



CHAPTER TWELVE

Managing Electronic Commerce Implementations

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Learning Objectives



In this chapter, you will learn:

- How to identify benefits and estimate costs of online business initiatives
- How online business startups are evaluated and financed
- When and how to outsource online business initiative development
- How to manage and staff electronic commerce implementations

Introduction

- Case study: **Wevorce**
 - Internet startup offering divorce mediation services
 - Founder worked with startup coaching enterprise **Y Combinator**
 - Works with startups to develop their business
 - Arranges “demo day” presentations to investors
 - Obtained more than a million dollars from investors

Identifying **Benefits** and Estimating **Costs** of Electronic Commerce Initiatives

- **Keys** to successful implementation of information technology projects is **planning and execution**
- **Successful** electronic commerce initiative **business plan** should include activities that
 - **Identify** initiative's **specific objectives**
 - **Link** those objectives to **business strategies**
- **In setting** electronic commerce initiative **objectives**
 - Managers should **consider** strategic role of project, intended scope, and the resources available for executing it

Identifying Objectives

- **Typical** business electronic commerce **objectives**
 - Increasing sales in existing markets
 - Opening new markets
 - Serving existing customers better
 - Identifying new vendors
 - Coordinating more efficiently with existing vendors
 - Recruiting employees more effectively
- Objectives vary with organization size
- Compare the risks of e-commerce versus inaction

Linking Objectives to Business Strategies

- **Downstream strategies** are tactics to improve the value businesses provide to its customers
- **Upstream strategies** focus on reducing costs or generating value working with suppliers or inbound (shipping and freight service) providers
- **Web** use for businesses
 - Attractive sales channel for many firms
 - Complement business strategies; improve competitive positions
 - Inspire businesses to undertake activities

Linking Objectives to Business Strategies (cont'd.)

- The **success** of electronic commerce activities can be difficult to measure
- **First-wave** e-commerce activities
 - Existed without specific, measurable goals
 - Plenty of investors for highly speculative activities
 - Successes and failures measured in broad strokes
- **Second-wave** e-commerce activities
 - Businesses took closer look at benefits and costs
 - Good implementation plan sets specific objectives for benefits achieved and costs incurred

Linking Objectives to Business Strategies (cont'd.)

- **Third-wave** e-commerce activities
 - Impacted by smart phones' and tablet devices' pervasiveness
 - Web access in many more locations changed nature of online communication
 - Technology benefits more easily acquired (e.g., social media tools)
 - The **most profound** change: increase in online activities by smaller businesses
 - Leveraging existing communication infrastructure of Facebooks, Twitters, etc. to reach potential customers
 - Might be **better off** investing their promotion resources in **social media** than in Web sites

Identifying and Measuring Benefits

- Some **benefits** of electronic commerce initiatives are **obvious, tangible, easy** to **measure**
 - Example: increased sales or reduced costs
- Other **benefits** are more difficult to measure
 - Example: increased customer satisfaction
- Set **measurable** objectives even if they are for intangible benefits
 - Example: measure customer satisfaction based on number of return customers

Identifying and Measuring Benefits (cont'd.)

- When using Web sites to build brands or enhance existing marketing programs set goals in terms of increased brand awareness
 - Measures: market research surveys, opinion polls
- Companies selling goods or services online measure sales volume in units or dollars
- Complicated to measure brand awareness or sales increase due to other things company doing or by general improvement in the economy

Identifying and Measuring Benefits (cont'd.)

- Using Web sites to **improve customer service or after-sale support** has **possible goals** of increased customer satisfaction or reduced support costs
 - Example: **Philips Lighting**
- **Supply chain** managers' goals include supply cost reductions, quality improvements, or faster deliveries of ordered goods
- **Auction sites'** goals include number of auctions, dollar volume of items sold, number of items sold, or number of registered participants

Identifying and Measuring Benefits (cont'd.)

