Chapter 7

Transaction Processing, Functional Applications & Integration

Information Technology For Management 6th Edition
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Chapter Objectives

- Relate functional areas and business processes to the value chain model
- Identify functional management information systems
- Describe the transaction processing system and demonstrate how it is supported by IT
- Describe the support provided by IT and the Web to production/operations management, including logistics

Chapter Objectives (Continued)

- Describe the support provided by IT and the Web to marketing and sales
- Describe the support provided by IT and the Web to accounting and finance
- Describe the support provided by IT and the Web to human resources management
- Describe the benefits and issues of integrating functional information systems

Functional Areas – Value Chain Perspective

The value chain model views activities in organizations as either primary (*reflecting the flow of goods and services*) or secondary (*supporting the primary activities*). The organizational structure of firms is intended to support both of these types of activities.

Functional Areas in a Business

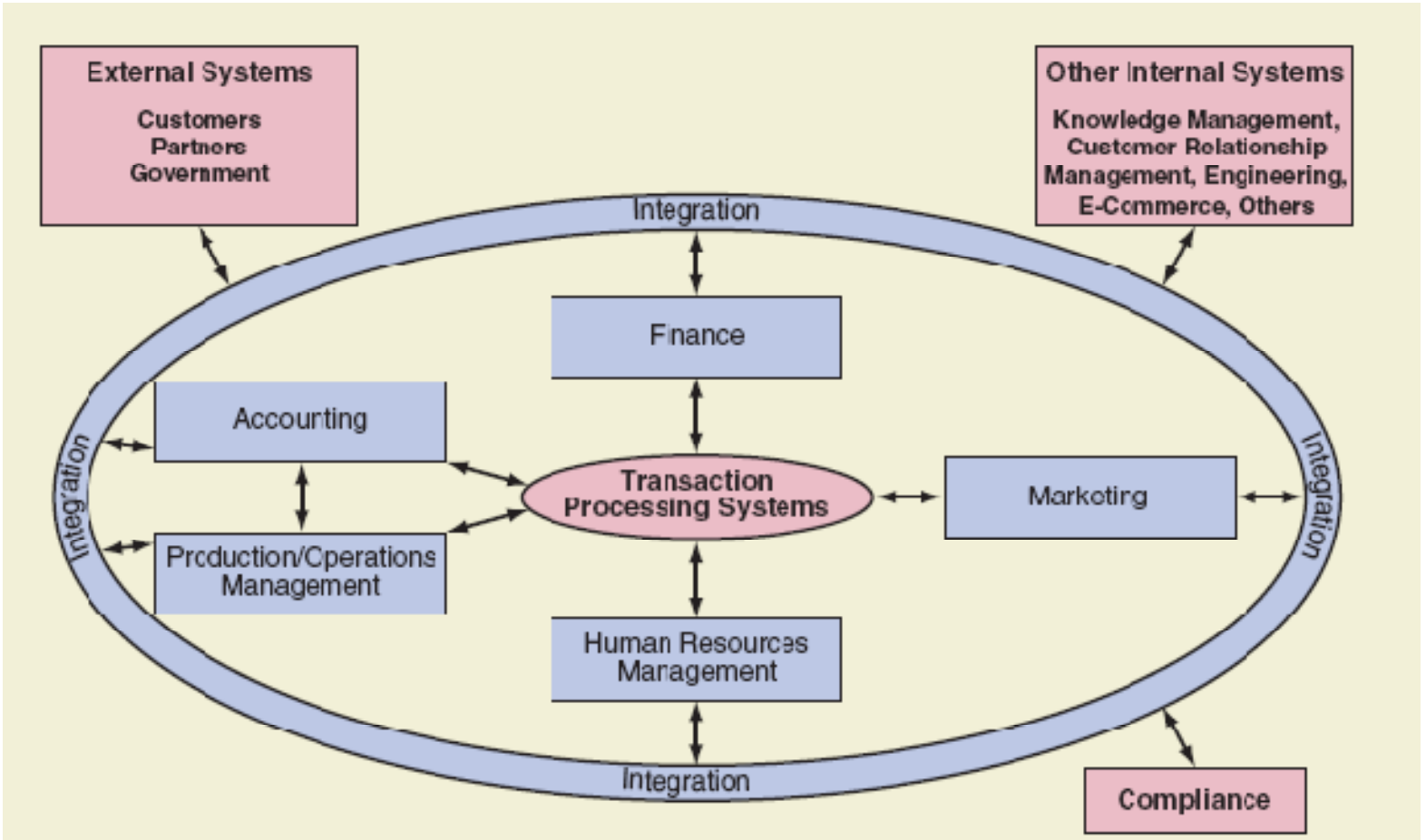
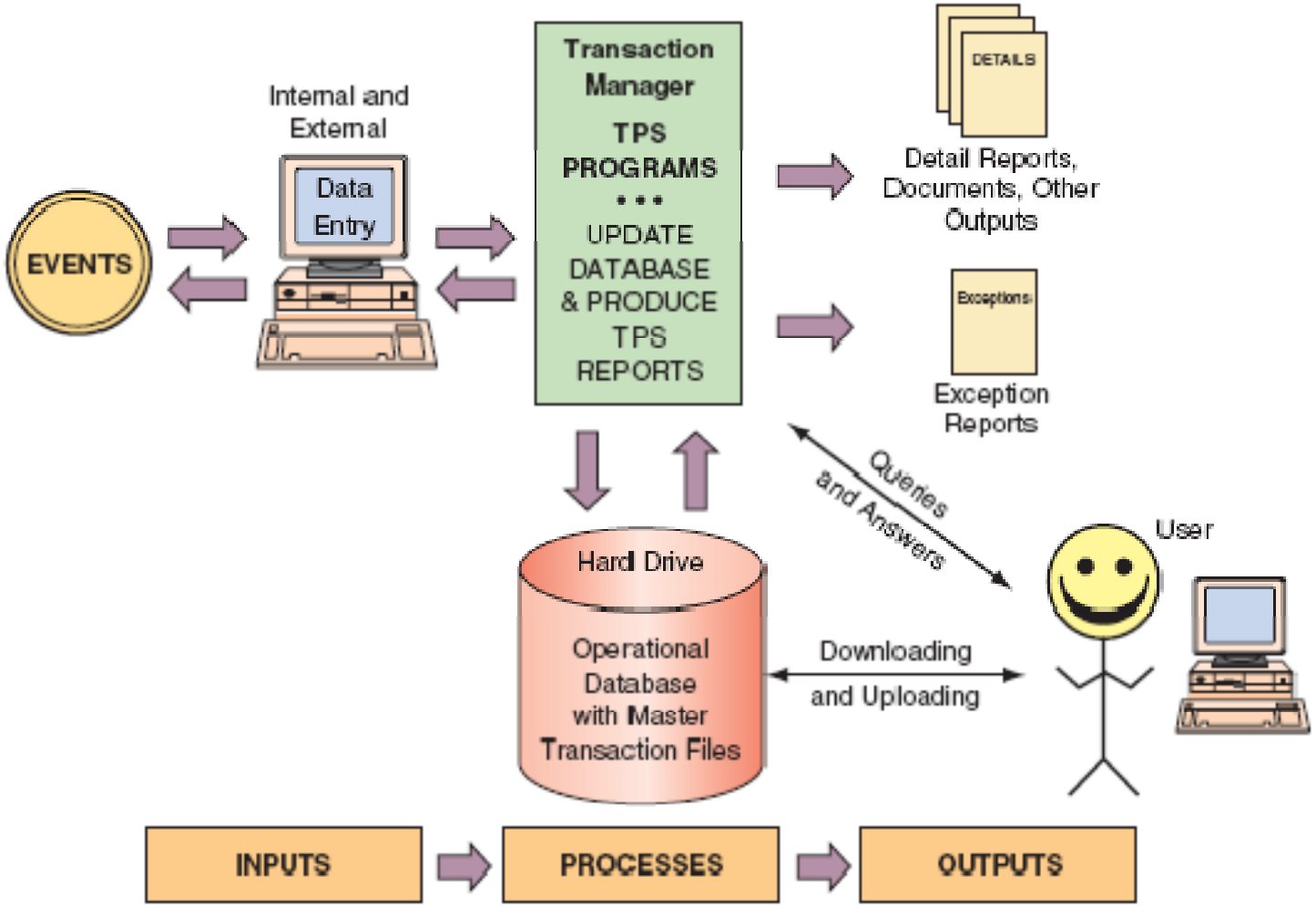


Figure 7.1 The functional areas, TPS, and integration connection. Note the flow of information from the TPS to the functional systems. Flow of information between and among functional systems is done via the integration component.

