TIM 50 - Business Information Systems
Lecture 3

Instructor: Terry Allen
UC Santa Cruz
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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
  - Wed 10/05: Wai Son Wong, Dave (News)
  - The presentation list will be announced soon
- Add “TIM 50” to all email correspondence+topic
- Group preferences
  - Names
  - Companies
  - Who wants to do the presentation

Student Presentations

- April
- Nick
Review:

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

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

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


- 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 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:

- 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 the Router: 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

The Network Era (1995 - ?) - Internet Phenomenon

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

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

Intranets & Extranets

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

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

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.

Business Functions

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

Business Processes

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

Example
- Order Fulfillment

A Business Process

Cross-Functional Process/Within a function

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

Example: Channel Selection Process within Marketing function
Processes tend to be more simple at smaller organizations

Enrollment Process at a small, fictitious university...

- Fee Processing
- Financial Aid
- Housing
- Dining
- Recreation Membership
- Health Insurance
- Class Registration

Processes are less simple at bigger organizations

Enrollment Process at UCSC...

- Billing
- Financial Aid
- Health Insurance
- Housing
- Dining
- Class Reg.

Similarly, at small companies

Example: Capital Equipment Purchase Business Process...

Big company

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.
  - Is reducing the number of steps automatically good?
  - No, of course not. But speeding up a process is often good, even when the cost is greater.
- May even allow new processes that would not have been feasible before...

Business Process Example
An IT-enabled Business Process

Customer
Order:
On web

Business Functions
Sales
Finance
Inventory
Control
Warehousing

Automatic Credit Check
Automatic Checking of Stock

Find
Goods
Print
packing list
and invoice
Ship

Replenish stock

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

Information System: Roles

Competitive Advantage
Support of Strategies for Competitive Advantage

Effectiveness
Support of Business Decision Making

Efficiency
Support of Business Processes and Operations

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

Information System Categories

Components of IS

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