Outline

- Announcements
- CISCO review
- Student Presentation (news)
- E-commerce
- Alibris case
Announcements

- Homework 2 due today

- eCommons
  - Login using your UCSC user name and golden password
  - On-line Forum
    - Alternative way to earn participation points!
    - Two Discussion Topics posted now
    - 1st till Friday

- Reading for next class
  - Messerschmitt Ch 4
Announcements

Forthcoming presentations

- 2/1
  - ??
- 2/3
  - Raashi Bhatnagar (news story)
  - Omar Alexander Calles (Case: Sun-N Tier)

- Send me your slides the night before
  - Failing to do so will result on losing points
- All previous presentations are online
  - Go to the oral presentation link and follow the links
The CISCO Case
Cisco Summary

Success Factors
- Cross-Functional Team of top people
  - People from across the company involved
- Hungry Vendors
  - Oracle and KPMG needed this to succeed
- Strong Support from Top Management
- Favorable Hardware Contract
- Rapid Prototyping - conference room pilots
- Aggressive pace

Good management or luck?
Cisco Summary

Challenges

- Poor testing Strategy
- Inadequate Hardware
- Software required more modifications than originally hoped.
Cisco Summary

What did it cost?

Costs Beyond original budget:

- **Non-IT Personnel In Project**
  80 personnel \( \times 8 \text{ months} \times 160 \text{ hours / month} \times 100 \text{ hour} = $10 \text{ million} \)

- **IT-Personnel beyond original 20**
  80 personnel \( \times 4.5 \text{ months} \times 160 \text{ hours / month} \times 100 \text{ hour} = $5.7 \text{ million} \)

- **Actually cost more than 15 million more than the original budget of $15 million!**

- **Was this really a success?!**
Review: Types of organizational applications

1. **Departmental**
   - Supports a single functional department
   - Example: An accounts management application for an accounting department.

2. **Enterprise**
   - Support enterprise-wide processes and goals.
   - Example: coordinate information between functional departments involved in fulfilling an order.
     (or other cross-functional process.)

3. **Commerce**
   - Supports the purchase/delivery of goods/services
   - Example: product support over the Internet
Cisco Summary

- Top Management made it a priority
  - What effect did this have?

- Rapid Iterative Prototyping?
  - What was this?
  - Was it a good strategy?
  - Was aggressive pace good, or reckless?

- Project justification
  - Did they do a RoR or NPV analysis to justify the project?
Student Presentation

- Michael William Garcia (news story)
- Alan Mah (Case: Alibris)
Enterprise Resource Planning (ERP)

ERP applications: a networked computing application
• Sophisticated configuration tools and options
• Customizable to local tools
So what exactly is ERP??
Material (Manufacturing) Requirements Planning - MRP

- The precursor of ERP
- MRP: A production planning and inventory control system
  - Take:
    - Product Demand forecasts
    - Inventory Balances
    - Replenishment Lead Times
  - Develop a production schedule for a single plant
A desire to Link Across Functional Departments

- Each functional department had its own *legacy* application
  - Programmed in different languages
  - Different data formats

- Often some data was shared between departments by duplicating it.
MRP evolves into ERP

- ERP applications support different business processes that are standardized across organizations
  - Accounting, sales, HRM, material management, CRM, supply chain management, project management, etc...

- Key features:
  - Multi-functional
  - Integrated
  - Modular
Information Integration

- **Key issue**
- Should integrate different data/applications

**CONSTRAINT: Legacy Applications**

- Applications developed using obsolete technology and worked well for many years...
  - e.g., most commercial applications were built using COBOL
- ...until not anticipated problems occurred
  - e.g., the Year 2000 (Y2K) problem
  - Some applications were built 40 years ago
  - The programmers used last 2 digits to represent the year: “1/1/00” => 1900 or 2000?
- Y2K made many enterprises replace their legacy systems with ERP solutions
ERP

- How would you design an ERP?
- Design a user interface for each module
  - Ask user to fill in certain “fields” at particular times.
  - Set up a sequence of events
    - E.g. When the sales department enters an order, that event triggers an event at the manufacturing department.
Fundamental options

- **Build in-house?** using a company’s own funds, staff, or resources.

- **Customize the off-the-shelf application to existing organization?** refers to products that have already been designed and made

- **Mold organization to off-the-shelf application?**
  - Adapt business processes to “Best practices”
  - When there exist compliance requirements or when process is a commodity

- **If all companies use the same “best practices” how can they gain competitive advantage?**
E-commerce

- The buying and selling, and marketing/servicing of products, services, and information over a variety of computer networks.

[O’Brien book]
E-Commerce

- **Major Categories**
  - **Consumer (B2C)**
    - Example: Amazon.com sells books to consumers.
  - **Inter-consumer (C2C)**
    - Example: eBay, real estate
  - **Inter-enterprise (B2B)**
    - Example: ??
E-Commerce Principal Steps

- Matching buyers and sellers
  - Who are the available sellers?
  - How do I decide?

- Negotiating terms
  - Terms and conditions, ie price, delivery

- Consummation
  - Order, Fulfillment, Payment

- Customer service
  - Assistance in usage, repair or replacements
Matching Buyers and Sellers

Information management

- **Catalog** *(pull model)*
  - Seller publishes (web) a catalog of goods and services
  - Willing buyers access at their initiative

- **Advertising** *(push model)*
  - Attach advertisements to other publications or web pages
  - Substantial source of revenue for web sites
  - Example: Spam mail, Banners

- **Intermediary Recommender**
  - Other users recommend a seller/item/service, forums
  - Examples?
Intermediaries?