Transaction Processing Information Systems



TPS – Online Transaction Processing Systems

- With OLTP and Web technologies such as an extranet, suppliers can look at the firm's inventory level or production schedule in real time. The suppliers themselves, in partnership with their customers, can then assume responsibility for inventory management and ordering.

- Interactive Internet TPS expands OLTP to provide enhanced real time transaction processing over the Internet or intranets. Multi-store chains can access a centralized computer system no longer requiring in-store processors.

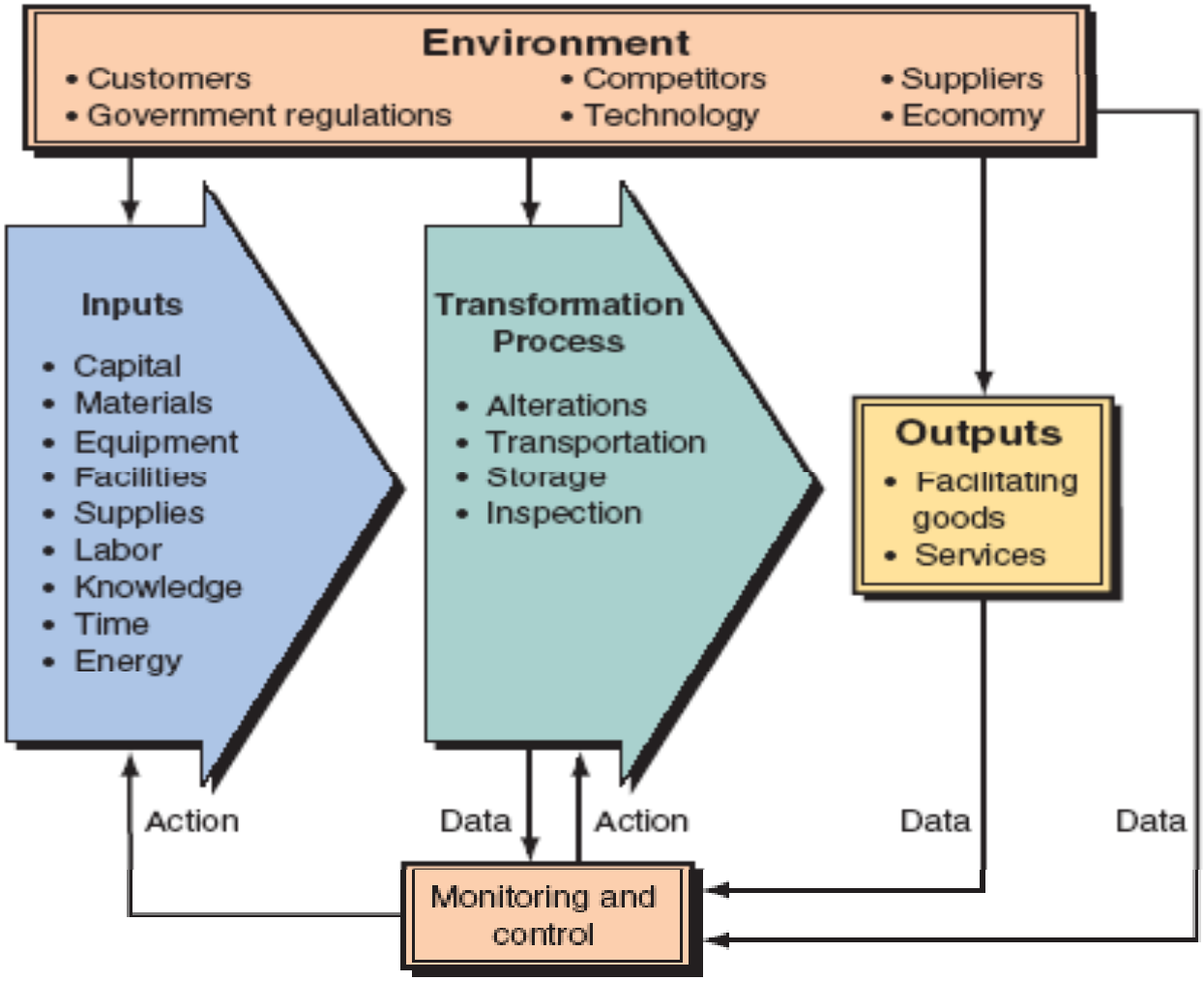


TPS – Managing Production/Operations & Logistics

The production and operations management (POM) function in an organization is responsible for the processes that transform inputs into useful outputs. In comparison to the other functional areas, POM is very diversified as are the supporting TPS. It also differs considerably among organizations.

- A few of the IT supported POM areas are:
  - In-house logistics and materials management
  - Planning production/operations
  - Computer-integrated manufacturing (CIM)
  - Product lifecycle management (PLM)
  - Automating design work and manufacturing

TPS – Managing Production/Operations & Logistics



TPS – In-House Logistics & Materials Management

Logistics management deals with ordering, purchasing, inbound logistics (receiving), and outbound logistics (shipping) activities. These logistical activities cross several primary and secondary activities on the value chain.

- Inventory management determines how much inventory to keep. Overstocking can be expensive; so are understock conditions.
