Global E-Business: How Businesses Use Information Systems


Learning Objectives (1/2)

• Define and describe business processes and their relationship to information systems.

• Evaluate the role played by systems serving the various levels of management in a business and their relationship to each other.

• Explain how enterprise applications, collaboration and communication systems, and intranets improve organizational performance.

Learning Objectives (2/2)

• Explain the difference between e-business, e-commerce, and e-government.

• Assess the role of the information systems function in a business.

Business Processes and Information Systems (1/4)

• Business processes:
  • Workflows of material, information, knowledge
  • Sets of activities, steps
  • May be tied to functional area or be cross-functional

• Businesses: Can be seen as collection of business processes

• Business processes may be assets or liabilities
Examples of functional business processes

- Manufacturing and production
  - Assembling the product
- Sales and marketing
  - Identifying customers
- Finance and accounting
  - Creating financial statements
- Human resources
  - Hiring employees

The Order Fulfillment Process

Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.

Information technology enhances business processes in two main ways:

- Increasing efficiency of existing processes
  - Automating steps that were manual
- Enabling entirely new processes that are capable of transforming the businesses
  - Change flow of information
  - Replace sequential steps with parallel steps
  - Eliminate delays in decision making

Transaction processing systems

- Perform and record daily routine transactions necessary to conduct business
  - Examples: sales order entry, payroll, shipping
- Allow managers to monitor status of operations and relations with external environment
- Serve operational levels
- Serve predefined, structured goals and decision making
A Payroll TPS

Figure 2-2

Payroll TPS for payroll processing captures employee payment transaction data (such as a time card). System outputs include online and hard-copy reports for management and employee paychecks.

1. Management information systems
   - Serve middle management
   - Provide reports on firm’s current performance, based on data from TPS
   - Provide answers to routine questions with predefined procedure for answering them
   - Typically have little analytic capability

Types of Business Information Systems (3/11)

Types of Business Information Systems (4/11)

How Management Information Systems Obtain Their Data from the Organization’s TPS

Transaction Processing Systems
Order processing system
- MIS FILES
  - Sales data
  - Unit product cost data
Material resource planning system
- MIS FILES
  - Product change data
General ledger system
- MIS FILES
  - Expense data
Production master file
- Managers
Accounting files
- Online queries
  - To General Ledger
  - Management reports
  - To government agencies
  - Online queries
  - Employee paychecks

Figure 2-3

In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.

Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2009

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<th>PRODUCT CODE</th>
<th>PRODUCT DESCRIPTION</th>
<th>SAWLS</th>
<th>SAWLS REGION</th>
<th>PLANNED</th>
<th>ACTUAL</th>
<th>ACTUAL versus PLANNED</th>
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</table>

Sample MIS Report

This report, showing summarized annual sales data, was produced by the MIS in Figure 2-3.

Figure 2-4
1. **Decision support systems**
   - Serve middle management
   - Support nonroutine decision making
     - Example: What is impact on production schedule if December sales doubled?
   - Often use external information as well from TPS and MIS

2. **Executive support systems**
   - Support senior management
   - Address nonroutine decisions requiring judgment, evaluation, and insight
   - Incorporate data about external events (e.g. new tax laws or competitors) as well as summarized information from internal MIS and DSS
   - Example: ESS that provides minute-to-minute view of firm’s financial performance as measured by working capital, accounts receivable, accounts payable, cash flow, and inventory

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**Types of Business Information Systems (6/11)**

**Types of Business Information Systems (7/11)**

**Voyage-Estimating Decision Support System**

- This DSS operates on a powerful PC. It is used daily by managers who need to develop bids on shipping contracts.

