- Homegrocer.com (35%)
- IMDb.com (100%)
- Drugstore.com (46%)

Auctions
- Auctions
- Sotheby's auction house (545m)

Books
- Books

Music
- Music

Videos
- Videos

Gifts
- Gifts

E-cards
- E-cards
Vision Statement

Our vision is to be Earth's most customer centric company; to build a place where people can come to find and discover anything they might want to buy online.
Goals & Objectives

We seek to be Earth's most customer-centric company, where customers can find and discover anything they might want to buy online, and endeavor to offer customers the lowest possible prices.
Mission Statement

The company’s six core values: customer obsession, ownership, bias for action, frugality, high hiring bar, and innovation. The company motto: ‘Work Hard, Have Fun, and Make History’.
Why? A vision…
CEO of Amazon.com

From 1994, Jeff Bezos knew he could create a retail website that would not have the limitations physical businesses encounter.

“You could build a store online that simply could not exist in any other way. You could build a true superstore with exhaustive selection; and customers value selection.”

Jeff Bezos
Strengths

• Reported revenue in 2006 was 13.15 billion
• No brick and mortar location
• Wide product range
• Strong brand equity
• Service non-internet users with catalogs
• Strong partnerships
Weaknesses

• No brick and mortar stores
• Difficult to get direct customer service through website
• Limited advertising
• No 24 hour customer service
• No customer interaction
Opportunities

• Advertising
• More distribution
• Open a brick and mortar store
• Larger international presence
Threats

• Possible identity theft
• Low barriers to entry = increased competition
• Economic conditions
• Consumer to Consumer commerce
• Oil costs increase shipping/transportation costs
Not that disruptive of a model: “sell and deliver stuff to customers”

Amazon perfectly understood the **old-economy retail cocktail**: low prices, large selection, convenience/customer experience.

“I can't imagine that ten years from now [customers] are going to say: 'I really love Amazon, but I wish their prices were a little higher’”

Jeff Bezos
Jeff Bezos’ 3 big ideas

1. Digital enables limitless inventory
2. Digital boosts customer care
3. Digital allows high margin, lowest prices
Gravity fuels gravity

- More customers
  - Lower prices
  - Larger selection
  - Greater convenience

- More sellers
  - More distribution channels
  - Larger reach
Amazon began with books...

**Competition**
Market was large and fragmented.
Contrary to the concentrated music industry, no player would have the power to freeze out a new entrant.

**Product**
A book does not have to be accurately described: it is a universal and simple object.
Book distributors were already exchanging digitalized listing.

**Search**
Search would make it easy for customers to find books among the entire database.
Amazon repeatedly appears first on Google’s results page.
... and needed to get big fast

**Buying power**
With great size comes a better ability to **negotiate volume discounts**.
Suppliers ignore Amazon.com at their own risk.

**Brand & trust**
Trust is hard earned, and easily lost
It involved establishing a **world-class brand** before barnesandnoble.com

**Cost management**
It is logical to amortize high **fixed costs** over a great number of customers.
Variable costs are very low on the Internet.

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Long-term focus: **“market share now equals revenue later”**
Netscape cofounder Marc Andreessen
Create a digital driven supply chain

Hiring from the expert: Walmart

Amazon poached Walmart’s employees:
- Richard Dalzell as its Chief Information Officer
- Jimmy Wright as its Chief Logistics Officer

They were responsible for Walmart’s secret weapon:
- A computerized supply chain
- An impressive supply-and-distribution network

Walmart sued Amazon for violation of trade secrets law in 1998.

1995
- Garage 400 sq feet

1997
- 2 fulfillment centers 300,000 sq feet

2010
- 50 fulfillment centers 26,000,000 sq feet
Build, buy, partner: accelerate development

**Build**

From time to time, Amazon simply created a new category.

In May 2011, Amazon launched MyHabit, even though VentePrivée was the market leader.

**Buy**

When competitors are already well established, Amazon may buy out an incumbent.

Quidsi (Diapers + Soap) acquired for $540 m in 2010.

**Partner**

In some vertical markets, Amazon offers its technology service and e-commerce expertise to third parties.

Co-branded webstore with Toys “R” Us.

