

Management Information Systems, 13TH ED.

MANAGING THE DIGITAL FIRM

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Chapter 2: Global E-business and Collaboration

Learning Track 1: Systems from a Functional Perspective

We will start by describing systems using a functional perspective because this is the most straightforward approach, and, in fact, because this is how you will likely first encounter systems in a business. For instance, if you are a marketing major and take a job in marketing, you will be working on the job first with marketing information systems. If you are an accounting major, you will be working with accounting and financial systems first. From a historical perspective, functional systems were the first kinds of systems developed by business firms. These systems were located in specific departments, such as accounting, marketing and sales, production, and human resources. Let's take a close look at systems from this functional perspective.

Sales and Marketing Systems

The sales and marketing function is responsible for selling the organization's products or services. Marketing is concerned with identifying the customers for the firm's products or services, determining what customers need or want, planning and developing products and services to meet their needs, and advertising and promoting these products and services. Sales is concerned with contacting customers, selling the products and services, taking orders, and following up on sales. Sales and marketing information systems support these activities.

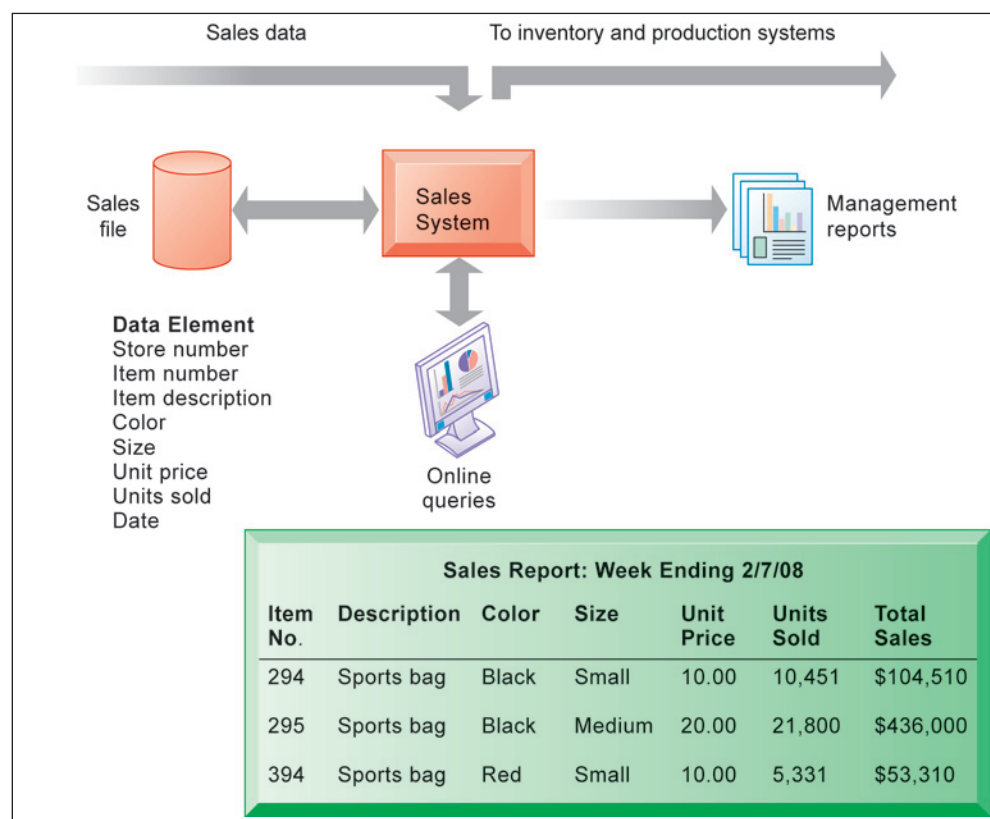
Table 2-1 shows that information systems are used in sales and marketing in a number of ways. Sales and marketing systems help senior management monitor trends affecting new products and sales opportunities, support planning for new products and services, and monitor the performance of competitors. Sales and marketing systems aid middle management by supporting market research and by analyzing advertising and promotional campaigns, pricing decisions, and sales performance. Sales and marketing systems assist operational management and employees in locating and contacting prospective customers, tracking sales, processing orders, and providing customer service support.

Figure 2-1 illustrates a sales information system used by retailers, such as The Gap or Target. Point-of-sale devices (usually handheld scanners at the checkout counter) capture data about each item sold, which update the sales system's figures about sales and send data about items sold to related systems dealing with items remaining in inventory and with production. These businesses use this information to track which items have been sold, to determine sales revenue, and to identify hot-selling items and other sales trends.

