Outline For Today

- Class Announcements
- Review: IT History (DP Era)
- IT History rest
- Student Presentations
- Basic Concepts (O’Brien Ch1 of Reader 2)

Class announcements

- Presentations
  - Send me the presentation & link to article the night before
  - Include article details in the slides
  - Thu 1/13: Taylor William Nevares, Tiffany Hoi Ling Chan (News)
  - The presentation list will be announced soon
- Add “ISM 050” to all email correspondence+topic
- Group preferences
  - Names
  - Companies
  - Who wants to do the presentation
Class announcements

- Project Groups and Presentation Assignments will be out (on web site) on Friday

- Due Today
  - Project Preferences (send to TA)
  - Assignment 1: Resume and Cover letter

- For next time read:
  - Chapter 2 of O’Brien (Th: p.71-79 & T:p. 80-93)

Review:

- Three Eras of Computing
  - Data Processing Era
  - Micro Era
  - Networking Era

Student Presentations

- Alejandra Maribel Coria
- Ilya Rotenstein

Review: Data Processing Era

- Big companies introduce primitive computers, originally developed for military/scientific applications
  - Architecture: Mainframe with time-shared terminals
  - “No one ever got fired for buying IBM”
Build up to Micro Era

- 1974 - Xerox PARC develops first computer with a mouse. They don't commercialize it!
- 1974 - Altair PC for hobbyists
- 1975 - Bill Gates and Paul Allen found Microsoft


- 1981 - IBM introduces its PC!
  - Intel develops CPU
  - Microsoft develops operating system
  - Epson develops the printer
- IBM PCs were rapidly adopted by the commercial market. The Micro Era (1980-1995)

Build up to the Micro Era - Apple

- 1976 - Steve Jobs, Steve Wozniak & Ronald Wayne build Apple I in a garage!
  - More a motherboard than a personal computer
- 1977 - Apple introduces a successful microcomputer: Apple II
  - Became the market leader despite high price
  - Replaced cassette tapes with floppy disk, Color graphics, Software


- The transition from mainframes to microcomputers was not easy!
- PCs threatened the DP manager. Why?
  - Easier to manage one central mainframe vs a lot of PCs!
  - Data not centralized: Replication issues + whose numbers are right
  - Security Risks
- DP managers put restrictions on PCs => Users defied them! Why?
  - Users wanted the convenience of word processing, CAD, etc. Example: Spreadsheets
  - Vendors marketed direct to the users instead of the DP managers.

- Fragmented IT organization
- Management realized the importance of bringing order to the chaos
  - Chief Information Officer (CIO) in the 80s: Reflected the expanded role of IT leadership
- From “automation” to “information”

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"
  - Could easily hook “intranet” to the outside world (vendors, partners, outsourcers, etc.)

Beginning of Internet:

Milestones

- 1969 – ARPANET linked scientists
- 1984 – the term Internet comes into use (by scientists, military, hobbyists)
- 1990 - WWW (Tim Berners-Lee at CERN)

The Network Era (1995 - ?) – Internet Phenomenon

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

- **Cisco**: founded 1984
  - Developed a Route: a device to forward data packets from one network to another
  - By 1998, Cisco had a market value of $100 billion!

- **Netscape**:
  - Browser based on Original Mosaic
  - IPO (Initial Public Offering) in 1995 (First day went from $28 -> $75 !)
  - The company’s revenues doubled every quarter in 1995 !
  - Excitement triggered the dot-com boom

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.

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
    - e.g. access to shared databases

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Source: Standard & Poor’s Composite. Market values are in millions and S&P stock calendar year-end values.
The Network Era (1995 - ?) - Internet Phenomenon

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

Intranets & Extranets

- Intranet (inside the enterprise)
- Extranet (between enterprise & partners)

History of Computing (Messerchmitt)

- Centralized
  - A few big mainframes to automate business functions such as payroll and accounting
- Time-Shared
  - Terminals added so many could access mainframe
- Decentralized
  - PCs on every desk
- Networked
  - Applications could be geographically distributed

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.
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

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

Business Processes

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.

What is a business process?
- A designed succession of actions to the accomplish of some result in a business.

Example
- Order Fulfillment
A Business Process

Processes tend to be more simple at smaller organizations

Cross-Functional Process/ Within a function

- A business process that crosses over multiple functions. Example? Fulfillment...

- Example: Channel Selection Process within Marketing function

Processes are less simple at bigger organizations

Enrollment Process at UCSC...
Similarly, at small companies

Example: Capital Equipment Purchase
Business Process...

So where do IS fit into this story??
- Coordinate 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...

Big company

Capital Equipment Purchase
Business Process

Business Process Example
An IT-enabled Business Process

Business Functions
- Customer
  - Order
    - On web
- Sales
- Finance
- Inventory
- Control
- Warehousing

Processes:
- Automatic Credit Check
- Automatic Checking of Stock
- Replenish stock
- Print packing list and invoice
- Find Goods
- Ship

Information System: Roles

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

Terminology from O’Brien Ch.1

E-Business: The use of Internet technologies to inter-network and empower:
1. business processes
2. e-commerce
3. enterprise communication and collaboration

E-commerce

- The buying and selling, and marketing/servicing of products, services, and information over a variety of computer networks.
- Examples:
  - Advertising
  - Sales
  - Customer support
  - Online payment mechanisms
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:

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
A Streamlined Business Process

Customer
  Sales
  Finance
  Inventory Control
  Warehousing

Order → Take Order → Enter Order

Automatic Credit Check

CHECK Stock

Print Packing list → Find Goods → Ship

Print Invoice

Inform Mfg. to make order

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...

A Reengineered Business Process

Customer
  Sales
  Finance
  Inventory Control
  Warehousing

Order On web

Automatic Credit Check

Automatic Checking of Stock

Print Packing list And invoice

Find Goods

Ship

Inform Mfg. to replenish stock

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
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.

Components of IS

- People resources
- Hardware resources
- Software resources
- Data resources
- Network resources