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# TIM 50 - Business Information Systems

## Lecture 7

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Instructor: Terry Allen

UC Santa Cruz

10/19/2011

Most slides are by Professor *John Musacchio*

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# Outline

- Announcements
  - Information Management
  - Student Presentation (news)
  - Enterprise Applications
  - Enterprise Resource Planning
  - CISCO case
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# Announcements

- Business Paper proposals due today!
  - Online Forum on course web page
    - alternative way to earn participation points!
      - how it relates to class
      - Use terminology from class
  - Make-up class *here*, Friday 10/28
  - Assignment 2 will post tonight, due 10/28
  - Reading for next time (10/24):
    - Messerschmitt 3.4 - 3.6 (pp. 83-98)
    - Alibris Case (reader pp. 137-148)
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# TIM 50

<http://courses.soe.ucsc.edu/courses/tim50/Fall11/01>

## Instructor

- Terry Allen ([terry\\_allen@hotmail.com](mailto:terry_allen@hotmail.com))
  - Office Hours:
    - Mon. & Wed., 7:00 - 8:00 p.m. here and in E2-563
    - Tues., 4:00 - 5:00 p.m. in E2-563
    - Tues., 5:00 - 6:00 p.m. in E2-563 *if*
      - Students are still dropping in at 5:00 p.m., or
      - You have asked in advance by email for me to stay late, or
      - Some other student has asked me to stay late

## TA

- Huascar Sanchez ([hsanchez@soe.ucsc.edu](mailto:hsanchez@soe.ucsc.edu))
    - Office Hour: Wednesday, 10:00 - 11:00 a.m. in Jack's Lounge
  - TBD ()
    - Office Hour: TBD
-

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# Announcements

## Forthcoming presentations

- 10/24/2011
    - ?? (news story)
    - ?? (Alibris Case)
  - Send me your slides the night before
    - Failing to do so may result in loss of points (after 9 p.m.)
-

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# Information Management (Review)

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# What is Information?

- **Data**

- Numbers, Character strings, etc.

- **Information**

- Recognizable patterns of data organized so as to inform or influence the user in some way

- **Knowledge**

- Concepts, relationships, truths, principles derived from information, leavened with some amount of judgment

- **Wisdom**

- Insight or judgment acquired from extensive knowledge and (usually) experience
-

# Classify these

- "XV", "SF", 34, "CN", 16
- The 49-ers won Super Bowl XV by a score of 34 to 16.
- The National Football Conference wins 17 out of 20 Super Bowl's on average.
- The best team usually wins.

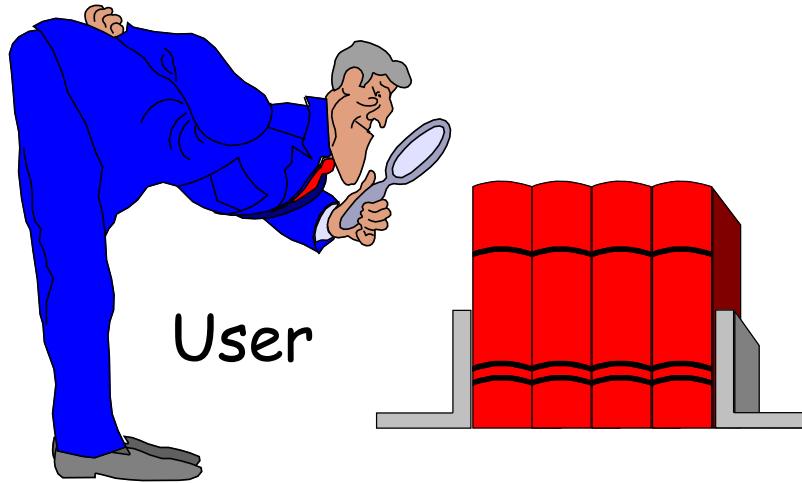


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# Classify these

- 47, 560, 134
  - My bank account has 47\$ in it :-)
  - My net worth, including my bank account and subtracting the debts is 560\$
  - At the rate my net worth is increasing, and given my age and expectations for retirement income, I can't retire until age 134...
-

# Roles in information access



User

Author or publisher

Indexer or organizer

Librarian or  
teacher or  
interpreter

Recommender



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# In the Networked Era...