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TABLE 2-1 Examples of Sales and Marketing Information Systems

System	Description	Groups Served
Order processing	Enter, process, and track orders	Operational management Employees
Pricing analysis	Determine prices for products and services	Middle management
Sales trend forecasting	Prepare five-year sales forecasts	Senior management

FIGURE 2-1 Example of a Sales Information System

This system captures sales data at the moment the sale takes place to help the business monitor sales transactions and to provide information to help management analyze sales trends and the effectiveness of marketing campaigns.

Manufacturing and Production Systems

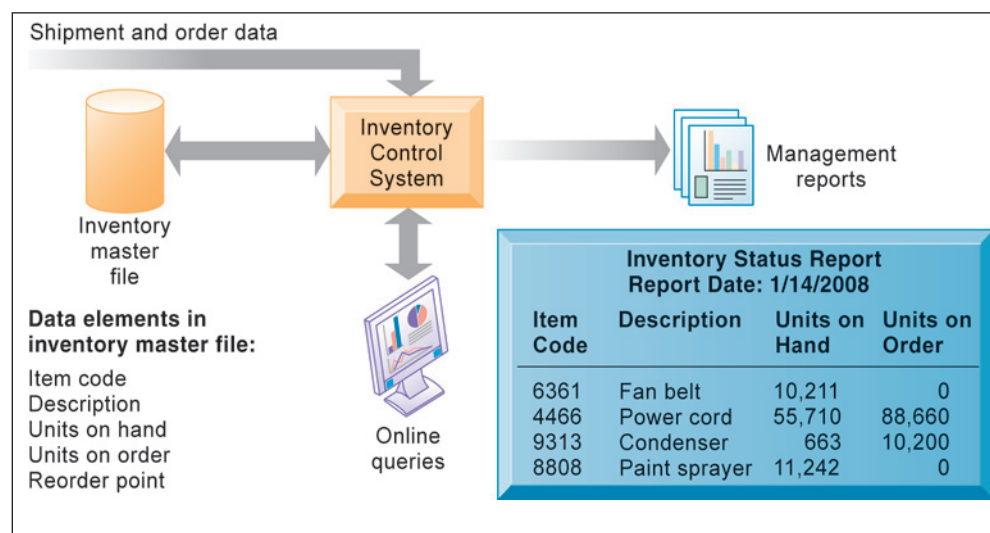
The manufacturing and production function is responsible for actually producing the firm's goods and services. Manufacturing and production systems deal with the planning, development, and maintenance of production facilities; the establishment of production goals; the acquisition, storage, and availability of production materials; and the scheduling of equipment, facilities, materials, and labor required to fashion finished products. Manufacturing and production information systems support these activities.

Table 2-2 shows some typical manufacturing and production information systems for each major organizational group. Senior management uses manufacturing and production systems that deal with the firm's long-term manufacturing goals, such as where to locate new plants or whether to invest in new manufacturing technology.

TABLE 2-2 Examples of Manufacturing and Production Information systems

System	Description	Groups Served
Machine control	Controls the actions of machines	Operational management and equipment
Production planning	Decides when and how many products	Middle management should be produced
Facilities location	Decides where to locate new production	Senior management facilities

FIGURE 2-2 Overview of an Inventory System



This system provides information about the number of items available in inventory to support manufacturing and production activities

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Manufacturing and production systems for middle management analyze and monitor manufacturing and production costs and resources. Operational management uses manufacturing and production systems that deal with the status of production tasks.

Most manufacturing and production systems use some sort of inventory system, as illustrated in Figure 2-2. Data about each item in inventory, such as the number of units depleted because of a shipment or purchase or the number of units replenished by reordering or returns, are either scanned or keyed into the system. The inventory master file contains basic data about each item, including the unique identification code for each item, a description of the item, the number of units on hand, the number of units on order, and the reorder point (the number of units in inventory that triggers a decision to reorder to prevent a stockout). Companies can estimate the number of items to reorder, or they can use a formula for calculating the least expensive quantity to reorder called the economic order quantity. The system produces reports that give information about such things as the number of each item available in inventory, the number of units of each item to reorder, or items in inventory that must be replenished.