- What roles should intermediaries play in the networked age?
- Examples?
  - Amazon, Ebay, travelocity, etc.
- What intermediary roles may change or even be eliminated?
  - Travel Agents?
  - Others?
Negotiating Terms

- Fixed price
- Price based on buyer characteristics
  - History
  - Demographics
  - Behavior
  - Time
  - Availability of item/service
  - Examples?
- Auctions

Social applications
**Consummation**

- **Order**
  - Buyer conveys an order to the seller wrt the terms

- **Fulfillment**
  - Seller conveys goods to buyer

- **Payment**
  - Buyer conveys payment to seller

- **Security?**
  - Need to ensure both fulfillment and payment occur
  - Use of intermediate
Payment options

(Topic of Chapter 14)
Account transfer authorization
Credit/debit card
Digital cash

What about security?

- SET: Secure Electronic Transactions
  - VISA & MasterCard Initiative
  - Customer authentication
  - Precludes merchant from seeing credit card number
  - Precludes financial institutions from tracking purchases
Customer Support

- Often need to provide post-sales service to the customer
  - In person
  - Over telephone
  - Via Network
    - Email
    - Remote conferencing
    - FAQ board
    - Automatic distribution of new versions or patches
The challenge of maintaining the relationship with a customer is called **Customer Relationship Management (CRM)**.

CRM software applications seek to provide customer facing employees a complete view of each customer.
- What they’ve bought and returned.
- What problems they’ve reported.
- What other agents they’ve talked to in the past.

An opportunity to add value.
Consumer e-commerce (B2C)

- What have you bought on the Internet, or what do you buy most often?

- What are the advantages and disadvantages compared to a retail store or direct mail catalog?
Some Advantages

- **For the Consumer**
  - Check prices at many vendors with minimal effort
  - Anonymity
  - Mass customization
  - Order tracking
  - Recommendations

- **For the Business**
  - Global reach
  - Automate order taking (cost savings)
  - Price Discrimination
Recommender Systems

How do they work?
Recommender Systems

- Find users with similar interests/purchases/visits
- See what they have bought/visited/liked that you have not
- Recommend them!

- The most popular way of doing this is called **collaborative filtering**
  - (Chapter 2.3)
Collaborative Filtering

- Users rate/purchase objects
- Model ratings/purchases as vectors (user profiles)
  - Item vector $<i_1, i_2, ..., i_n>$
    - e.g. <"LOTR", "Borat", "Lost", ...>
  - Binary vector: Like/Don't Like OR Bought/Not
    - e.g. user A vector <1, 0, 0, 1, ..., 0>
  - Weighted vector: User ratings
    - e.g. user B vector: <8, 6, 0, ..., 2>

- Users with similar ratings/purchases have analogous interests
## Collaborative filtering - Example

<table>
<thead>
<tr>
<th>AliG, Borat, Scrubs, Lost, Seven, Friends</th>
<th>Similarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0, 0, 1, 1, 1, 0</td>
<td>35%</td>
</tr>
<tr>
<td>1, 0, 0, 0, 0, 0</td>
<td>0%</td>
</tr>
<tr>
<td>1, 0, 0, 0, 0, 0, 0</td>
<td>0%</td>
</tr>
<tr>
<td>1, 0, 0, 0, 0, 0, 1</td>
<td>20%</td>
</tr>
</tbody>
</table>

User likes: **Borat, Friends**

System recommends: **Ali-G, Scrubs**

```
0,1,0,0,0,0,1
```
Inter-Consumer E-commerce (C2C)

- What value does something like E-bay add over a simple classifieds listing like craigslist?
  - Ratings of both buyers and sellers
  - Other auction details

- Potential problems?
C2C Examples
Inter-Enterprise E-Commerce (B2B)

- **Procurement**
  - One enterprise purchases goods or services from another

- **Direct Procurement**
  - Ongoing, consistent, and scheduled procurement

The relationship between firms involved in direct procurement often called a **Supply Chain**

The set of problems associated with managing a supply chain is called **Supply Chain Management (SCM)**
SCM

- Need to manage the procurement of parts
  - Don’t run out of any one
  - Don’t order too many
  - Order far enough in advance

- Ideally
  - Know in advance
    - # cars
    - features
SCM

- Thousands of orders per day, each with different requirements!
- Adjusting orders from suppliers constantly according to demand
- Minimal inventories
  - Cut costs
  - Much more sensitive to errors or disruptions
- mass customization (example Dell) requires sophisticated SCM
Networked Computing in direct procurement

- **Electronic Data Interchange (EDI)**
  - Exchange order information between firms involved in direct procurement
  - Existed since 70’s
  - Usually large firms who could afford proprietary communication links
  - Initially order and invoice

- **Financial EDI (FEDI)** later added EFT payment capability
Networked Computing in direct procurement

- XML (Extensible Markup Language) is another data interchange format making an impact on inter-enterprise commerce

  (We will talk more about this later in the quarter)
**Indirect Procurement**

- Sporadic purchase of goods and services to support organizational objectives
  - Example: Office Furniture