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Thanks to this strategy, Amazon had been able to offer massive inventory

MYHABIT

diapers.com

SOAP.com

Toys R Us

2000: exclusivity for 10 years
2006: ended by a lawsuit
Case study: why did Amazon.com buy Zappos for $1.2 bn in 2009?

**Zappos.com**

<table>
<thead>
<tr>
<th>Revenue</th>
<th>$1 bn (2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>11.5 m (2009)</td>
</tr>
<tr>
<td>Female audience</td>
<td>69%</td>
</tr>
</tbody>
</table>

**Technology**

- Amazing **supply-chain and logistics** management (using autonomous robots and proprietary software)

**Synergy**

- Legendary customer service: ranked #1 in 2010¹ (dedicated customer service Twitter account)
  - **One-of-a-kind customer-centric culture** with highly skilled employees
  - **Niche markets** for 10 years before acquisition
  - 97% of sales were apparel/footwear in 2009²

With Zappos, Amazon tries to reach a **new audience** (young women) and acquires **know-how**.
Limitless categories too

By introducing two new product categories every year for almost a decade, Amazon’s market share represents one third of U.S. e-commerce sales.\(^2\)
“Be afraid of our customers, because those are the folks who have the money. Our competitors are never going to send us money.” Jeff Bezos
Invest in customers first

“If you do build a great experience, customers tell each other about that. Word of mouth is very powerful.” Jeff Bezos

**Customer focus**

“We start with the customer and work backward.”

**Frugality**

“Amazon is spending money on things that matter to customers.”

**Innovation**

“I think frugality drives innovation, just like other constraints do.”

Following a bottom-up approach, every decision at Amazon is driven by the customer’s needs.

Frugality is part of the company’s DNA: Amazon is continually looking for ways to do things cost-effectively.

Amazon is always looking for simple solutions in order to provide lower prices to its customer.

Amazon created a trusted, informative and loyal relationship with its customers.
Data & human driven customer service

Amazon’s customer service was ranked #1 in 2009 and 2011.

**WHY**

1996: “If you make customers unhappy on the Internet, they can each tell 6,000 friends”
Jeff Bezos

- Fix customer’s problems
- Identify recurring issues
- Track the behavior of merchants

**HOW**

**Machines**
“We do 90% of our customer service by e-mail rather than by telephone”
Jeff Bezos
Amazon developed its own software to manage e-mail centers.

**Human**

Every employee, even the CEO, spends two days every two years on the service desk to answer calls and help customers.

Customer service is the only human-to-human interaction for an e-commerce website.
Customer-centric innovations: e-commerce easier than commerce

Select
- 1995: Customer reviews
- 1997: Recommendations & bundles
- 2001: Look inside the book
- 2003: Search inside the book

Order
- 1997: 1-Click Ordering

Receive
- 2001: Where’s my stuff
- 2002: Free Super Saver Shipping

Amazon was a first-mover for most of e-commerce’s now ubiquitous best-practices.
Customer centric innovations: pushing boundaries further

User experience
- Amazon is always innovating to improve its users' experience and make them feel at home.
- 1-Click ordering
  - Amazon Prime Vouchers

Personalized stores
- One-to-one marketing to tailor the content to the customer, help him discover new products and provide unique experiences.
- “Your Recent History”
  - “Customers Who Bought This Item Also Bought”

Trust
- “You can always remove it later” [from the cart]
  - “Shopping with us is safe”

Amazon.com implements all its consumers' hidden needs to become their first destination when thinking of buying online.
Case study: 1-Click Ordering is the easiest way to buy

Conversion funnel

Each step of the funnel carries a risk to lose potential customers and lead to shopping cart abandonments.

Conversion optimization

Amazon monitored each step to improve its conversion rate, a tactic that is now pervasive in the industry.

1-Click Ordering

- Patented in 1997, and licensed to Apple in 2000
- Allows to bypass the shopping cart: it's only one step!
- Increased Amazon’s conversion rate

With 1-Click, Amazon revolutionized the buying process by taking convenience to extremes.
International: sky’s the limit?

1. Amazon exported its U.S. model and established subsidiaries to six countries:

   - United Kingdom 1998
   - Germany 1998
   - France 2000
   - Japan 2000
   - Canada 2002
   - China 2004
   - Italy 2010

2. Each subsidiary subsequently started to reference new categories one after another.

Contrary to Walmart, which failed to enter the German and South Korean markets, Amazon’s international expansion has been **successful.**
Case study: how mobile devices promote Amazon.com’s ubiquity

From home

Full experience
- Main source for referencing products (books, music, movies)
- Associates advertise Amazon’s products on other sites.