- **Virtual communities' and Web portals'** goals include number of visitors, quality of visitors' experiences
- **Metrics** are **measurements** companies make to assess value of site visitor activity benefits
 - Examples in Figure 12-1
- Businesses must convert raw activity measurements to **monetary units** to compare benefits to costs
 - **Compare** net benefit of a particular initiative **to** net benefits provided by other projects
 - **Difficult** to measure value in monetary units precisely

Electronic Commerce Initiatives	Common Measurements of Benefits Provided
Build brands	Surveys or opinion polls that measure brand awareness, changes in market share
Enhance existing marketing programs and create new marketing programs	Change in per-unit sales volume, frequency of customer contact, conversion (to buyers) rate
Improve customer service	Customer satisfaction surveys, quantity of customer complaints, customer loyalty
Reduce cost of after-sale support	Quantity and type (telephone, fax, e-mail) of support activities, change in net support cost per customer
Improve supply chain operation	Cost, quality, and on-time delivery of materials or services purchased, overall reduction in cost of goods sold
Hold auctions	Quantity of auctions, bidders, sellers, items sold, registered participants; dollar volume of items sold; participation rate
Provide portals, social networks, and virtual communities	Number of visitors, number of return visits per visitor, duration of average visit, participation in online discussions

FIGURE 12-1 Measuring the benefits of electronic commerce initiatives

Identifying and Estimating Costs


- Information technology project costs can be as difficult to estimate and control as benefits
- Web development uses rapidly changing hardware and software technologies
 - Hardware costs trending downward but increasing software sophistications often requires more of the newer, cheaper hardware
 - Yields net increase in overall hardware costs and higher software costs than anticipated
 - Rapid changes in Web technologies can destroy manager's plans

Total Cost of Ownership (TCO) and Opportunity Costs

- **TCO** includes **all costs** related to electronic commerce implementation
 - Hardware costs, software costs, outsourced design work, employee costs, site maintenance
 - **Good** TCO includes assumptions about how often site would need to be redesigned in the future
- One of the largest and most significant electronic commerce initiative costs is **opportunity cost**
 - **Foregone benefits** that company could have obtained from electronic commerce initiative not pursued
 - Lost customers, sales not made, or cost reductions not achieved

Web Site Costs

- Total dollar amounts required to create and operate a Web site has **varied** with time and business type
 - Relative proportion of costs remained **stable**
 - E.g., 10% hardware, 10% software, 80% labor
 - Annual cost of operating an online business Web site between 50% and 200% of site's initial cost
 - **Small** online store can be placed into operation for less than **\$1000**
 - **Small to midsize** online business operation with full transaction and payment processing capabilities has an initial investment between **\$10,000 and \$1 million**



	Small Online Store	Midsize Online Business	Large Online Business	Large Company's Online Business Integrated with Other Business Operations
Initial costs	\$400–\$7,000	\$10,000–\$1 million	\$1 million–\$5 million	\$5 million–\$100 million
Ongoing annual costs	\$400–\$14,000	\$25,000–\$2 million	\$500,000–\$10 million	\$2.5 million–\$200 million

FIGURE 12-2 Estimated costs for business Web sites

Web Site Costs (cont'd.)

- Costs generally heading **downward**
 - **Lower costs** for broadband access and computer hardware and decreased software development and maintenance costs
 - Netscape (early 1990s) needed more than \$40 million just to get started
 - Digg (2004): less than \$500,000
 - Today, smartphone app development less than \$1000

Feature	Typical Measures
Functionality	Bandwidth, number of different operating systems and databases supported, disk space, number of e-mail accounts allowed, number and type of software provided (for Web site construction, traffic analysis, and so on)
Reliability	Guaranteed uptime percentage, guaranteed speed of service reinstatement when it does fail
Scalability	Ease of expansion of bandwidth, disk space, additional software (database, traffic analysis, and so on) that can be added to an account as it grows
Security	Employee background checks, features that provide physical protection of the facilities (fences, alarms, guards, security cameras, and so on) and protection against online intrusions (firewalls, network security software, and devices)
Backup and recovery	Frequency of backups, automation of backups, off-site storage of backup media
Cost	Initial and ongoing charges for setup and operation, additional charges for specific software and other features

FIGURE 12-3 Important Web hosting service features

Funding Online Business Startups

- **Early Web businesses** started by **individuals** with **knowledge** of computers, technology, and business
- **Late 1990s** online startups attractive to investors (**Angel investor**) wanting to make fast money (Internet boom)
 - Angel investors funded initial startup in hopes for rapid growth
 - Still an option today
 - Goal is to sell to **venture capitalists** at a profit
- **Venture capitalists** are wealthy individuals or firms who have a goal of making profit by selling stock to the public through an initial public offering (IPO)

Funding Online Business Startups (cont'd.)