Finance and Accounting Systems

The finance function is responsible for managing the firm's financial assets, such as cash, stocks, bonds, and other investments, to maximize the return on these financial assets. The finance function is also in charge of managing the capitalization of the firm (finding new financial assets in stocks, bonds, or other forms of debt). To determine whether the firm is getting the best return on its investments, the finance function must obtain a considerable amount of information from sources external to the firm.

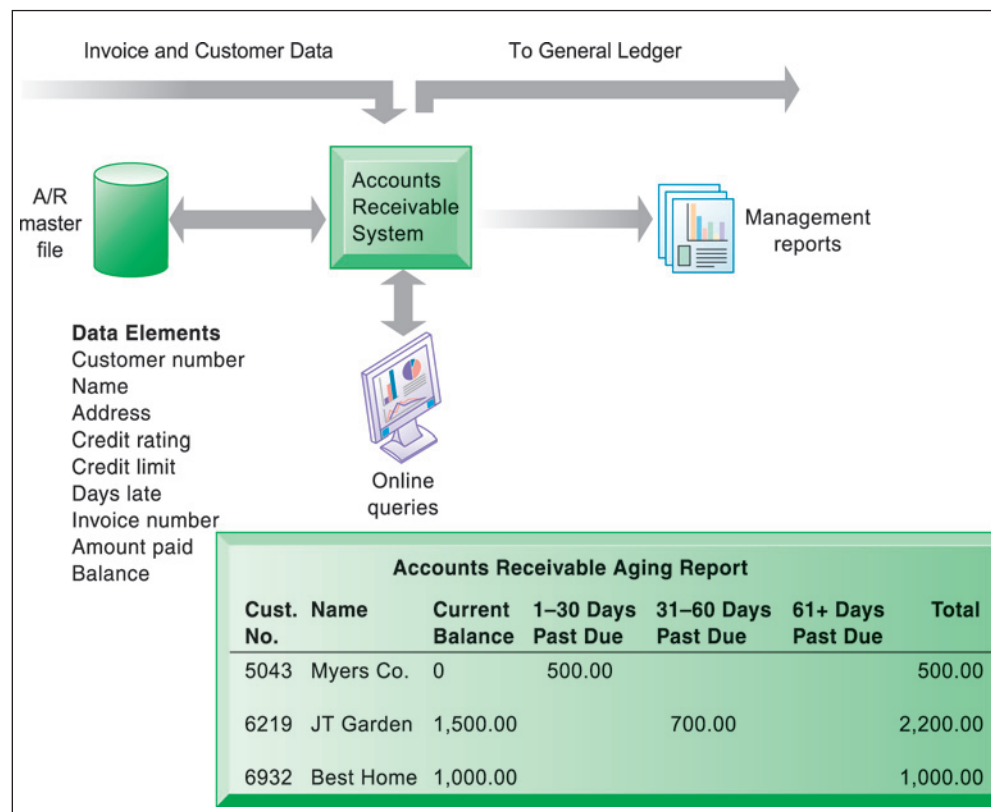
The accounting function is responsible for maintaining and managing the firm's financial records—receipts, disbursements, depreciation, payroll—to account for the flow of funds in a firm. Finance and accounting share related problems—how to keep track of a firm's financial assets and fund flows. They provide answers to questions such as these: What is the current inventory of financial assets? What records exist for disbursements, receipts, payroll, and other fund flows?

Table 2-3 shows some of the typical finance and accounting information systems found in large organizations. Senior management uses finance and accounting systems to establish long-term investment goals for the firm and to provide long-range forecasts of the firm's financial performance. Middle management uses systems to oversee and control firm's financial resources. Operational management uses finance and accounting systems to track the flow of funds in the firm through transactions, such as paychecks, payments to vendors, securities reports, and receipts.

TABLE 2-3 Examples of Finance and Accounting Information Systems

System	Description	Groups Served
Accounts receivable	Tracks money owed the firm	Operational management
Budgeting	Prepares short-term budgets	Middle management
Profit planning	Plans long-term profits	Senior management

Figure 2-3 illustrates an accounts receivable system, which keeps track of what customers who have made purchases on credit owe to a company. Every invoice generates an “account receivable”—that is, the customer owes the firm money. Some customers pay immediately in cash, but others are granted credit. The accounts receivable system records each invoice in a master file that also contains information on each customer, including that person’s credit rating. The system also keeps track of all the bills outstanding and can produce a variety of output reports, both on paper and on the computer screen, to help the business collect bills. The system also answers queries about a customer’s credit rating and payment history.