Everywhere
(even from a brick & mortar shop)

Handy
- Comparison pricing with barcode scanning from Amazon PriceCheck

Entertainment
- New way to navigate through products with Amazon Windowshop App

Opportunities
- Amazon Payments is exploring NFC Payments to develop m-commerce

Amazon created a seamless & integrated shopping experience.
Assuming there’s no sales tax and free shipping, Amazon is significantly **cheaper** than its competitors.

Amazon can really push the loss leader tactic to its end.

**3**

HIGH MARGIN, LOWEST PRICES
Logistics, Amazon’s secret recipe

“None of these things are visible on the website, but they lead to a much better customer experience and a lower cost structure” Jeff Bezos

As a pure-player, Amazon leverages its digital advantage to optimize its supply chain.

Automatically chooses the cheapest origin for the customer’s order in real-time. It will re-optimize it based on the other customers’ orders.

- Fast moving items are stored in all the FCs (fulfillment centers).
- Hard-to-find items are kept in small quantities in one or two FCs.
- Easily movable items (e.g. media) are stored in highly automated facilities.
- Extensive use of tracking

*Drop shipping*: when applicable, Amazon provides packages and asks the supplier to ship the product himself. Third-party sellers follow the same principle, which increases margins.
Digital = cash flow = low prices

On average, a product stays:
- 70 days on Best Buy’s shelf
- 33 days on Amazon’s one

Leveraging its high positive cash flow, Amazon is able to maximize margins and beat all other retailers when it comes to pricing.

1996: Barnes & Noble signs a deal with America Online to become its exclusive Bookseller
1997: Amazon slashes prices up to 40% on its best-selling prices and doubles its inventory to 2.5 m
A data-driven company

Amazon pioneered **A/B testing** in 1997.

“Online, we can show half of our customers one thing and half of customers another, and very quickly get some results back on how people actually behave.” Jeff Bezos

In 2001, for the first time in its history, Amazon implemented a software to measure its costs for each shipped product.

As a result, Amazon started dereferencing its so-called CRAP (Can’t Realize Any Profit) products.

In 2000, Jeff Bezos discovered it took 15 minutes to pack a best-selling $25 folding chair, which obliterated the margin. He then negotiated with the manufacturer, who agreed to send it pre-packaged for €25.
Case study: circumventing distributors (1997)

1995: Jeff Bezos chooses **Seattle** to establish its headquarters.

Seattle is about a six-hour drive from Roseburg, Oregon; where the leading book distributor Ingram runs the largest distribution center in the USA.

1997: to **reduce variable costs**, Amazon starts to circumvent distributors.

- Negotiating with publishers
- Building a warehouse
- Hiring Walmart executives
Next step: digital cultural goods market

While the ebook market is expected to grow by more than 300%\(^1\) by 2015, the printed books market will shrink by 4.7%.

US consumers will spend more on \textit{online} music than on \textit{recorded} music by 2012\(^2\).

US DVD sales plunged \textbf{20\%} in Q1 2011\(^3\), while streaming and subscription services (including Netflix) rose \textbf{33\%}.

With 43\% of its sales coming from media, \textbf{Amazon’s vision is at risk} would it fail to rule over the digital goods market.
Digital goods further improve margins

Value chain
Because there are fewer intermediaries, Amazon can take a larger share in the digital retail price.
Creative destruction: Amazon will be able to sell additional services to content producers.

Inventory
With PoD (Print on Demand) and digital storage, inventory costs become negligible.
Amazon will circumvent distributors but also publishers to directly reach authors.

No shipping
Amazon makes some products free to attract new customers.
One free app per day on Amazon App Store, free 5 GB on Amazon Cloud Drive...

Operating margin in 2010
- Amazon’s global operating margins remain very low
- Amazon’s sales ($34 bn) still represent a drop in Walmart’s bucket ($422 bn), which is now a strong player in the e-retail market
Digital goods domination underway?