- Manufacturing quality-control systems can be stand-alone systems or part of an enterprise-wide total quality management (TQM) effort. They provide information about the quality of incoming material as well as the quality of work-in-process and finished goods.

TPS – Planning Production/Operations

POM planning is a major component of operational systems

- **Material Requirements Planning (MRP)** is software that facilitates the plan for purchasing or producing parts, subassemblies, or materials in the case of interdependent items. It integrates Master Production Schedules, BOM's, and Inventory levels.
- **Manufacturing Resource Planning (MRP II)** adds functionalities to a regular MRP system by determining the costs of parts and the associated cash flow. It also estimates costs of labor, tools, equipment repair, and energy while generating a requirements report.
- **Just-in-Time Systems** is an approach that attempts to minimize waste of all kinds (space, labor, materials, energy, etc.) and to continuously improve processes and systems. The JIT concept is used in mass customization and build-to-order environments.
- **Project Management.** A project is usually a one-time effort composed of many interrelated activities, costing a substantial amount of money, and lasting for weeks or years. Software tools such as: *program evaluation and review technique (PERT)* and the *critical path method* (*CPM*) are used to manage milestones, resources, costs, etc.
- **Work Management Systems (WMS)** automatically manages the prioritization and distribution of work. These systems deal with resource allocation and reallocation.