User

Author or publisher

Indexer or organizer

Librarian

Recommender

How are these roles being changed by networked computing?

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# Finding useful information..

- **Search**

- Item search
- Topic search

- **Browse**

- "Explore" in a less definite way in order to find useful information
- Iterate/refine searches

- **Navigate**

- Follow directions/links to find information
  - On the web you do all of these!
-

# Others can help....

- **Author:**
  - Hyperlink  
(Reference to related information)
- **Author or third party:**
  - Index  
(List of content)
  - Metadata  
(Description of content)
- **Third party:**
  - Reviews or recommendations  
(judgment of content)

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# Exercise

Give an example of the following functions in the context of movie rentals:

Hyperlink

Index

Metadata

Recommendation

# Authors - Publishers

Creates information - verifies, makes available



Business News, Top Stories, International Business, Financial News & More | Reuters.com

http://www.reuters.com/business

Apple (93) Amazon eBay Yahoo! News (942) ISM 50 Book

Yahoo! Business News, Top Stor...

**REUTERS**

LATEST NEWS: **IRAN MAKING NUCLEAR FUEL IN UNDERGROUND PLANT: IAEA**

**Before the Bell**  
Reuters pre-open newsletter delivered to your inbox daily.  
Subscribe >

Find the right employee in your area, fast!  
Post a job now and SAVE OVER 12%

You are here: Home > Business

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Consumer Products & Retail  
Health  
Technology, Media & Telecom  
Transportation  
Industries  
Industry Summits  
Companies  
Small Business  
**INVESTING**  
**NEWS**

**Business**

**Housing market bottom hoped for, not expected** 1:10am EDT  
NEW YORK (Reuters) - Investors hope the next round of results from U.S. home builders, starting on Thursday, will show that the slump in the housing market is abating, but realistically they expect no sign of a bottom yet. [Full Article](#)

**EBay profits jump 52 pct** 9:03pm EDT  
SAN FRANCISCO (Reuters) - Online auction leader eBay Inc. reported on Wednesday quarterly results that beat Wall Street expectations and said its outlook for the rest of the year would be

- Weak sales tax revenue seen trouble for states
- Microsoft, Samsung sign broad patent pact
- Group says redesigned vehicles boost safety
- Wall Street Journal names new managing editor
- Top deputy tells Wolfowitz to step down:

# Indexers

## Classifies information

The screenshot shows a web browser window displaying the Yellow Pages Local Directory website. The browser's address bar shows the URL <http://www.yellowpages.com/>. The website header includes the logo "YELLOWPAGES.COM™" and a navigation menu with links for HOME, YELLOW PAGES, WHITE PAGES, MAPS & DIRECTIONS, and CITY GUIDES. Below the navigation menu, there are links for Welcome, Login, Logout, and Register. The main content area features a search section on the left with input fields for "Business Name or Category" and "City and State or ZIP Code", a "SEARCH" button, and a checkbox for "Set as my Default Location". To the right of the search section is a large banner image of a street scene at night. The banner contains a list of features: "Find and map any location", "Interact with amazing aerial images", and "Get driving directions". Below the banner is a "MAP" button and a row of four buttons: "Personalize", "Download Tools", "Maps & Directions", and "Advertise". At the bottom of the page, there is a "BROWSE Popular Cities" section with a grid of city links: Atlanta, Dallas, Kansas City, Miami, Phoenix; Baltimore, Denver, Las Vegas, New York, St. Louis; Boston, Detroit, Los Angeles, Oklahoma City, San Antonio; Charlotte, Houston, Louisville, Orlando, San Jose; and Chicago, Indianapolis, Memphis, Philadelphia, Seattle.

Yellow Pages Local Directory by YELLOWPAGES.COM

<http://www.yellowpages.com/> Google

Apple (93) Amazon eBay Yahoo! News (943) ISM 50 Book

Welcome to Gmail Yellow Pages Local Dire...

