ISM 50 - Business Information Systems

Lecture 3

Instructor: John Musacchio

September 30, 2010
Office Hours

John Musacchio (E2-557)
   Tuesday 4:15-5:15 pm
   Wednesday 11:00-12:00 noon

Michael Singer (baskin 356)
   Wednesday 2-3pm

Raghav Gautam (baskin 356)
   Tuesday 4-5 pm

- **1981 - IBM introduces its PC!**
  - Intel develops CPU
  - Microsoft develops operating system

- IBM PCs were rapidly adopted by the commercial market.

- **PCs threatened** the DP manager
  - Easier to manage one central mainframe than a PC on every employee's desktop!
  - Data not Centralized.
    - The numbers on my PC are right, the ones on your PC are wrong!
  - Security Risks.

- DP managers put restrictions on PCs
- Users defied them!

- Users wanted the convenience of word processing, CAD, etc...

- Vendors marketed direct to the users instead of the DP managers.

- Example: Spreadsheets
Spreadsheet Example

- VisiCalc (1979)
  - First Spreadsheet
  - For Apple II computer
- Lotus 1-2-3 (1983)
  - Mimicked VisiCalc
  - For IBM PC
- Excel (1985)
  - Microsoft
  - Surpassed Lotus when Windows took off.

- Management realized the importance of bringing order to the chaos
  - Coined the term Chief Information Officer (CIO) in the 80s
Beginning of Internet

- 1969 - ARPANET linked scientists
- 1984 - the term Internet comes into use
- 1990 - WWW (Tim Berners-Lee at CERN)
The Network Era (1995 - ?)

- After chaos of Micro Era, organizations converged on Client-Server 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

- IPO in 1995
  - First day went from $28 -> $75!

- 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
  - 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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Source: Standard & Poor’s Compustat. Market value ranks and SPE reflect 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%\(^1\)

- Take Away: Managing IT in the Network Era is difficult, but if you do it right the rewards can be huge!

\(^1\)Deloite and Touche
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.
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.
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).

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.
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.
Business Functions

- Examples
  - Design
  - Engineering
  - Sales
  - Finance
  - Marketing
  - Etc...
What prompts the creation and justification of business functions?

- Specialization
- Size
- Efficiency
- More cost effective
Business Processes

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

Customer

Order

Take Order

Enter Order

Credit Check

Check Stock

Tell Mfg. to make order

Print Invoice

Find Goods

Ship

Business Functions

Sales

Finance

Inventory Control

Warehousing
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

New Product idea

Find sales by channel
Data for similar products

Conduct Focus Group Studies

Mine Demographic data

Combine information
Make decision
Processes tend to be more simple at smaller organizations

Enrollment Process at a small, fictitious university...

Student ➔ Universal Bureaucrat

• Fee Processing
• Financial Aid
• Housing
• Dinning
• Recreation Membership
• Health Insurance
• Class Registration
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
- Effectiveness
- Efficiency

Information Systems

- Support of Strategies for Competitive Advantage
- Support of Business Decision Making
- Support of Business Processes and Operations
A few Information System Categories...