- System of financing startup and initial growth of online businesses has **both benefits and costs**
 - **Benefit** is access to **large amounts of capital** early
 - **Costs** include the **pressure** to grow rapidly and most profits going to angel investors and venture capitalists
- **Cost decreases** of starting online businesses **reduces need** for venture capitalists and angel investors
 - Allows business owners to become more **creative** and **learn from mistakes**
 - Trend is towards **more and smaller** online ventures to continue as the cost of creating an online business continue to fall

Comparing Benefits to Costs

- **Capital projects** (**capital investments**) are major investments in equipment, personnel, and other assets
- **Techniques to evaluate** proposed capital projects **range from** simple calculations **to** complex computer simulation models
 - Always reduces to **comparison of benefits and costs**
 - **Invest in** the project if (benefits > costs by a comfortable margin)
- **Key parts** of creating electronic commerce initiatives **business plan** is to identify **potential benefits** and **costs** and **evaluate whether benefits exceed costs**

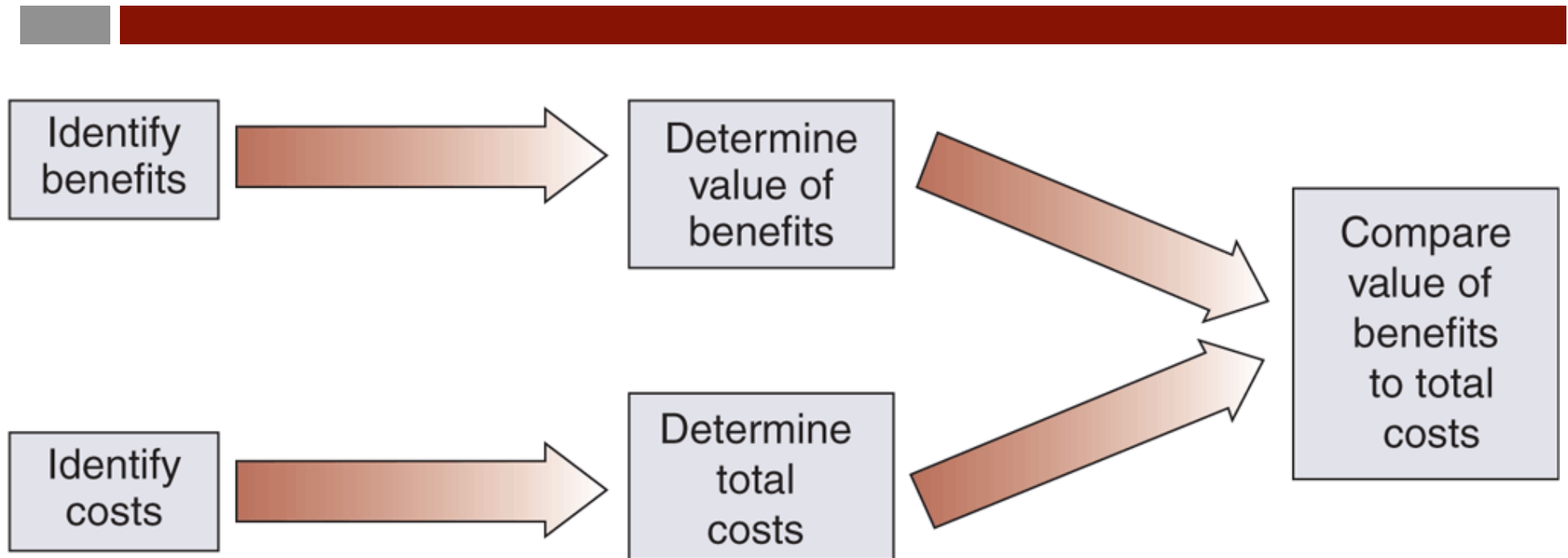


FIGURE 12-4 Cost/benefit evaluation of electronic commerce strategy elements

Return on Investment (ROI)

- **Return on investment (ROI)** techniques measure amount of income (return) provided by specific current expenditure (investment)
 - Provides quantitative expression of comfortable benefit-to-cost margin and mathematically adjusts for future reduced value of benefits (benefits in future are worth less than in the current)
- Some see electronic commerce initiatives as **necessary** and may not subject them to analysis
 - Companies fear being left behind
 - **Newspaper Web sites** are an example of companies willing to incur losses to establish an online presence

Return on Investment (ROI) (cont'd.)