# YELLOWPAGES.COM™

HOME YELLOW PAGES WHITE PAGES MAPS & DIRECTIONS CITY GUIDES

Welcome [Login](#) | [Logout](#) | [Register](#)

## SEARCH

Business Name or Category

City and State or ZIP Code

Set as my Default Location

- Find and map any location
- Interact with amazing aerial images
- Get driving directions

[Personalize](#) [Download Tools](#) [Maps & Directions](#) [Advertise](#)

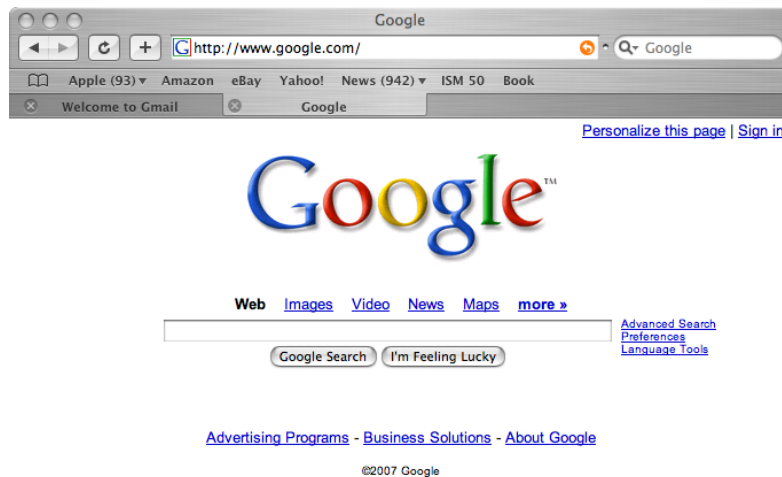
**BROWSE Popular Cities**

<a href="#">Atlanta</a>	<a href="#">Dallas</a>	<a href="#">Kansas City</a>	<a href="#">Miami</a>	<a href="#">Phoenix</a>
<a href="#">Baltimore</a>	<a href="#">Denver</a>	<a href="#">Las Vegas</a>	<a href="#">New York</a>	<a href="#">St. Louis</a>
<a href="#">Boston</a>	<a href="#">Detroit</a>	<a href="#">Los Angeles</a>	<a href="#">Oklahoma City</a>	<a href="#">San Antonio</a>
<a href="#">Charlotte</a>	<a href="#">Houston</a>	<a href="#">Louisville</a>	<a href="#">Orlando</a>	<a href="#">San Jose</a>
<a href="#">Chicago</a>	<a href="#">Indianapolis</a>	<a href="#">Memphis</a>	<a href="#">Philadelphia</a>	<a href="#">Seattle</a>



# Indexers/Organizers - Librarians

(assists and guides user to needed info)



# Librarians

The screenshot shows a web browser window titled "ACM Digital Library" with the URL "http://portal.acm.org/dl.cfm". The browser's address bar includes a search engine icon and the text "Google". The browser's tab bar shows several open tabs, including "UC Santa Cruz Sign-On", "CruzMail user eirinaki is...", and "ACM Digital Library". The website's header features the "PORTAL California Digital Library" logo and navigation links for "Subscribe (Full Service)", "Register (Free, Limited Service)", and "Login". A search bar is present with the text "Search: The ACM Digital Library" and a "SEARCH" button. The main content area is divided into several sections: "THE ACM DIGITAL LIBRARY" with a description and links to "Using the ACM Digital Library" and "Frequently Asked Questions (FAQ's)"; "Recently loaded issues and proceedings:" listing "ACM Computing Surveys (CSUR)", "Journal of the ACM (JACM)", "Journal on Educational Resources in Computing (JERIC)", and "ACM Transactions on Asian Language Information Processing (TALIP)"; "Advanced Search" and "Browse the Digital Library:" sections with various sub-links; "Personalized Services: Login required" including "My Binders" and "TOC Service"; and a "Feedback" section with links to "Report a problem" and "Take our Satisfaction survey". At the bottom, there is a "CrossRef Search" logo and text, and a "Google" logo.

ACM Digital Library

http://portal.acm.org/dl.cfm

Apple (89) Amazon eBay Yahoo! News (906) ISM 50 Book

UC Santa Cruz Sign-On CruzMail user eirinaki is... ACM Digital Library

Subscribe (Full Service) Register (Free, Limited Service) Login

Search: The ACM Digital Library The Guide

SEARCH

## THE ACM DIGITAL LIBRARY

Full text of every article ever published by ACM.