In each digital market, Amazon fights for monopoly.
Digital engine #2

Customer accounts

Amazon’s main strength lies in its ability to control the cash register.
A trusted relationship is a competitive asset

Amazon’s primary challenge was to acquire its customers’ confidence

Amazon benefits from a loyal customer base: $2/3$ of the sales comes from returning customers

“Commerce is the simple find it, buy it, ship it action. E-merchandising is much more about customer behavior online”

Jeff Bezos (1998)
Opportunity: digital shuffles the payments market

Establishing barriers to entry

Market players need to acquire customers accounts very quickly. **Barriers to entry** are being built up: new entrants will have to support incumbent’s payment method.

2007: Amazon launches Amazon Payments to directly compete with PayPal

Positioning in the payments market

Worldwide payments represented $600 bn of revenues (and $331 trillions in value\(^1\)) in 2010.

Mobile payments are expected to **quadruple** by 2014, reaching $630 bn in value\(^2\).
Customer loyalty: 3 main approaches

**Recurring usage**
Recurring usage captivates users’ attention.

**Facebook** tries to leverage it to invade other markets (streaming with Warner Bros, Facebook Credits)

**Seamless integration**
Vertical integration creates a consistent experience that is very appealing (*halo effect*).

It may require building its own device (Kindle and iPod).

**Lock-in**
Lock-in occurs when circumstances prevent users from leaving a platform.

**DRM** makes it extremely difficult for users to read their ebooks on another platform.

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Short term advantage      | Long lasting advantage
Low constraint            | High constraint
In the end, Amazon is building an ecosystem to achieve digital supremacy, just like Apple & Google.
A service, not a device

“The vision for Kindle is every book ever in print in any language – all available in less than 60 seconds.” Jeff Bezos

Amazon struggles with publishers to implement its vision:
- Lowering prices, even if it requires temporarily selling at a loss
- Increasing selection: 900,000 books available
- Pressuring them with Print on Demand and auto-publishing

Like iTunes, it is a seamlessly integrated ecosystem. Amazon wants to become a one-stop shop:
- Kindle’s 3G chip
- Access to the ebook catalog through the Kindle or the apps

Even if the Kindle is the best device to read for a long time, it is more of a platform than a device:
- A device-agnostic experience thanks to mobile and desktop application (Whispersync™)
- A streamlined interface and user experience dedicated to reading on many devices
The Kindle is a service, not a device. “Amazon’s iTunes” is made to acquire customers and build up an ecosystem.

**THE KINDLE ECOSYSTEM**
A device dedicated to reading

Optimized for readers
Even if it’s a minor object, the Kindle substantially disrupts our reading experience with:

- 3G access to the Kindle Store
- E-ink reflective screen causing no eyestrains
- 1 month battery life

À la Braun design
With an unobtrusive design, the Kindle blends into readers’ hands.

Instead of trying to replace the printed book or the iPad, the Kindle device is focusing on a few very differentiated features, dedicated to the reading experience.
Creating an ebooks ecosystem

Now that Amazon has reached a critical mass, it is trying to create an ecosystem to increase its footprint.

**Towards users**
- massive selection
- great device
- low prices

**Towards authors**
Higher royalty share (35% or 75%)

**Customer loyalty**
Kindle owners buy 70% more books than prior to owning the device.¹
Even if Amazon faces strong competition from the iPad, it will never compromise on the long-form reading experience.

Color screen
The Mirasol technology delivers color and video.

Shopping
Users can subscribe to book categories.
Store your music, videos, photos, files
Rent a hard drive in the cloud
5 GB free, then $1 per GB per year

EC2 (Elastic Compute Cloud)
Rent a virtual computer: from $0.02 per hour

S3 (Simple Storage Service)
Rent a virtual hard disk: about $0.01 per GB

MT (Mechanical Turk)
Rent human brains (“artificial artificial intelligence

Even though AWS is primarily a B2B offer, the Amazon cloud will ultimately be geared toward end-users.

CLOUD: THE ULTIMATE DELIVERY CENTER
Cloud computing drives innovation

Entrepreneurs won’t be able to launch new products and services without the cloud

- **Security**: Users want a guaranteed level of security.
- **Scalable**: Grow efficiently and reliably.
- **Cheaper**: No initial or overhead costs
- **Flexible**: Pay-as-you go, ramp up quickly
- **SaaS**: Offers great value to end-users.
- **Reliable**: Data storage

Cloud computing lets developers & companies focus on their core offer.
First step: develop a comprehensive B2B offer

Developers needed a reliable and scalable architecture available as an on-demand service.

