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# TIM 50 - Business Information Systems

## Lecture 8

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Instructor: Terry Allen

UC Santa Cruz

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## Outline

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

- Homework 2 due Monday 10/31
  - Forum
    - Topic: Is it possible for a publicly-held corporation in the U.S. today to be socially responsible?
    - Thought experiment
  - Reading for Wednesday
    - Messerschmitt Ch 4
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## Announcements

### Forthcoming presentations

- 10/26
    - ??
    - ??
  - 10/28
    - ??
    - ??
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## Announcements

### 2<sup>nd</sup> TA now on board

- Varun Raghavan (varun@soe.ucsc.edu) will be coordinating all business paper issues
    - Groups
    - Presenters
    - Topics to cover
  - **Send me your presentation slides the night before**
    - Failure to do so may result in loss of points
    - We plan to post all student presentations
      - If you want to edit before posting, send in an update
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## 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? Or merely self-fulfilling outcome?**
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## Cisco Summary

### Challenges

- Poor testing Strategy
  - Inadequate Hardware
  - Software required more modifications than originally hoped.
  - Is such an emotional investment on the part of upper management healthy?
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## Cisco Summary

- What did it cost?
  - Costs Beyond original budget:
    - Non-IT Personnel In Project  
80 personnel X 8 months X 160 hours / month X 100 hour = \$10 million
    - IT-Personnel beyond original 20  
80 personnel X 4.5 months X 160 hours / month X 100 hour = \$5.7 million
  - Actually cost more than 15 million more than the original budget of \$15 million!
  - Was this really a success?!
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## Cisco Summary

- **Top Management made it a priority**
    - What effect did this have?
    - Were problems addressed, or merely suppressed?
  - **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?
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## 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
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## Student Presentation

- ??
- ?? (Case: Alibris)

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## Enterprise Resource Planning (ERP)

ERP applications: a networked computing application

- Sophisticated configuration tools and options
- Customizable to local tools

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## So what exactly is ERP??

1. *Business Modeling Tool*
  2. *- Or is it just a Business Model?*
    1. *We are still early in the life cycle of these tools: it may be both, or neither, and different products may be one or the other.*
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## 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
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## 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.
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## 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
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## 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 unanticipated problems occurred
      - e.g., the Year 2000 (Y2K) problem
      - Some applications were built 40 years ago. Programmers of that era would have been shocked to learn their code would still be in use!
      - 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
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## ERP

- **How would you design an ERP?**
  - **Collection of modules sharing/exchanging information, triggering remote events**
  - **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.
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## 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?**
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## E-commerce

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

[O'Brien book]



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## E-Commerce

- **Major Categories**

- Consumer (B2C)
    - Example: Amazon.com sells books to consumers.
  - Inter-consumer (C2C)
    - Example: e-bay, real estate
  - Inter-enterprise (B2B)
    - Example:??
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## E-Commerce Principal Steps

- **Matching buyers and sellers**
    - Who are the available sellers?
    - How do I decide?
  - **Negotiating terms**
    - Terms and conditions, i.e. price, delivery
  - **Consummation**
    - Order, Fulfillment, Payment
  - **Customer service**
    - Assistance in usage, repair or replacements
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# 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?
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## 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?
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# Negotiating Terms

Social applications

- **Fixed price? Why or why not?**
  - **Price based on buyer characteristics**
    - History
    - Demographics
    - Behavior
    - Time
    - Availability of item/service
    - Examples?
  - **Auctions - price *never* fixed.**
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# 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
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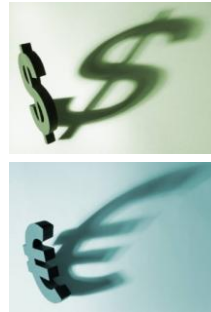
## Payment options

(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

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## 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.
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## 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?
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# 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?

The screenshot shows the Amazon product page for a Canon PowerShot A630 8MP Digital Camera with 4x Optical Zoom. The price is \$215.40. A pink box highlights a recommendation section titled "What do customers ultimately buy after viewing this item?". This section lists four related camera models with their prices and star ratings:

- 74% buy the item featured on this page: Canon PowerShot A630 8MP Digital Camera with 4x Optical Zoom ★★★★★
- 9% buy Canon PowerShot A540 6MP Digital Camera with 4x Optical Zoom ★★★★★
- 7% buy Canon PowerShot A640 10MP Digital Camera with 4x Optical Zoom ★★★★★
- 5% buy Canon PowerShot A710 IS 7.1MP Digital Camera with 6x Image-Stabilized Optical Zoom ★★★★★

Below this, another section titled "Customers who bought this item also bought" lists various accessories:

- Lexar Media 1 GB Secure Digital Memory Card (SD1GB-2311) (Retail Package) by Lexar
- Sony BCC-34H4 Super-Quick Worldwide Battery Charger with 4 AA NiMH Batteries by Sony
- Canon PSC-55 Deluxe Soft Case for A550, A560, A570S, A630, A640, A700 & A710S Digital Cameras by Canon
- 2GB Secure Digital by SanDisk



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## Recommender Systems

- Find users with similar interests/purchases/visits
  - See what they have bought/visited/liked that you haven't bought/visited (yet)
  - Suggest them!
  
  - Are smart websites the only example of this?
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## 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
    - Anything else?
  
  - Potential problems?
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## C2C Examples



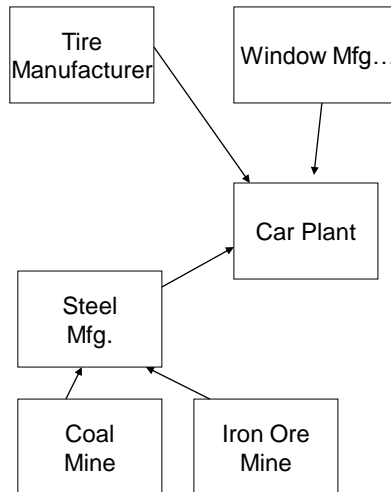
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## Inter-Enterprise E-Commerce (B2B)

- **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)**
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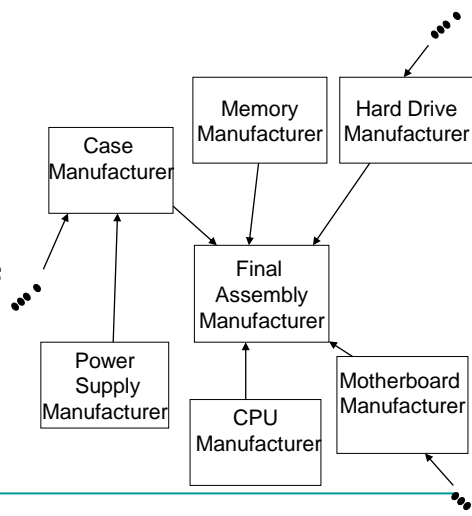
## SCM

- **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
  - Acceptable risk?
- **mass customization (example Dell) requires sophisticated SCM**



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## 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 (electronic funds transfer)
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## 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)
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# Indirect Procurement

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

## Alibris



# Alibris

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- How is Alibris different from eBay?
- ...from Amazon?