- Using the ACM Digital Library
- Frequently Asked Questions (FAQ's)

Recently loaded issues and proceedings:  
*(available in the DL within the past 2 weeks)*

ACM Computing Surveys (CSUR)  
[Volume 39 Issue 1](#)

Journal of the ACM (JACM)  
[Volume 54 Issue 2](#)

Journal on Educational Resources in Computing (JERIC)  
[Volume 6 Issue 2](#)

ACM Transactions on Asian Language Information Processing (TALIP)  
[Volume 6 Issue 1](#)  
[Volume 5 Issue 4](#)

### Advanced Search

### Browse the Digital Library:

- Journals
- Magazines
- Transactions
- Proceedings
- Newsletters
- Publications by Affiliated Organizations
- Special Interest Groups (SIGs)
- ACM Oral History interviews

Personalized Services: [Login required](#)

- [My Binders](#)  
Save search results and queries. Share binders with colleagues and build bibliographies.
- [TOC Service](#)  
Receive the table of contents via email as new issues or proceedings become available.

### Feedback

- [Report a problem](#)
- [Take our Satisfaction survey](#)

[CrossRef Search](#)  
Pilot program to create full-text interpublisher searchability.

# Recommenders


Netflix: Movies You'll Love

http://www.netflix.com/RecommendationsHome?lnkctr=wiz2Recs

Apple (89) Amazon eBay Yahoo! News (906) ISM 50 Book

UC Santa Cruz Sign-On Netflix: Movies You'll Love

### ★★★★★ COMEDY SUGGESTIONS (68) [See all 68 >](#)



**Stranger than Fiction**


Because you enjoyed:

- [Amelie](#)
- [Lost in Translation](#)
- [Big Fish](#)

**Add**

★★★★★

Not Interested



**Grease**


Because you enjoyed:

- [Look Who's Talking](#)
- [Pretty Woman](#)
- [Sleepless in Seattle](#)

**Add**

★★★★★

Not Interested



**This Is Spinal Tap**

Because you enjoyed:


- [The Big Lebowski](#)
- [High Fidelity](#)
- [Citizen Kane](#)

**Add**

★★★★★

Not Interested

### ★★★★☆ DRAMA SUGGESTIONS (159) [See all 159 >](#)



**Babel**


Because you enjoyed:

- [Lost in Translation](#)
- [Eternal Sunshine of the Spotless Mind](#)
- [Sideways](#)

**Add**

★★★★★

Not Interested



**Traffic**


Because you enjoyed:

- [Crash](#)
- [Requiem for a Dream](#)
- [Lost in Translation](#)

**Add**

★★★★★

Not Interested



**Sophie's Choice**

Because you enjoyed:

- [Capote](#)

**Add**

★★★★★

Not Interested

# Recommenders

Prime

Sign up for Amazon Prime today



ZOOM

See larger image and other views (with zoom)



See all product images

See all 43 customer images

Share your own customer images

## What do customers ultimately buy after viewing this item?



74% buy the item featured on this page:

[Canon PowerShot A630 8MP Digital Camera with 4x Optical Zoom](#) ★★★★★

\$215.40



9% buy

[Canon PowerShot A540 6MP Digital Camera with 4x Optical Zoom](#) ★★★★★



7% buy

[Canon PowerShot A640 10MP Digital Camera with 4x Optical Zoom](#) ★★★★★

\$279.99



5% buy

[Canon PowerShot A710 IS 7.1MP Digital Camera with 6x Image-Stabilized Optical Zoom](#) ★★★★★

\$259.99

## Customers who bought this item also bought

[Lexar Media 1 GB Secure Digital Memory Card \(SD1GB-231\) \(Retail Package\)](#) by Lexar