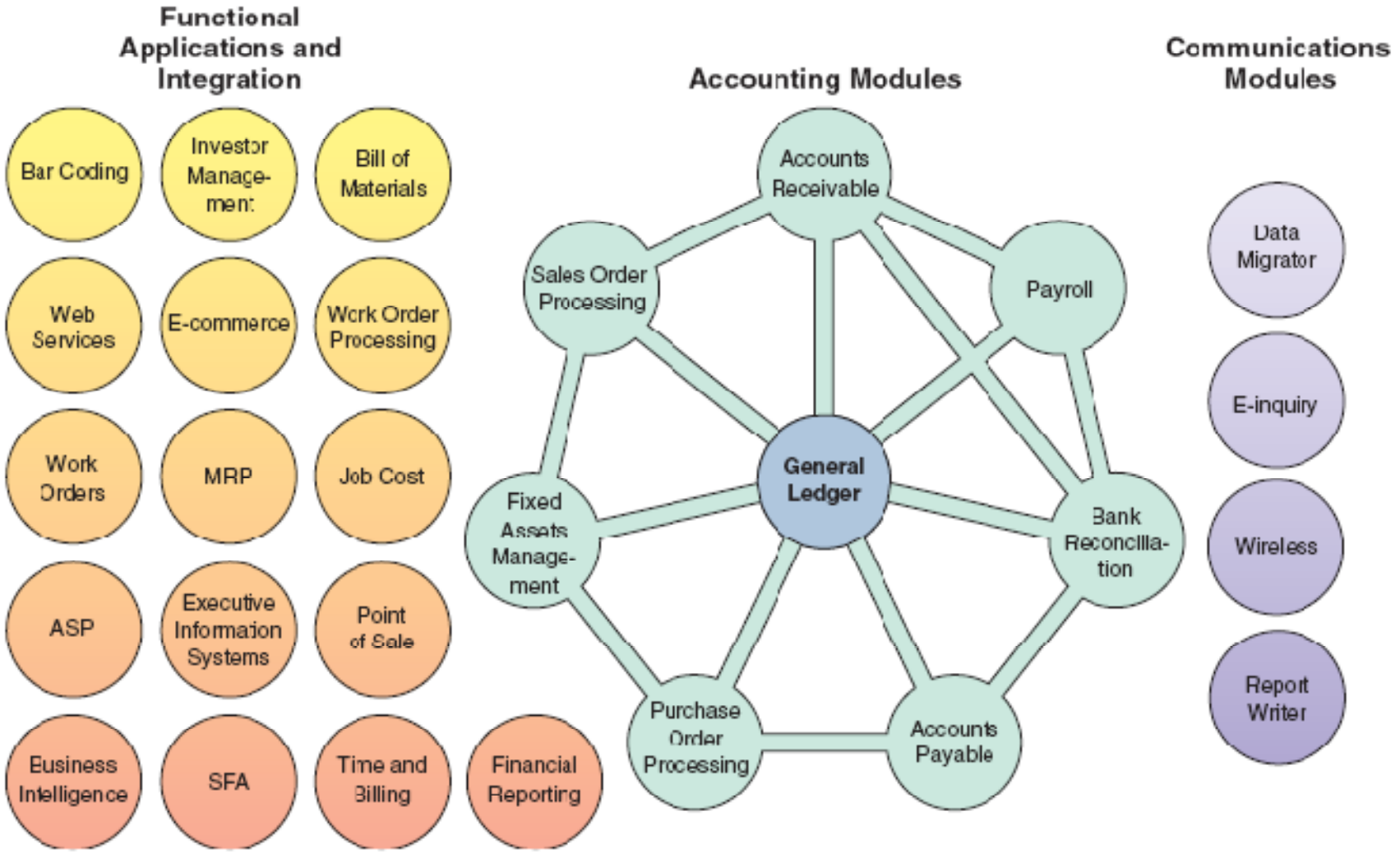
TPS – Computer-Integrated Manufacturing

CIM is a concept that promotes the integration of various computerized factory systems. It has three basic goals: (1) the *simplification* of all manufacturing technologies and techniques, (2) *automation* of as many of the manufacturing processes as possible, and (3) *integration and coordination* of all aspects of design, manufacturing, and related functions via computer hardware and software.

- Typical integrated technologies are:
  - FMS - Flexible-manufacturing systems
  - JIT – Just-in-Time
  - MRP – Materials Requirements Planning
  - CAD – Computer Aided Design
  - CAE – Computer Aided Engineering
  - GT - Group technology

Managing Production / Operations & Logistics

TPS – Computer-Integrated Manufacturing



TPS – Product Lifecycle Management

PLM is a business strategy that enables manufacturers to control and share product-related data as part of a products design and development effort. Web-based supply chains and other technologies are employed to automate this collaborative effort.

