Class announcements

- Due Today
  - Project Preferences
  - Assignment 1: Resume and Cover letter
- For Next time Read:
  - Chapter 2 - Section II of O’Brien

Data Processing Era

- Big companies introduce primitive computers, originally developed for military
- Architecture: Mainframe with time shared terminals
- "No one ever got fired for buying IBM"

Micro Era

- 1981 -- IBM introduces PC
- "Killer applications" like spreadsheets make end users buy them
- Different copies of data on different machines
  - Data processing Managers Upset
The Network Era (1995 - ?)

- After chaos of Micro Era, organizations converged on Client Server networked architectures
  - Client PC allowed user to have direct access to her own computer
  - Server housed organizational data
- Because of Success of Internet technologies...:
  - UNIX, HTML, TCP/IP
  - IT managers used these technologies for internal networks - "intranets"

The Network Era (1995 - ?) - Internet Phenomenon

- Internet built on open standards
  - Different than control-oriented development philosophy
  - Benefits: Scalable, Extensible, ...
- Lots of vendors selling interoperable equipment
  - More decisions to make than the DP manager of the 1960s!
  - Many companies started and flourished.

Cisco

- 1984 Founded by Leonard Bosack and Sandra Lerner (Stanford IT Staff)
- Developed a Router
  - A device to forward data packets from one network to another
- By 1998, Cisco had a market value of $100 billion!

Netscape

- Founded by Marc Andreessen and Jim Clark
- Browser based on Original Mosaic
- IPO in 1995
  - First day went from $28 -> $75!
  - The company’s revenues doubled every quarter in 1995!
- Excitement triggered the dot-com boom.
  - Hundreds of companies started, most didn’t survive...

The network era

- The network era permitted new ways of doing business
  - Employees could check on their benefits with a web browser
  - Customers could “self-serve” themselves
    - In 1998, 70% of Cisco’s $800 million of service revenue was provided over Internet, by allowing customers to access their intranet.
    - Wal-Mart used point of sale data to drive supplier replenishment (CRP)

The network era

- Amazon sold books with minimal inventories.
- Levi Strauss used geo-demographic database to match supply and demand in each store
- ...and many more examples!
Information Resource Management

- Strategic realization
  - Information is the resource to be managed not just data.
  - Need to get information into the hands of workers, so workers can be more productive.

Result: Organizational Performance Improvement

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<th>Sales per Employee</th>
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Source: Standard & Poor's Compustat, Market value rank and IT sales calendar year-end values.

The Network Era (1995 - ?) - Internet Phenomenon

- For IT manager -- Enormous challenge to manage networks of thousands of computers!

The Network Era (1995 - ?) - Internet Phenomenon

- "The Technology leader of Tomorrow must be a business leader with all of the management skills of any other senior executive..."

The CIO has gone from being a corporate god in the 1980s to the chief blame taker in the 1990s when IT initiatives often have failed to deliver their promised productivity gains."

1Sifonis and Goldberg, "Changing Role of the CIO," Information Week, March 24 1997

The Network Era (1995 - ?) - Internet Phenomenon

- In 1996 the CIO turnover rate was 17.7%!1

What is a Business?

An organization that provides a product and/or a service that satisfies a need for which people are willing to pay money.

Makes money if revenues exceed costs.

1Deloitte and Touche
Why Does a Company Need to Make a Profit?

- An obligation to owners/shareholders
  - Owners and shareholders have invested money and time. They expect to see something in return.
- Survival requires continued investments
  - New product development.
  - Facilities and equipment.
  - Acquiring other companies.
  - Invest in employees (training and salary increases).
- Stakeholders want to see performance before investing in a company's future.

Recall: What is a System?

System Definition: A group of interrelated components working toward the attainment of a common goal by accepting inputs and producing outputs in an organized transformation process

- Input
- Processing
- Output
- Feedback
- Control

Business as a system

A business is an organizational system where economic resources (input) are transformed by various organizational processes (processing) into goods and services (output).

A Business is a System

Helps to remember and to tie together:

- Some business basics while remembering the importance of making a profit.
- The understanding of business functions.
- The appreciation for the importance of business processes.

Information systems provide information (feedback) on the operations of the system to management for the direction and maintenance of the system as it exchanges inputs and outputs within its environment.

Important Things to Understand

Two terms:

1) business functions
2) business processes

Will be frequently used throughout this course.

It would be a good idea to make absolutely sure that you know what they are.
**Business Functions**

**Function:** A group of people with related skills (specialized) seems to be a good starting point in understanding functions but this is a fairly loose definition.

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**Business Functions**

- Examples
  - Design
  - Engineering
  - Sales
  - Finance
  - Marketing
  - Etc...

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**What prompts the creation and justification of business functions?**

- Specialization
- Size
- Efficiency
- More cost effective

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**Business Processes**

What is a business process?

- A designed *succession of actions* to the accomplish of some result in a business.

- Example
  - Order Fulfillment

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**A Business Process**

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**Cross Functional Process**

- A business process that crosses over multiple functions
- Are all business processes cross functional?
A business process within a function
Example: Channel Selection Process within Marketing function

Processes tend to be more simple at smaller organizations
Enrollment Process at a small, fictitious university...

Processes tend to be more simple at smaller organizations
Enrollment Process at UCSC...

Similarly, at small companies
Example: Capital Equipment Purchase Business Process...

Big company
Capital Equipment Purchase Business Process

So where do Information Systems Fit into this Story??
- Coordinates flow of information between functional departments carrying out a business process.
  - Increase Speed
  - Reduce Errors
- May reduce number of steps in a business process.
- May even allow new processes that would not have been feasible before...
**Information System Roles**

- **Competitive Advantage**
  - Support of Strategies for Competitive Advantage
- **Effectiveness**
  - Support of Business Decision Making
- **Efficiency**
  - Support of Business Processes and Operations

**A few Information System Categories...**

- **Transaction Processing Systems**
  - Record and Process data resulting from business transactions
  - Example: Credit card trans. processing
  - 2 types
    - Real-time
    - Batch-Processing

- **Process Control Systems**
  - Monitor and control physical processes
  - Example:

**Transaction Processing Systems**

- What is Business Process Reengineering?
  - A fundamental rethinking and redesign of business processes
  - Minor improvement to a business process is often called streamlining the business process
Role of Information Systems in Business Process Reengineering?

- IS often enables complicated business processes be made more simple.
- IS doesn't always drive business process reengineering though…