Leaning Objectives

1. Understand what an Information System ("IS") is!
2. Understand the importance of an IS
3. Understand the major knowledge areas of IS
4. Understand the roles of applications
5. Understand application development
6. Review Ethical Considerations

What is an IS?

A system:

Set of related components that work together in a particular environment to perform whatever functions are required to achieve the system’s objective.

An information system:

Any organized combination of people, hardware, software, communication networks, and data resources that accepts data (input), transforms (processes), and disseminates information (output) in an enterprise.

What is an IS? (continued)

More than input, process, and output!

Includes:

- Feedback (system performance)
- Control (respond to feedback)

IPO

We live in a world of systems!
What is an IS? (continued)

- What are the elements of a manufacturing enterprise?
- What are the elements of a distribution enterprise?
- What are the elements of an educational enterprise?
- What are the elements of a non-profit enterprise?

What is an IS? (continued)

Financial Processes
- Market Analysis
- Product Assessment
- Channel Selection and Management
- Pricing
- Product Announcement
- Advertising
- Customer Events
- Consumer Marketing

What is an IS? (continued)

Sales Processes
- Direct Marketing (field sales force)
- Sales Branch Management
- Distributor Marketing
- Contracting
- Customer Education

What is an IS? (continued)

Manufacturing Processes
- Capacity Planning
- Production Planning (scheduling)
- Production Control
- Quality Management
- Procurement
- Inventory Control
- Distribution
- Outsourcing

What is an IS? (continued)

They are everywhere!
- Transportation Systems
- Utility Systems
- Communication Systems
- Judicial Systems
- Educational Systems
- Waste Management Systems
- Recreational Systems
- Sewage Systems

What is an IS? (continued)

We live in one!
- Circulatory System
- Respiratory System
- Visual System
- Auditory System
- Digestive System
- Nervous System
- A human System
## What is an IS? (continued)

<table>
<thead>
<tr>
<th>Environment</th>
<th>Other Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback Signals</td>
<td>Control Signals</td>
</tr>
<tr>
<td>Control by Management</td>
<td>Feedback Signals</td>
</tr>
<tr>
<td>Input of Raw Materials</td>
<td>Manufacturing Process</td>
</tr>
<tr>
<td></td>
<td>Output of Finished Products</td>
</tr>
</tbody>
</table>

## Importance of an IS

- Information Systems improve the efficiency and effectiveness of business processes.
- Information Systems can help to gain a competitive advantage.
- Most businesses can benefit from the use of information systems.

## IS Knowledge Areas

**An IS Framework for Business Professionals**

- Management Challenges
- Business Applications
- Information Systems
- Information Technologies
- Development Processes
- Foundation Concepts

## Components of an IS

- People
- Hardware
- Software
- Data
- Networks
  - Hardware
  - Software
Components of an IS (continued)

People
- End users or clients
  - Use the IS
  - Creators of information
  - Manipulators of information
  - Use the output of manipulation
- IS specialists
  - Analysis
  - Design
  - Construct
  - Operate
  - Supports

Components of an IS (continued)

Hardware
- Physical Devices
  - Servers
  - Workstations
  - Routers
  - Hubs
- Materials
  - Diskettes
  - Zip Cartridges
  - Paper

Components of an IS (continued)

Software
- System
  - Operating System
  - Database
  - Utilities
  - Compilers
- Applications
  - Process users information
  - Business to Engineering to Manufacturing
- Procedures
  - Users manuals
  - Operational instructions

Components of an IS (continued)

Data
- Databases
  - Organized information
  - Processed information
- Knowledge Bases
  - Facts
  - Business Procedures
  - Business Processes

Data

Usefulness or quality of information is defined by
- Time
- Content
- Form

Dimensions of Information

Fig. 1-8
Tensions between Data and Information

Example of Information versus Data

Information is processed data placed in its proper context to give it value for specific end users.

Ted Williams hit over .400 for the season in 1947. That means that he got four hits in every ten times at bat.

No one has duplicated this feat in over fifty years of major league baseball.

