TIM 50 - Business Information Systems

Lecture 3

Instructor: Terry Allen
UC Santa Cruz
10/3/2011

Most slides – and the better part of most other slides
- are by Professor John Musacchio

TIM 50

Instructor
- Terry Allen (terry_allen@hotmail.com)
  - Office Hours:
    - Monday and Wednesday, 7:00 p.m. to 8:00 p.m. (as needed),
    - And Tuesday, TBD
    - Office# is also TBD

TAs
- TBD
  - Office Hours:

- Huascar Sanchez (hsanchez@soe.ucsc.edu)
  - Office Hour: Wednesday, 11:00 a.m. to noon, at Jack’s Lounge
    (for now) in Baskin Engineering Building
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
Class announcements

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

- Due Today
  - Homework 1: Resume and Cover letter

- Due Wednesday
  - Project Preferences (send to TA)

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

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 Micro Era (1980-1995)


- 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”

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 - ?)

- 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.)

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

---

Result: Organizational Performance Improvement

<table>
<thead>
<tr>
<th>Market Value Rank</th>
<th>Company Name</th>
<th>Sales per Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>NA</td>
<td>577</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>273</td>
<td>216</td>
<td>6</td>
</tr>
<tr>
<td>27</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>54</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>53</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>467</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>25</td>
<td>39</td>
<td>14</td>
</tr>
<tr>
<td>70</td>
<td>41</td>
<td>15</td>
</tr>
</tbody>
</table>

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!

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 main frame

- 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 accomplish 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
- Recreation center
- Class Reg.
Similarly, at small companies

Example: Capital Equipment Purchase
Business Process...

Big company

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**

```
Customer
Sales
Finance
Inventory Control
Warehousing

Business Functions

Order
Take Order
Enter Order
Check Order
Check Stock
Print Packing list
Find Goods
Ship

Tell Mfg. to make order
```
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
Information System Categories

Components of IS

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