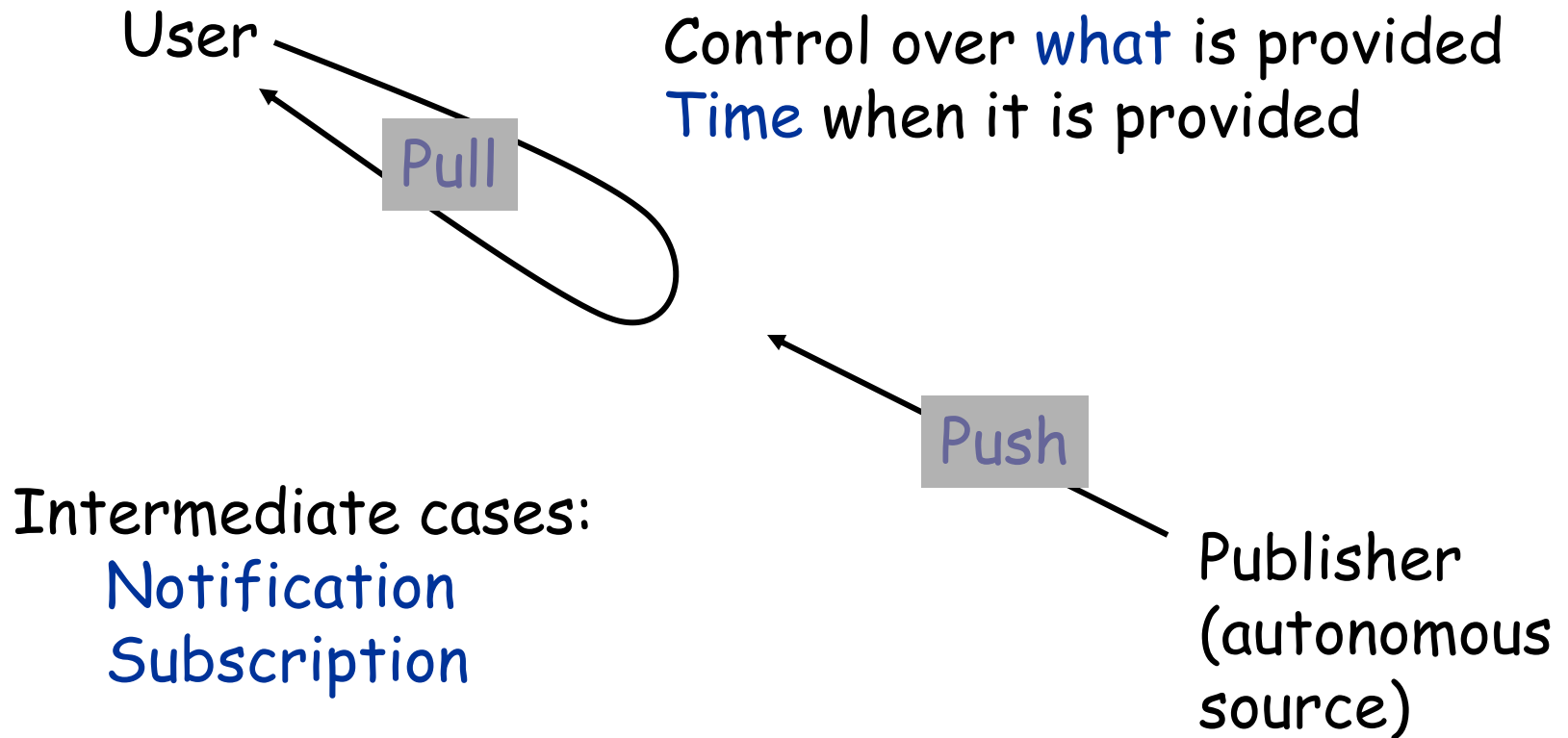
[Sony BCG-34HE4 Super-Quick Worldwide Battery Charger with 4 AA NiMH Batteries](#) by Sony

[Canon PSC-65 Deluxe Soft Case for A550, A560, A570IS, A630, A640, A700 & A710IS Digital Cameras](#) by Canon

[2GB Secure Digital](#) by SanDisk

▶ **Explore similar items** : [Electronics](#) (22) [Camera & Photo](#) (13)

# Push vs. pull



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# Question

What are some differences between push and pull with respect to:

- ❑ invasiveness with respect to the user?
- ❑ suitability of the information received?
- ❑ timeliness of the information received?