- Many companies **turned to ROI** as a measurement tool for evaluating projects because of past use
 - Easy to understand, but has some **built in biases** that can lead to poor decisions
 - ROI requires all costs and benefits be stated in monetary units which gives **undue weight to costs**
 - ROI focuses on benefits that can be predicted but initiatives have returned benefits **not foreseen**
 - ROI tends to emphasize **short-run benefits** over long-run benefits

Strategies for Developing Electronic Commerce Web Sites

- **Web sites began** as static “brochure”
- **Next generation** added transaction processing and other capabilities making Web sites an important part of the information system infrastructure
 - Enhanced with **personalization** and **customer relationship management** features
 - Redesigned to work better with **mobile devices** (small screens of smartphones and tablet devices)
 - Recently, sites have become integrated with **social media networks** (e.g., Facebook and Twitter)
- **Transformations** required **software** development (incubator approach)

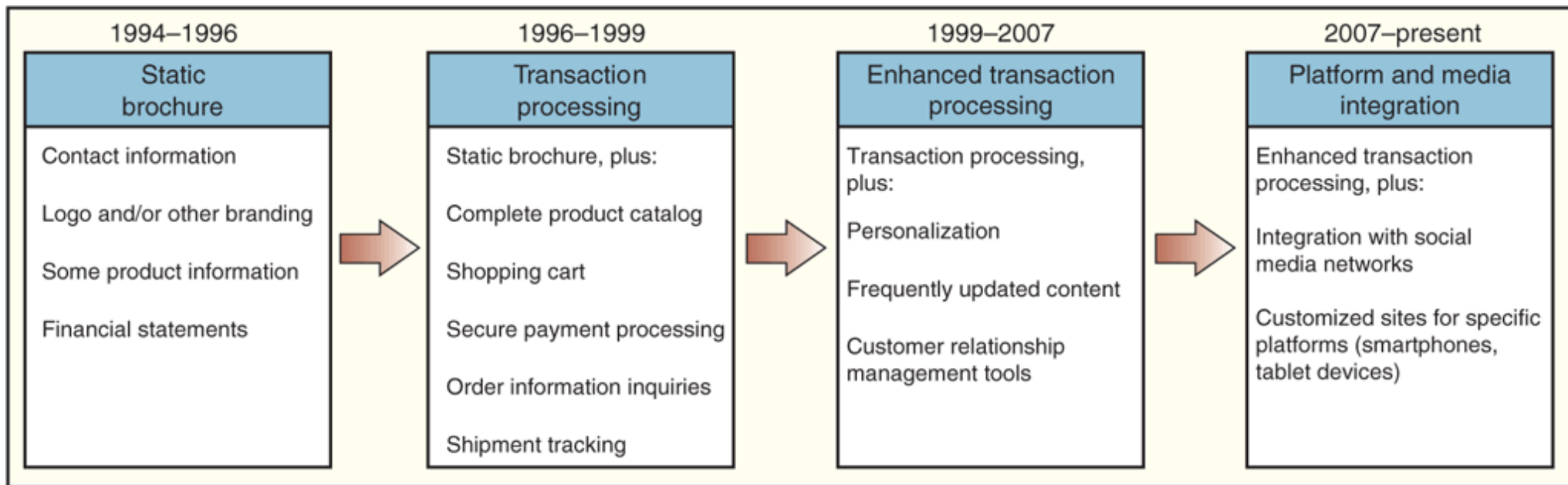


FIGURE 12-5 Evolution of Web site functions

Internal Development vs. Outsourcing

- Some companies use **contractors** to **handle** entire online business site development (**outsourcing**)
- Most companies understand sites are too important to the future to risk outsourcing
 - Business initiative must be **integrated** into existing activities to **ensure success**
 - Having internal people lead projects ensures **specific needs are addressed** and initiative is **congruent with** organization goals, culture
- **Key to success** is finding the **right balance** between inside and outside support for the project

The Internal Team

- **First step** in deciding **what to outsource** is to **create an internal team** that is responsible for the project
 - Team members need to be knowledgeable about Internet and its technologies
 - Creative thinkers, **distinguished** within the company
 - Good sense of company goals and culture
 - Technical expertise **less important** than other factors
- **Measuring achievements** of team is **important**
 - Expressed in **whatever terms** are appropriate to the objectives of the initiative, e.g., customer satisfaction, number of sales leads to generated, and reductions in order-processing time

The Internal Team (cont'd.)