- *This electronic-based collaboration can reduce*
  - *product cost*
  - *travel expenses*
  - *costs associated with product-change management*
  - *time it takes to get a product to market*

TPS – Product Lifecycle Management

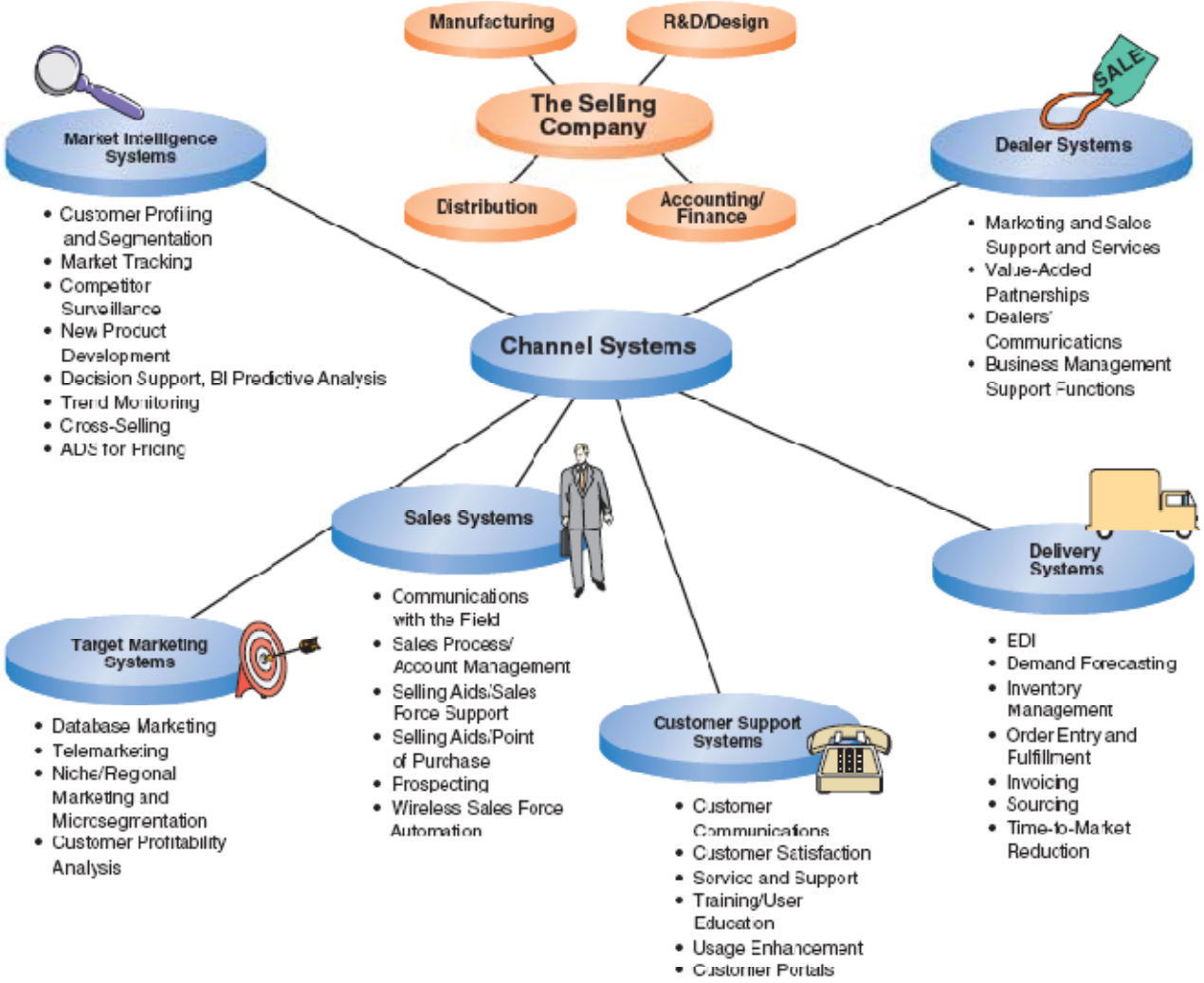


Figure 7.4 Marketing channel systems.

TPS – Marketing and Sales Systems

Channel systems are the TPS involved in the process of getting a product or service to customers and dealing with their needs. These systems link and transform marketing, sales, procurement, logistics, and delivery activities with other corporate functional areas.

- *Some of the channel-system activities are:*
  - customer relations
  - distribution channels and in-store innovations
  - marketing management
  - telemarketing

Marketing and Sales Systems

TPS – Customer Relations

It is essential for companies to know who their customers are and to treat them properly. Innovative products and services, successful promotions, customization, and customer service are a necessity for most organization.