# Characteristics of information pull and push

	Pull	Push
Control	User requests specific information	User subscribes to information in general
Notification	User submits question- publisher answers	Publisher provides useful notifications- user decides what to do
Timing	Information is user-directed	Information provider-directed

# Proper roles of push and pull in a workgroup

Pull: work

Push: attention

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Brainstorming

Notification of topic

Accessing documents

Notification of  
document availability

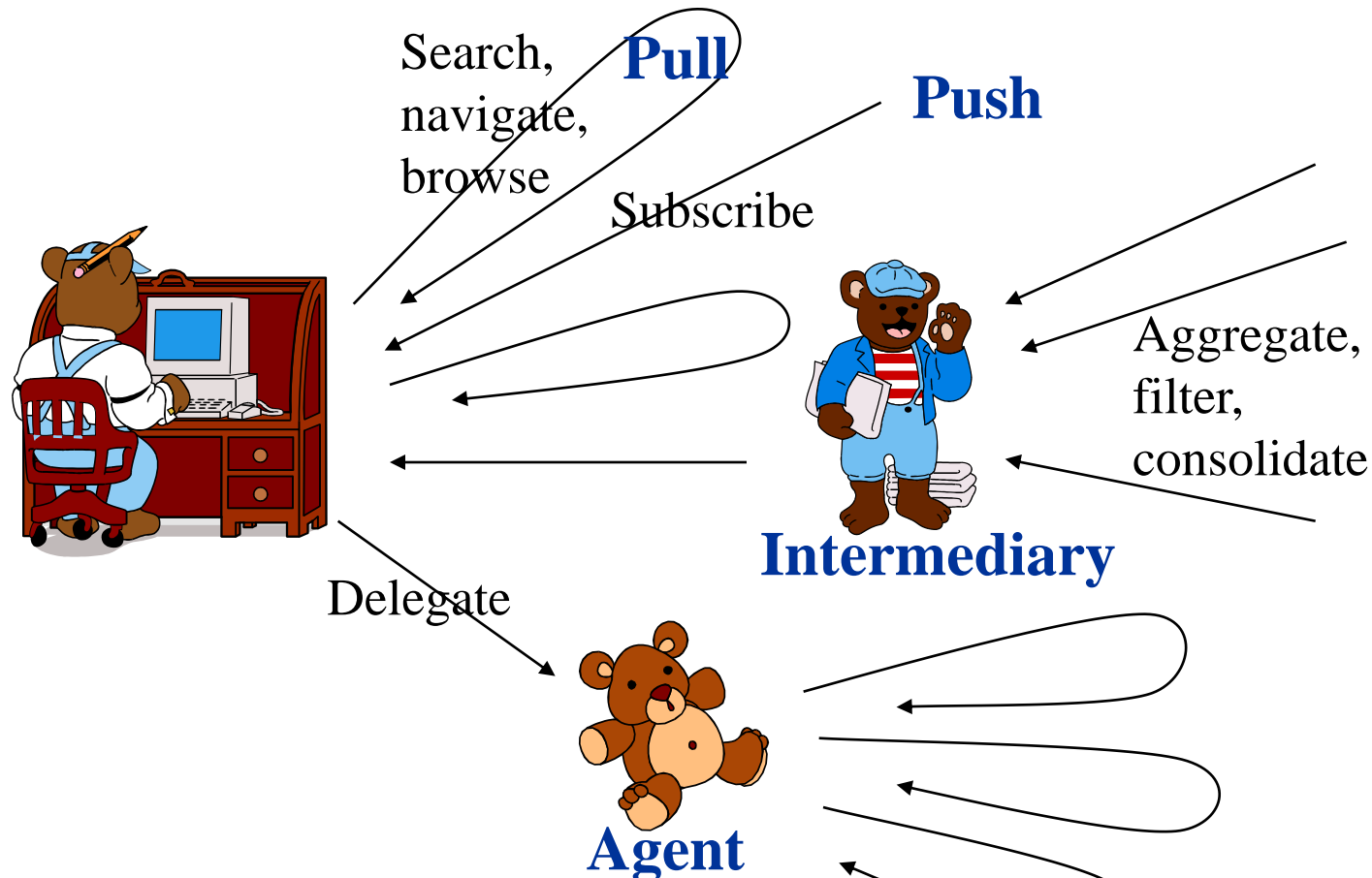
Reminder of deadlines

*Newsgroups and Web*

*Email*



# Some modalities of information access



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# Student Presentations

- 10/19/2011
  - Sean Phillips (news story)
  - Lee Der Lan (Cisco Case)