Organizing of Data

Roles of Applications

1. Support business processes
2. Support decision making
3. Support strategies regarding competitive advantage

Support Business Processes
Support Business Processes (continued)

• 1950’s to early 1960’s
  – Write checks
  – Enhance record keeping
• 1960’s
  – Management Information Systems (“MIS”)
  – Comprehensive accounting and logistics
  – Manufacturing / Distribution / Banking
• 1970’s
  – Decision support

Support Business Processes (continued)

• 1980’s
  – Artificial intelligence
  – Knowledge based systems
• 1990’s
  – Web based system
  – Marketing thrust
• 2000’s
  – Customer support
  – Supplier chain

Support Business Processes

Business Applications

Customers

Suppliers

Three Tensions

Workgroup and Workflow

Support Business Processes

Customer Request

Response To

Customer

Engineering

Marketing

Logistics

Mfg. &
Distribution

Support Decision Making

• MIS
  – Reporting
  – Query
• Decision Support
  – What if analysis
  – Run alternative cases
• Executive Information Systems (“EIS”)
  – OLAP
  – Ease of use data drilling
Support Strategies

• Achieve competitive advantage
• Value Chain
  – Prioritizing application modification
  – Prioritizing new applications

Value Chain

1. Focuses on value to customer
2. Products and services pass through multiple functions within and enterprise
   ✓ Maximize the value adding activities
   ✓ Minimize or eliminate non value adding activities
   ✓ Validate that increasing value with a system function results in value to the customer
3. IS objectives must be consistent with the objectives of the entire enterprise – value to customer

Value Chain (continued)
4. Time is dimension of the entire value chain
   ✓ Therefore, time is a MAJOR COMPETITIVE FACTOR – TIME TO MARKET
   ✓ Reduce time to market
   ✓ 50% is a good rule of thumb today
   ✓ Concurrent activities vs. Traditional Sequence
     • Development
     • Manufacturing
     • Sales and Marketing

Value Chain (continued)

Primary Activity
Inbound Logistics:
Receiving, storing, moving to production

Value Chain (continued)

Primary Activity
Operations:
Transforming the inputs into a product or service
**Value Chain (continued)**

**Primary Activity**

- **Outbound Logistics:** Collects, stores, and distributes products to customers

**Value Chain (continued)**

**Primary Activity**

- **Marketing and Sales:** Identifies markets and how customers buy the company's products and services.

**Value Chain (continued)**

**Primary Activity**

- **Service:** Customer support and repair services

**Value Chain (continued)**

**Common Support Services**

- **Procurement:** Procure the inputs used in the firm's value chain

**Value Chain (continued)**

**Common Support Services**

- **Technology Development:** Providing for every aspect of an enterprise. Including, but not limited to, information technology

**Value Chain (continued)**

**Common Support Services**

- **Human Resource Mgmt.:** Recruiting, hiring, training, development, and compensation of employees
Value Chain (continued)
Common Support Services

Developing an IS

Firm Infrastructure:
Planning, accounting, finance, legal, community affairs, government relations, and quality management

Developing an IS

The structured aspects of a process is key to achieving the benefits of process innovation.

Unless there is agreement on how work is, and should be done, it is unlikely that it can be systematically improved.

Developing an IS (continued)

Business Process Reengineering
- Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed.
- Key words are fundamental, radical, dramatic and process

Developing an IS (continued)

Iterative Development

Figure 1.23

Figure 1.24
Developing an IS (continued)

1. A communication vehicle for companies. (intranet)
2. A vehicle for conducting business-to-business. (extranet)
3. A vehicle for conducting business with consumers. (.com)

Jack Callon

Key Chapter Terms

1. Information Technology
2. Information Systems
3. Information Versus Data
4. Transaction Processing System
5. Electronic Business (E-Business)
6. Electronic Commerce (E-Commerce)
7. Legacy Systems
8. Feedback
9. Cross-functional System
10. Roles of Information Systems (3 major ones)

Business Letter Format

Joe Student Sep. 23, 2002
College 8, Room 228
University of California
Santa Cruz, Calif. 95060

Jack D. Callon
Baskin School of Engineering
University of California
Santa Cruz, Calif. 95060

Dear Mr. Callon:

Very truly yours,
(4 spaces)
Joe Student

Figure 1.27

Ethical Considerations

Business Letter Format

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