**Types of Business Information Systems (8/11)**

**Types of Business Information Systems (9/11)**

**Model of an Executive Support System**

- This system pools data from diverse internal and external sources and makes them available to executives in easy-to-use form.
Types of Business Information Systems (10/11)

- Systems from a constituency perspective
  - Transaction processing systems: supporting operational level employees
  - Management information systems and decision-support systems: supporting managers
  - Executive support systems: supporting executives

Types of Business Information Systems (11/11)

- Relationship of systems to one another
  - TPS: Major source of data for other systems
  - ESS: Recipient of data from lower-level systems
  - Data may be exchanged between systems
  - In reality, most businesses’ systems only loosely integrated

Systems That Span the Enterprise (1/13)

- Enterprise applications
  - Span functional areas
  - Execute business processes across firm
  - Include all levels of management
  - Four major applications:
    - Enterprise systems
    - Supply chain management systems
    - Customer relationship management systems
    - Knowledge management systems

Systems That Span the Enterprise (2/13)

Enterprise Application Architecture

Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.
Systems That Span the Enterprise (3/13)

- **Enterprise systems**
  - Collects data from different firm functions and stores data in a single central data repository
  - Resolves problem of fragmented, redundant data sets and systems
  - Enable:
    - Coordination of daily activities
    - Efficient response to customer orders (production, inventory)
    - Provide valuable information for improving management decision making

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Systems That Span the Enterprise (5/13)

- **Supply chain management systems**
  - Manage firm’s relationships with suppliers
  - Share information about
    - Orders, production, inventory levels, delivery of products and services
  - Goal: Right amount of products to destination with least amount of time and lowest cost

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**Example of a Supply Chain Management System**

Customer orders, shipping notifications, optimized shipping plans, and other supply chain information flow among Haworth’s Warehouse Management System (WMS), Transportation Management System (TMS), and its back-end corporate systems.
Customer relationship management systems:

- Provide information to coordinate all of the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction, and customer retention
- Integrate firm’s customer-related processes and consolidate customer information from multiple communication channels

Knowledge management systems

- Support processes for acquiring, creating, storing, distributing, applying, integrating knowledge
- Collect internal knowledge and link to external knowledge
- Include enterprise-wide systems for:
  - Managing documents, graphics and other digital knowledge objects
  - Directories of employees with expertise

Intranets:

- Internal networks built with same tools and standards as Internet
- Used for internal distribution of information to employees
- Typically utilize private portal providing single point of access to several systems
- May connect to company’s transaction systems
### Systems That Span the Enterprise (11/13)

- **Extranets:**
  - Intranets extended to authorized users outside the company
  - Expedite flow of information between firm and its suppliers and customers
  - Can be used to allow different firms to collaborate on product design, marketing, and production

### Systems That Span the Enterprise (12/13)

- **Collaboration and communication systems**
  - ‘Interaction’ jobs a major part of global economy
  - Methods include:
    - Internet-based collaboration environments
    - E-mail and instant messaging (IM)
    - Cell phones and smartphones
    - Social networking
    - Wikis
    - Virtual worlds

### Systems That Span the Enterprise (13/13)

- **E-business (Electronic business):**
  - Use of digital technology and Internet to execute major business processes in the enterprise
  - Includes **e-commerce** (electronic commerce):
    - Buying and selling of goods over Internet
  - **E-government:**
    - The application of Internet and networking technologies to digitally enable government and public sector agencies’ relationships with citizens, businesses, and other arms of government

### The Information Systems Function in Business (1/5)

- **Information systems department:**
  - Formal organizational unit responsible for information technology services
  - Includes programmers, systems analysts, project leaders, information systems managers
  - Often headed by chief information officer (CIO), also includes chief security officer (CSO) and chief knowledge officer (CKO)
- **End-users:**
  - Representatives of other departments, for whom applications are developed
• Small firm may not have formal information systems group
• Larger companies typically have separate department which may be organized along one of several different lines:
  • Decentralized (within each functional area)
  • Separate department under central control
  • Each division has separate group but all under central control

Figure 2-10

There are alternative ways of organizing the information systems function within the business: within each functional area (A), as a separate department under central control (B), or represented in each division of a large multidivisional company but under centralized control (C).

Figure 2-10 (cont)