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# Enterprise Applications

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# Applications

- **What is an application?**
    - Computer software that performs useful capabilities for a user or organization
    - Stores, manipulates, and/or communicates information.
  - **An organizational application**
    - Supports an organization
  - **Often called enterprise application**
    - (An enterprise is an organization with a mission (usually commercial, of course))
  - **Managing an organization:  
coordination+communication**
-

# 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 manufacturing, or other cross-functional process.)

## 3. Commerce

- Supports the purchase/delivery of goods/services
- Example: product support over the Internet
- Example: product returns handling

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# Classification of organizational applications

- **Worker Collaboration**
    - Example: video conferencing
  - **Operations (Manufacturing) and Logistics**
    - Example: coordinate movements of goods between sites.
  - **Decision Support**
    - Summarize info for execs.
  - **Knowledge Management**
    - Organize and retrieve knowledge in company's documents and databases
  - **Customer outreach**
    - Can the network offer new ways to connect to customers?
-

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# Examples of organizational applications

- **Customer care (software4u.com)**
    - FAQ -knowledge base
    - Customer service & tech support
  - **On-line Bookselling (books4u.com)**
    - Specialized software to interface with: customers, stock exchange, Customer's bank
  - **On-line Stock Trading (stocks4u.com)**
    - Information provider
  - **Floral delivery service (flowers4u.com)**
    - Suppliers and small businesses without IS
-

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# Departmental Applications

- **On-line Transaction Processing**
    - record and process data from business transactions.
    - Info resides in Database Management System (DBMS)
  - **Workflow**
    - A workflow application supports ongoing repetitive tasks.
    - Example: An application that passes a case summary of a customer from customer service to tech support.
-



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# Business Process Re-engineering

- Also called **Business Transformation**
  - Radical re-thinking and re-design of business processes
    - Enabled by Networked Information Systems
    - Minimize cost/time, increase efficiency, improve quality
    - Combine what people can do well with what computers can do well
  - **5 phases**
-

# Business Process Re-engineering

- **Analysis**
  - of business requirements and costs
- **Design**
  - of individual activities
  - of information and materials' flow
- **Development**
  - of application
- **Deployment**
  - Including training, testing, installation (may have pilots)
- **Operation**
  - Supporting the application (production, sales, distribution etc.)
- Analogous to a software application's lifecycle

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# Enterprise Resource Planning (ERP)

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So what exactly is ERP??

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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
-

# MRP

- Initially was a planning tool
  - WHAT items are required
  - HOW MANY are required
  - WHEN are they required
- Later other functionalities were added
  - Order Processing
  - Product Costing
- The planning tool begins to take more and more of an active role in the business processes

# 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 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
-

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# 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?**
  - Can ERP vendors even penetrate the 'trade secret' barrier?

# ERP Implementation

- **Very complex application**
- **Typically not implemented "in-house"**
  - Purchase off-the-self solution and customize it
  - Adapt existing applications to "speak" with ERP modules
  - Hire consultants to help you (e.g. KPMG, Accenture)
- **Top-5 ERP Vendors [Gartner Dataquest (2005)]:**



ORACLE®

sage

**Microsoft®**



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# Decision Support

- ERP support enterprise operations AND managerial decisions
    - Provision of timely Information -as it happens
    - Tools for data summarization and presentation - data aggregation and usmmarization
    - Knowledge management & discovery - search tools
-

# Decision Support

- **Knowledge management systems: Turn data and information into knowledge**
  - **Data warehouses** store operations' historical data
    - Provide functionalities for summarizing, aggregating, reporting on these data
    - OLTP (on-line transaction processing) vs. OLAP (on-line analytical processing)
  - **Data mining** is the process of *discovering* patterns in large amounts of data
  - We will elaborate later in the quarter

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# The CISCO Case

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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?

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# Cisco Summary

## Challenges

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

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# Cisco Summary

What did it cost?

Costs Beyond original budget:

Non-IT Personnel In Project

- $80 \text{ personnel} \times 8 \text{ months} \times 160 \text{ hours / month} \times 100 \text{ hour} = \$10 \text{ million}$

IT-Personnel beyond original 20

- $80 \text{ personnel} \times 4.5 \text{ months} \times 160 \text{ hours / month} \times 100 \text{ hour} = \$5.7 \text{ million}$

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

Was this really a success?!

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