FIGURE 2-3 An Accounts Receivable System

An accounts receivable system tracks and stores important customer data, such as payment history, credit rating, and billing history.

Human Resources Systems

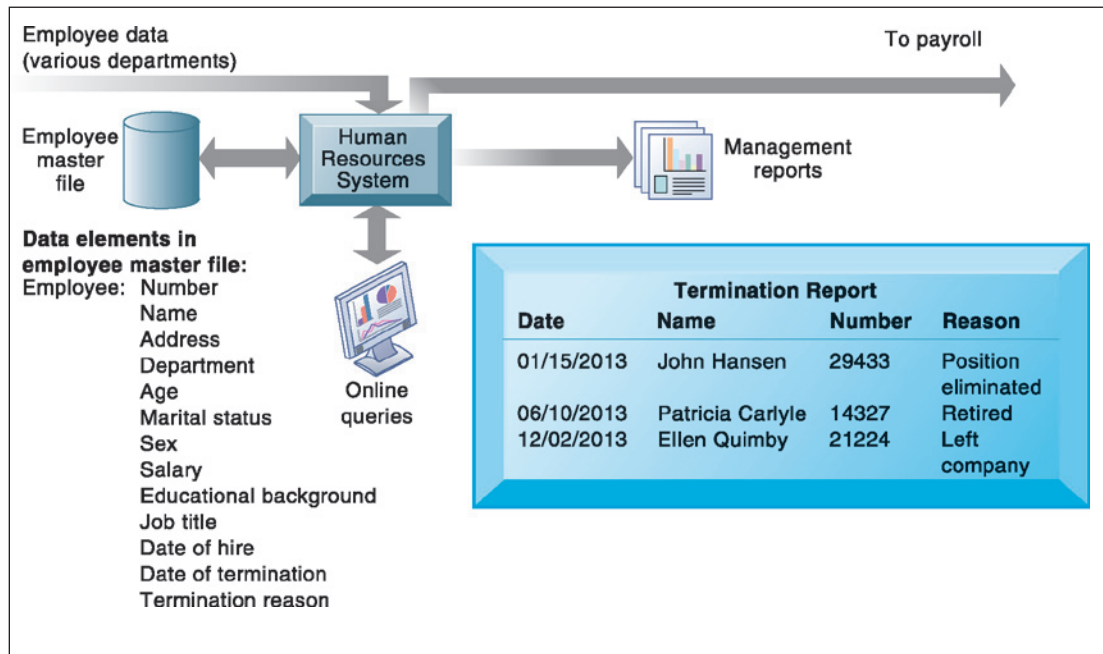
The human resources function is responsible for attracting, developing, and maintaining the firm's workforce. Human resources information systems support activities such as identifying potential employees, maintaining complete records on existing employees, and creating programs to develop employees' talents and skills.

Human resources systems help senior management identify the manpower requirements (skills, educational level, types of positions, number of positions, and cost) for meeting the firm's long-term business plans. Middle management uses human resources systems to monitor and analyze the recruitment, allocation, and compensation of employees. Operational management uses human resources systems to track the recruitment and placement of the firm's employees (see Table 2-4).

TABLE 2-4 Examples of Human Resources Information Systems

System	Description	Groups Served
Training and development	Tracks employee training, skills, and performance appraisals	Operational management
Compensation analysis	Monitors the range and distribution of employee wages, salaries, and benefits	Middle management
Human resources planning	Plans the long-term labor force needs of the organization	Senior management

Figure 2-4 illustrates a typical human resources system for employee record keeping. It maintains basic employee data, such as the employee's name, age, sex, marital status, address, educational background, salary, job title, date of hire, and date of termination. The system can produce a variety of reports, such as lists of newly hired employees, employees who are terminated or on leaves of absence, employees classified by job type or educational level, or employee job performance evaluations. Such systems are typically designed to provide data that can satisfy federal and state record keeping requirements for Equal Employment Opportunity (EEO) and other purposes.

FIGURE 2-4 An Employee Record Keeping System

This system maintains data on the firm's employees to support the human resources function.

Google is an example of a company using a human resources system with a strategic orientation. Google is one of the world's most leading-edge, rapidly growing companies. It is best known for its powerful Internet search engine, but it is also the source of numerous other technology-based products and services. Innovation and knowledge are key business drivers. Google obviously has very special human resources requirements and prizes highly intelligent employees who can work in teams yet think outside the box.

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