Chapter 2

Information Systems in the Enterprise

OBJECTIVES

• Evaluate the role played by the major types of systems in a business and their relationship to each other

• Describe the information systems supporting the major business functions: sales and marketing, manufacturing and production, finance and accounting, and human resources

OBJECTIVES (continued)

• Analyze the relationship between organizations, information systems, and business processes

• Explain how enterprise applications promote business process integration and improve organizational performance

• Assess the challenges posed by information systems in the enterprise and management solutions

MAJOR TYPES OF SYSTEMS IN ORGANIZATIONS

Three main categories of information systems serve different organizational levels:

1. Operational-level systems: support operational managers, keeping track of the elementary activities and transactions

2. Management-level systems: serve the monitoring, controlling, decision-making, and administrative activities

3. Strategic-level systems: help senior management tackle and address strategic issues

Figure 2-1

Types of Information Systems

Major Types of Systems

• Transaction Processing Systems (TPS)

• Management Information Systems (MIS)

• Decision-Support Systems (DSS)

• Executive Support Systems (ESS)
MAJOR TYPES OF SYSTEMS IN ORGANIZATIONS

The Four Major Types of Information Systems

Transaction Processing Systems (TPS)

- Basic business systems that serve the operational level

- A computerized system that performs and records the daily routine transactions necessary to the conduct of the business

Transaction Processing Systems (TPS) (continued)

Management Information Systems (MIS)

- Inputs: High volume transaction level data

- Processing: Simple models

- Outputs: Summary reports

- Users: Middle managers

Example: Annual budgeting
Decision-Support Systems (DSS) (Continued)

Management Information Systems (MIS) (continued)

A sample MIS report

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Executive Support Systems (ESS):

- Inputs: Aggregate data
- Processing: Interactive
- Outputs: Projections
- Users: Senior managers

Example: 5 year operating plan
In contemporary digital firms, the different types of systems are closely linked to one another. This is the ideal.

In traditional firms these systems tend to be isolated from one another, and information does not flow seamlessly within the organization. Efficiency and business value tend to suffer greatly in these traditional firms.
Overview of an Inventory System

Financing and Accounting Systems

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Business Processes and Information Systems

Business processes:
• Manner in which work is organized, coordinated, and focused to produce a valuable product or service
• Concrete work flows of material, information, and knowledge—sets of activities
• Unique ways to coordinate work, information, and knowledge
• Ways in which management chooses to coordinate work

Examples of Business Processes

Manufacturing and production:
• Assembling product, checking quality, producing bills of materials

Sales and marketing:
• Identifying customers, creating customer awareness, selling

Finance & accounting:
• Paying creditors, creating financial statements, managing cash accounts

Human resources:
• Hiring employees, evaluating performance, enrolling employees in benefits plans

Table 2.6

Cross-Functional Business Processes:
• Transcend boundary between sales, marketing, manufacturing, and research and development
• Group employees from different functional specialties to a complete piece of work

Example: Order Fulfillment Process

The Order Fulfillment Process

Table 2.6 continued
Management Information Systems
Chapter 2 Information Systems in the Enterprise
INTEGRATING FUNCTIONS AND BUSINESS PROCESSES:
Introduction to Enterprise Applications

Systems for Enterprise-Wide Process Integration

Enterprise applications:
• Designed to support organization-wide process coordination and integration

Consist of:
1. Enterprise systems (ERP)
2. Supply chain management systems (SCM)
3. Customer relationship management systems (CRM)
4. Knowledge management systems (KMS)

Enterprise Systems
• Enterprise systems, also known as enterprise resource planning (ERP) systems, provide a single information system for organization-wide coordination and integration of key business processes.

• Information that was previously fragmented in different systems can seamlessly flow throughout the firm so that it can be shared by business processes in manufacturing, accounting, human resources, and other areas.

IBM, Oracle, SAP, Microsoft, SunGuard, …

Traditional “Silo” View of Information Systems

Within the business:
• There are functional areas, each having its own uses of information systems

Outside the organization’s boundaries:
• There are customers and vendors

Functions tend to work in isolation
Management Information Systems
Chapter 2 Information Systems in the Enterprise
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Enterprise Systems

Benefits of Enterprise Systems
- Help to unify the firm’s structure and organization: One organization
- Management: Firm wide knowledge-based management processes
- Technology: Unified platform
- Business: More efficient operations & customer-driven business processes

Challenges of Enterprise Systems
- Difficult to build: Require fundamental changes in the way the business operates
- Technology: Require complex pieces of software and large investments of time, money, and expertise
- Centralized organizational coordination and decision making: Not the best way for the firms to operate

Supply Chain Management (SCM)
- Close linkage and coordination of activities involved in buying, making, and moving a product
- Integrates supplier, manufacturer, distributor, and customer logistics time
- Reduces time, redundant effort, and inventory costs
- Network of organizations and business processes

Information from Supply Chain Management Systems helps firms:
- Decide when and what to produce, store, and move
- Rapidly communicate orders
- Track the status of orders
- Check inventory availability and monitor inventory levels
- Rapidly communicate changes in product design

Customer Relationship Management (CRM)
- Manages all the ways used by firm to deal with existing and potential new customers
- A Business and technology discipline
- Provides end-to-end customer care
- Provides a unified view of customer across the company
- Consolidates customer data from multiple sources and provides analytical tools for answering questions
Management Challenges: (Continued)

- Accounting for the cost of systems and managing demands for systems: Given the large number of different types of systems in a firm, and the large number of people involved with using them, it is a complex task to understand which systems are truly necessary and productive with high returns on investment.

Solution Guidelines:

- Inventory the firm’s information systems: Develop a list of firm-wide information requirements to give a 360-degree view of the most important information needs of the firm.
- Employee and management education: Ensure that you understand how much training is required.
- Account for the costs and benefits: Develop an accounting system for information services firm-wide.

OBJECTIVES (continued)

- Analyze the relationship between organizations, information systems, and business processes
  - IS support cross-functional business processes
- Explain how enterprise applications promote business process integration and improve organizational performance
  - ES, SCM, CRM, KM span multiple business processes & organizations
- Assess the challenges posed by information systems in the enterprise and management solutions
  - Building cost-effective, integrated, user-friendly systems

Knowledge Management Systems

- Collects relevant knowledge and makes it available wherever and whenever it is needed
- Support business processes and management decisions
- Also links the firm to external sources of knowledge
- Support processes for acquiring, storing, distributing, and applying knowledge