Seeing that there was a short-term strategic opportunity, Amazon was a first-mover in the cloud computing market.

“It was never a matter of selling excess capacity”
Werner Vogels, CTO Amazon.com

Cloud computing monetizes Amazon’s know-how in scalability and reliability. This business is expected to become even bigger than its retail activities.

AWS slowly emerges as the most fully-fledged platform, and is becoming the de facto standard.

<table>
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<tr>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2010</th>
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<tbody>
<tr>
<td>Amazon Web Services™ EC2, S3</td>
<td>Heroku</td>
<td>Google App Engine</td>
<td>Windows Azure</td>
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Next step: the personal cloud

In a digital content paradigm, the base foundation is the cloud. Amazon is building up its expertise thanks to its AWS offer.

Devices (hardware and software) are commoditized (Amazon Cloud Player already works on iOS devices).
Amazon cloud’s long-term strategy focuses on B2C

1. Cloud encompasses infrastructure (uphill) and usage (downhill)
   - Cloud infrastructure
     - Google can boast as much experience in cloud technologies
   - Consumer usage
     - Apple’s digital content approach is strong

2. Amazon is approaching the market with a two-fold strategy
   - Amazon Web Services
     - The B2C cloud market will flourish thanks to pervasive fiber and wireless connectivity.
   - Amazon Cloud Drive
   - Amazon Kindle
   - Amazon Appstore

3. By introducing new devices, Amazon reaches more customers
   - Kindle
   - Amazon Media Center
   - Amazon Tablet
Four future products to show where Amazon is heading…

AMAZON IN 2020
1. Upload your book
   [Browse]

2. Choose your distribution
   - Amazon Print on Demand
   - Amazon Kindle
   - Amazon Tablet

3. Choose your features
   - Proofreading ($25)
   - Coverdesign ($25)
   - Reviewing ($25)
   - Marketing ($25)

4. Publish
   [Publish]

Amazon Publishing Platform

Discover exceptional books!

New self-published books for you
Law Pivot
Groundsourced and confidential legal advice for companies

Entrepreneur Store Essentials

Related to your business
- Amazon Mechanical Turk Intelligence
- Marketplace E-commerce
- EC2 Computing
- PrintOnDemand Administration
- Your rights Legal
- YourAccountant Legal
Pirates of the Caribbean: Dead Man's Chest

Take the first Pirates of the Caribbean film, add a dash of 20,000 Leagues Under the Sea and a lot more rum. Shake well and you'll have something resembling Dead Man's Chest, a...
Acknowledgments

• To our faberNovel contributors:
  • Stéphane Distinguin (@fano)
  • Cyril Vart (@cyrilvart)
  • Matthieu Lecomte (@MatthieuLecomte)
  • Mathilde Natier (@mathildenat)
  • Julian Nachtigal (@julian)
  • Charles-Axel Dein (@d3in)
  • Axel Le Pennec (@axxou)

• To the following blogs and websites:
  • Quora
  • TechCrunch
  • ReadWriteWeb
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  • Mashable
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  • PCWorld.fr
  • Le Figaro Electro Business blog
  • Écrans
Zhejiang Corporation of China Telecom
Company Background

A leading provider of telecommunications services to the southeastern coastal province of Zhejiang, China

- The parent company, China Telecom Group, was established in 2002,
- China Telecom Group, operating primarily in southern China
- China Netcom, operating in northern China.
By the end of 2006,

- Revenues of RMB (Ren Min Bi) over 16 billion (approximately US$2.3 billion),
- 21 million telephone subscribers
- 4 million broadband subscribers.

Since October 1, 2008,

- A full-service operator after acquiring China Unicom’s CDMA networks, Provide
- Comprehensive information services
- Mobile communications services to its CDMA subscribers.
Foreign operators were permitted to enter the Chinese Market place in 2005.

The goal of Zhejiang corporation was a more competitive telecommunications environment prior to 2005.
Business Challenge

To deliver better service to customers,

- Including slowing churn and lowering the cost of sales by selling more services to customers.
- To create a more efficient and cost-effective business,
- Increasing profitability and revenue.
A strategy for growth in the shorter and its longer-term plans.

