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

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
  \[80 \text{ personnel} \times 8 \text{ months} \times 160 \text{ hours/month} \times 100 \text{ hour} \times \$10 \text{ million}\]
- IT-Personnel beyond original 20
  \[80 \text{ personnel} \times 4.5 \text{ months} \times 160 \text{ hours/month} \times \$100 \text{ hour} \times \$5.7 \text{ million}\]

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**

**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

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

Customer Relationship Management

- 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?

Collaborative Filtering

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

- Users with similar ratings/purchases have analogous interests

Collaborative Filtering - Example

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

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

Alibris