Class Announcements

- Reading for next time
  - *Cisco Case*

- Assignment 2 due Tuesday

- Folio 1 due today

- Business Paper Proposal Due Feb 2 Tue
Class Announcements

- Project proposals due in 12 days!!
  - 2-3 pages
  - Give a plan what you will cover in report
  - Cite some references, and show that you have started your research!
    - Remember references must be cited in the body of the text with footnotes or end notes.
  - See website for more details.
Student Talks
Frito-Lay

Hand Held Computer Project

- 3 stated objectives
  - Replace optical scanner system used now
    - IBM will stop supporting it soon
  - ½ hour per day per driver paper-work reduction
  - Marketing effectiveness
    - Detailed sales data
      - will help make regional marketing decisions
      - Negotiate with stores for more shelf space
Frito-Lay

Cost of Implementation (Approximated!!):

- **Data Center upgrade**
  - $1.2 million

- **Machinery in Truck**
  - 10000 trucks X ~$3000 per truck = $30 million

- **Computers in distribution centers**
  - 5-10 million?

- **45 Systems Development Professionals**
  - $70K x 45 = ~3 million

**TOTAL: 45-55 million**
To have a 10% Rate of Return, what would the benefits per year have to be? (for simplicity assume these benefits are received every year forever)

~5 million
HHC Project Good Idea?

Yes:
- Replaced optical scanner system that IBM would stop supporting soon
- Saves sales force time: 2.5 hours per week per driver
- Detailed sales data supports:
  - Regionalized marketing
  - Negotiations for shelf space with supermarkets
- Reduce errors

No:
- Expensive
  - (~50 million)
- Risky
  - Might not work technically
  - Sales force might not like it
    - Already upset about segmentation
  - Equipment vendor might not be reliable
Frito Lay

- HHC was a $50+ million project
- How did they mitigate risks?
- Risk Mgmt
  - Pilot test of technology
  - 3 layer rollout
    - 1) essential systems
    - 2) sales compensation
    - 3) strategic uses of new data (fuzzy)
How to mitigate risks?

- **Action plan**
  - Region by region?
  - All at once?
  - Weakest or Strongest region first?
Frito Lay

HHC deployed to LA area first, a region that won a sales award.

By the end of the 80’s
- HHC deployment completed
- Development of Information Systems to process HHC data to support operations.

Early 90’s re-org to decentralize decision making to different regions

1985
- Revenue: $2847
- Profit $401

2004
- Revenue: $9091
- Profit $2366

- Revenue growth ~ 6% per year on average
Information access

by
David G. Messerschmitt
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A hierarchy

**Data:** numbers, character strings, etc.

**Information:** recognizable patterns organized so as to inform or influence us in some way

**Knowledge:** concepts, relationships, truths, principles.

**Wisdom:** insight or judgement

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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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Roles in information access

User

Author or publisher

Indexer or organizer

Librarian or teacher or interpreter

Recommender

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Classify these

Relative to *A Streetcar Named Desire*:
- Tennessee Williams
- Actor
- Critic
- Playbill magazine

Relative to *Understanding Networked Applications*:
- D.G. Messerschmitt
- Morgan Kaufmann
- Amazon.com
Exercise

User

Author or publisher

Indexer or organizer

Librarian or teacher

Recommender

How are these roles being changed by networked computing?
Push vs. pull

Intermediate cases:
Notification
Subscription

User

Control over what is provided
Time when it is provided

Push

Publisher

Pull

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Proper roles of push and pull in a workgroup

<table>
<thead>
<tr>
<th>Pull: work</th>
<th>Push: attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorming</td>
<td>Notification of topic</td>
</tr>
<tr>
<td>Accessing documents</td>
<td>Notification of document availability</td>
</tr>
<tr>
<td></td>
<td>Reminder of deadlines</td>
</tr>
</tbody>
</table>

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Question

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

- invasiveness on the user?
- refinement of the information received?
- timeliness with which information received?
Some modalities of information access

- **Pull**
  - Search, navigate, browse

- **Push**
  - Aggregate, filter, consolidate

- **Subscribe**

- **Delegate**

- **Agent**

- **Intermediary**

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Aids in finding useful information

Besides the information content itself, other aids:

- reference to related information: hyperlink
- list of content: index
- description of content: metadata
- judgment of content: recommendation
Exercise

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

Hyperlink
Index
Metadata
Recommendation
Question

Comment on the following widely held beliefs (at their time):

- “the movie will displace legitimate theater”
- “television will displace movies”
- “remote learning will displace the university campus as we know it”

What does this suggest about networked applications?
Enterprise Applications
Applications

What is an application?
- Computer software that performs useful capabilities for a user, organization, incorporating storage, manipulation, and communication of information.

An organizational application
- Supports an organization

Often called enterprise application
- (An enterprise is an organization with a commercial mission)
Types of organizational applications

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

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

- **Worker Collaboration**
  - Example: video conferencing

- **Operations 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
Examples

Software Merchant

- Customer Relationship Management
  - Maintain a case file of customer questions and complaints.
  - Website of Freq. Asked Ques. And documentation.
  - Chat application for customers to communicate with tech-support personnel.
Examples

On-Line Stock Trading

- Information Management application for paying customers
- Specialized software to interface with
  - customers
  - stock exchange
  - Customer’s bank
**Some more terms**

**Transaction Processing Systems** record and process data from business transactions.

**Batch Processing** – transactions are accumulated over a period of time and processed periodically.

In **Online Transaction Processing (OLTP)**, transactions are processed immediately.
Some More Terms

- A workflow application supports ongoing repetitive tasks.
  - Example: An application that passes a case summary of a customer from customer service to tech support.
So what exactly is ERP??
Early MRP

- **MRP (Material or Manufacturing Resource Planning)**
  - Take:
    - Product Demand forecasts
    - Inventory Balances
    - Replenishment Lead Times
  - Develop a Production schedule for a single plant
  - At this Point, it is a planning tool
Later on More capabilities added

- Order Processing
- Product Costing

- The planning tool begins to take more and more of an active roll in the business processes.
A desire to Link Across Functional Departments of firm

- 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

- A common software architecture with modules to support different business functions.
  - Accounting, finance, sales, HRM, material management, etc...

- Key features:
  - Multi-functional
  - Integrated
  - Modular
ERP Overview
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
  - When the sales department enters an order, that event triggers an event at the manufacturing department.

But by doing this, aren’t we presuming a particular business process?
Questions

How standardized are organizational processes?

- Customer service
- Finance
- Manufacturing
Fundamental options

- Customize the application to existing organization?
- Mold organization to off-the-shelf application?
  - Is software a good way to propagate best practices?