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

Cost of Implementation (Approximated!):

- Data Center upgrade
  - $1.2 million
- Machinery in Truck
  - 30000 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
Frito Lay

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
- Saws 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

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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

Classify these

* XV, SF, 34, "ON", 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 Bowls on average.

* The best team usually wins.

Roles in information access

Author or publisher

Indexer or organizer

Librarian or teacher or interpreter

Recommender

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

User

Control over what is provided
Time when it is provided

Intermediate cases:
Notification
Subscription

Push

Publisher

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>

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

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

![ERP Overview Diagram]

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
    - 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?