- **Customer Profiles and Preference Analysis.** Sophisticated information systems are being developed to collect data on existing and potential customers, their demographics (age, gender, income level), and preferences.
- **Prospective Customer Lists and Marketing Databases.** All firms need to know and track who their existing and potential customers are. These prospective-customer lists can be analyzed and sorted by classification for direct mailing, e-mailing, or telemarketing.
- **Mass Customization.** Today's customers prefer customized products. Through *mass customization, the* practice of maintaining WIP inventory, manufacturers can offer different product configurations at reasonable prices.
- **Personalization.** Special product offers are made, based on where the customer spent their time and on what they may have purchased.
- **Advertising and Promotions.** Special promotions or coupons are presented to the customer via mails, email, wireless and pervasive computing applications.

Marketing and Sales Systems

TPS – Distribution Channels & In-Store Innovations

Organizations can distribute their products and services through a variety of delivery channels. A company may use its own outlets, mfg. Representatives, or distributors (to name a few).

- **IT-Supported Distribution Channels**
  - Internet
  - Location Based Mapping
  - Self-service convenience stores
- **Improving Shopping and Checkout at Retail Stores**
  - Hand-held wireless devices that scan the bar code UPC
  - Smart card or credit card
  - Information kiosk enable customers to view catalogs in stores
  - Self-checkout machines
  - Check-writers attached to cash registers
  - Computerization of various activities in retail stores
  - Video-based systems count and track shoppers in a physical store

Marketing and Sales Systems

TPS – Marketing Management

Many marketing management decision applications are supported by computerized information systems.

- Pricing of Products or Services. Sales volumes are largely determined by the prices of products or services as is profit.
- Salesperson Productivity. Salespeople differ from each other in selling skill. Sales-force automation increases salesperson productivity by providing them with mobile devices, access to information, etc.
- Profitability Analysis profit contribution of certain products and services can be derived from cost-accounting systems
- Sales Analysis And Trends. Marketing. TPS collect sales figures that can be searched for trends and relationships.
- New Products, Services, and Market Planning. New products and services can be an expensive risk. “Will it sell?” Requires careful analysis, planning, forecasting, and market research.
- Web-Based Systems support marketing and sales through data capture

TPS – Accounting and Finance Systems

Accounting and finance functional areas manage the inflow and outflow of organizational assets. This involves all functions of an organization including payroll, billing, cash management, etc.

- Financial Planning and Budgeting
  - Financial and Economic Forecasting
  - Planning for Incoming Funds
  - Budgeting
  - Capital Budgeting
- Managing Financial Transactions
  - Financial and Economic Forecasting
  - Planning for Incoming Funds
  - Budgeting
  - Capital Budgeting

TPS – Accounting and Finance Systems (Continued)

- E-Commerce Applications of Financial Transactions
  - Global stock exchanges and multiple currencies
  - E-Bonds
  - Factoring online
  - Electronic re-presentment of checks
  - Electronic bill presentment and payments
- Virtual Close
- Expense Management Automation
- Investment Management
  - Financial Analysis
  - Access to Financial and Economic Reports
- Control and Auditing
  - Budgetary Control and Auditing
  - Financial Ratio Analysis
  - Profitability Analysis and Cost Control
  - Product Pricing

TPS – Human Resources Systems

Web-based systems have increased the popularity of human resources information systems which provide applications mainly related to acquiring, hiring, rewarding, developing, training, protecting and retaining human resources.

- Recruitment is finding employees, testing them, and deciding which ones to hire. The Web has enhanced the recruitment process.
  - Position Inventory
  - HRM Portals and Salary Surveys
  - Employee Selection
- Human Resources Maintenance and Development
  - Performance Evaluation
  - Training and Human Resources Development

TPS – Human Resources Systems (Continued)

- Human Resources Planning and Management
  - Personnel Planning
  - Labor –Management Negotiations
  - Payroll and Employees' Records
  - Benefits Administration
  - Employee Relationship Management

Managerial Issues

- Integration of functional information systems
- Priority of transaction processing
- Finding Innovation Applications
- Using the Web
- Systems Integration
- Ethical Issues

Chapter 7

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