- To exchange its city based legacy organizational structure on the province as a whole.
- Change Higher operating costs for all its business support systems
- The development of top-down provincial marketing campaigns,
- Accurate operational information on which to base its own decision-making.
- Program management, expertise in implementing the software packages chosen,

- Global telecoms experience and a seasoned consulting team

- IT can bring to its goal customer relationship management and billing,
Solutions

- Enterprise Data Warehouse (EDW)

- A blueprint for replacing all city-level legacy customer care
- Legacy billing systems modified, centralized these systems at a provincial level.

- An integrated suite of leading-edge, the essential BSS, OSS and service delivery capabilities

- Lower costs, speed implementation and advance toward high performance
- Customer care and billing solutions leverage Oracle’s Siebel CRM software for the customer relationship management function.
- Comverse’s Kenan for billing.
- BEA’s Web Logic Integration provides the middleware component.
- The role of solution architect as well as systems integrator, developing business processes

- Tested and verified system capabilities.

- A custom front end for the payments system was also created
Enterprise Data Warehouse (EDW)

- 2,400 table, 33,000 attributes in 31 provincial level,
- 20,000 tables in 11 city level total 46 million people
- 80 Terabyte
  Capture and analyses
  Visibility control over city branch
  Customer analyses
  Optimal decision
- Reduction in operating costs and an increase in efficiency

- Increasing the average revenue per user (ARPU).

- Sales of bundled services up by 25 percent per month during the pilot phase.
Transaction Processing

- At the present level of 26 million subscribers, complete bill cycle within a short turnaround time
- Equivalent to having a single system with 100 million accounts spanning 10 bill cycles.
- Reduce operational expenditures through back-office consolidation and
- Increase revenues with enhanced revenue assurance capabilities
- A single instance processes generates 175 invoices a second (or 10,500 a minute) during bill runs.

- Handle 10 million accounts enhanced with features, such as marketing promotions and discounts.

- 10 million bills generated across 15 databases covering five cities, including the provincial capital Hangzhou, within 24 hours.

- 20 million business and residential accounts, consisting of 26 million subscribers, covering five cities.

- All in a single system.
Analytics

Phone service market become saturated
- subscriptions declined
- competition grew stiffer

Strategy change from product to Customer focus
- Analyze usage pattern of 24 mil subscriber
- ARPU, churn rate
- eHome, ASDL sale promotion

OLAP, Multi dimensional database (MDB)
Beyond Phone Service

Competitions with Fixed Line phone, ADSL and PHS
- China Netcom, Unicom, and china mobile

Changing landscape
- Restructuring telecommunication industry

Marketing at Zhejiang Province
- 25 people marketing group
  - product development, Rate plan, Service, management, Business support, Marketing budget

Electronic Eye, IP network service, Global eye, digital e-House
Final Exam Review
The final exam will cover all the material in the course with an emphasis on topics covered in the last half of the class. Please review all topics on the midterm review guide in addition to the topics below.

In the Mid Term Exam

1. Competitive Advantage
   - Competitive force model
   - Internet impacts on competitiveness
   - Business Process management
2. E-Commerce
   - E-Commerce differences
   - Type of E-Commerce, Business Model of E-Commerce, E-commerce Revenue Model
3. Global Business and Collaborations
   - Basic Business Functions
   - Managing a Business and firm Hierarchy
   - The Role of Information Systems in a Business
   - Enterprise System, ERP
   - Business benefits of Collaboration and Teamwork
Messerschmitt Chapter 4

- Information, data, data representation
- bit, byte, word
- binary system, base
- Data regeneration
- Networked computing, building block
- Computer system architecture
- CPU, ALU, Data Bus
- Subsystem, component, hierarchy
- OS, Operating system,
- Middleware
- Network, peer to peer, client server system
- File system, data base, database management system
- Intranet, extranet, internet
Messerschmitt Chapter 5
- Client Server Architecture
- Two, three tier system, multi-Tier
- Primary functions of client and server
- Three tier client server architecture
- Reasons for separating application and data tier
- Shared data, application logic and presentation
- Thin, ultra thin clients

Sample Questions
- Which tier is responsible for presentation of applications?
- In which tier is the logic of an application housed?
Messerschmitt Ch. 6 – Modularity and Layering

- Modularity – What does it mean? Why do we design systems this way?
- Granularity
- Hierarchy
- Interfaces – action invocation: parameters, and returns
- The layering principles
- > Layers of computing infrastructure
- > Applications, components, middleware, operating system, networks
- > Data and information in layers
- Abstraction & Encapsulation
- Data Types

Sample Questions
- Why is it best for modules to communicate only through well-defined interfaces?
- Should data storage infrastructure be sensitive to the applications that create the data?
Messerschmitt Ch. 7 - Computer and Comm. Industries
- Infrastructure and applications
- Decomposition and Assembly
- Components and Custom development
- Interoperability
- Scalability
- Outsourcing, Off shore Outsourcing
- System Integration
- Products and Services
- Stovepipe (turn-key) and integrated infrastructure
- Vertical integration and diversification
- Standardization
- why do we need standards?
- why do companies participate?
- reference models and interfaces
- de facto / de jure standards
- Standards Bodies
- Open Standards

Sample questions:
- If a company acquires its suppliers, is that a move toward diversification or vertical integration?
- What are the advantages of selling software as a service instead of as a product?
- What are some examples of infrastructure products?
Messerschmitt Ch. 9 – Applications and the Organization
- Buy vs. Make vs. Outsource
- Application Lifecycle Model of Development

Sample questions:
- What are the advantages of buying a enterprise application instead of developing it yourself?
- Importance of Lifecycle Model of Development?
Laudon and Laudon Chapter 5

- Database
- Entity
- Attributes
- Fields
- Key Field
- Primary Key
- Relational Databases
- One-to-one, one-to-many, and many-to-many relationships
- Normalization
- DBMS
- SQL
- Select, join, project
-Data dictionary
-OODBMS
-Data Warehouses and Marts
-Business intelligence
-Online Analytical Processing
-Data Mining

Sample Questions:
-T or F: Every record in a file should contain at least one key field.
-T or F: A data warehouse may include information from legacy systems.
-T or F: In normalization, complex groupings of data are streamlined to eliminate awkward many-to-many relationships.
Laudon & Laudon Chapter 6 + Networking

- Basic Concepts of:
  - Hosts/Routers/Links
  - What is a packet? Packet Switching?
  - Difference between IP / MAC address?
  - Main idea of what a routing table does
  - Hierarchical addressing – How is it analogous to post office routing?
  - Error Detection – what is a parity bit? Why might it not work?
- Congestion in network
- Flow Control
- The Domain Name System (DNS, WWW, HTTP)
- Layering of architecture
- Physical Layer
- Link Layer
- Ethernet, MAC addresses, Hubs/Switches
- Network Layer
- Routing Table, Packet Forwarding, IP Addresses
- Transport Protocols – TCP/The User Datagram Protocol (UDP)
- Statistical Multiplexing
- Typical Network Topologies (home, Internet service provider (ISP), small business, large e-biz)
- Web Caching

Sample Questions:
Describe how an IP packet is sent over an Ethernet to a gateway router.
What responsibilities does the link layer have?
Does the IP address of your laptop remain the same wherever you go?
Cloud Computing

- SaaS, Paas, Iaas
- Cloud Computing
- Utility Computing
- Public Cloud vs. Private Cloud
- Map Reduce and Hadoop
- EC2, App Engine, EC2
- Advantages for users
  - “Pay as you go”
- Scalability
- Better economies of scale
- Challenges
- Lock-in
Confidentiality + auditability
- Availability
- Data transfer bottlenecks
- Reasons to become a cloud provider

Sample Questions:
- Why are software infrastructures for distributed systems important for cloud computing?
- Is there an economy of scale advantage for very large data centers versus medium sized data centers?
- Can application developed for one cloud be easily made to run on a different cloud provider’s cloud?
Zhejiang Telecom
- How was the telecom industry in China in 98 restructured?
- What businesses was Zhejiang telecom in after this restructuring.
- What trend was causing Zhejiang telecom to loose business?
- What major IT investment did they make to support their marketing efforts?
- How did it help?
- What is ARPU?
- How was the industry restructured in 2008? What changes in strategy did this necessitate for Zhejiang Telecom?
Amazon Web Services

- What prior investments did Amazon make for its other businesses that enabled to launch AWS?
- What differences are there between EC2 (Rent Virtual Computer) and Microsoft Azure (PaaS)?
- How is EC2 priced?