- **Intellectual capital** is employees' knowledge about the business and its processes
 - Hard to measure but value is **recognized** today
- Internal team **responsible for** initiative decides what to outsource, outsourcer and consultants or partners needed
 - Partners can be **important** in the early part of the project because they often have skills and expertise in new technologies before other system professionals

Early Outsourcing

- Company **outsources** **initial** site design and development to **launch project quickly**
- Outsourcing team **trains** company's information systems professionals **before** handing site operation to them
- Company's own information systems people **work closely** with outsourcing team
 - Develop ideas for improvement **as early as possible** in project life

Late Outsourcing

- Company's information systems professionals **perform initial** design and development, implement system, and operate system until stable
- Once competitive advantage gained, **maintenance** of the electronic commerce system is **outsourced**
- Company's professionals **turn attention to** developing new technologies to provide further competitive advantage
- Online business initiatives are **more suited to** early outsourcing

Partial Outsourcing

- Also called **component outsourcing**
- Company identifies specific project portions that can be completely designed, developed, implemented, and operated by another firm
 - Smaller Web sites outsource e-mail handling and response functions
 - Electronic payment system
 - Web hosting
 - Generally offers 24/7 operations

Incubators

- An **incubator** is a **company** that **offers** start-up companies physical location with offices, accounting and legal assistance, computers, and Internet connections **at a very low monthly cost**
- May **offer** seed money, management advice, and marketing assistance
- **Receives ownership interest** in company that is typically between **10% and 50%**
 - When company grows **sells** interest to venture capitalists or through an IPO
- Early Internet incubator: **Idealab**
 - Helped launch companies such as CarsDirect.com, Overture, Tickets.com

Incubators (cont'd.)

- Some companies created **internal incubators**
 - Developing technologies for use in main business operations
 - Most unsuccessful and shut down
- Matsushita Electric's U.S. **Panasonic division** started internal incubators to help launch new companies to become strategic partners
 - Incubator development team become managers of new company
- Strategic partner incubators have yielded **better results** than old style method

Accelerators

- **Company** that performs a function **similar to** that of an **incubator** but with a **different activity structure**
 - Tend to work with entrepreneurs who have **already** developed their idea into a **business**
- **Formal application process** with a **competitive series** of proposals and presentations
 - Proposals that survive work closely with a **mentor network** to convert idea into viable business
 - A **mentor network** is assembled by the **accelerator** to **convert** the idea into a viable business
- Accepted proposals receive a **monetary investment** in exchange for a **small equity interest**
 - **Real value** to entrepreneur is the mentor network instead of monetary investment

Project Management

- A collection of **formal techniques** for **planning and controlling** activities to achieve **a specific goal**
 - Developed by U.S. military and defense contractors
- Plan **includes** cost, schedule and performance criteria
 - Helps management make trade-off decisions
- **Project management software** helps project managers oversee projects, the internal team and outside consultants
 - Oracle Primavera, Microsoft Project, and open-source options: Open Workbench, OpenProj, Redmine

Project Portfolio Management

- Used by company's top technology manager the **chief information officer (CIO)**
- **A technique** to monitor each project like it was an **investment** in a financial portfolio
 - Allows **tradeoffs** between cost, schedule, and quality across projects as well as within individual projects
 - Provides **more flexibility** in allocating resources to achieve the best set of benefits from all projects in the most timely manner
- CIO assigns a **ranking** for each project based on importance to goals and level of risk

Staffing for Electronic Commerce

- **Chief information officer (CIO)** oversees information systems and related technological elements needed to undertake and operate online business activities
- **Business manager** is a member of internal team that sets project objectives and is responsible for implementing and reaching them
- **Project manager** should have specific training, skills in tracking costs and accomplishing specific objectives in a project
- **Project portfolio manager** is responsible for tracking and managing online projects as a portfolio
 - Usually promoted from the ranks of project managers

Staffing for Electronic Commerce (cont'd.)

- **Account manager** keeps track of multiple Web sites in use or projects combining into a larger Web site
- **Applications specialists** maintain accounting, human resources, logistics software, electronic commerce site software
- **Web programmers** design and write underlying code for dynamic database-driven Web pages
- **Web graphics designers** trained in art, layout, and composition and knows Web pages construction
 - Must ensure Web pages are visually appealing and easy to use

Staffing for Electronic Commerce (cont'd.)

- **Content creators** write original content
- **Content managers** or **content editors** purchase existing material and adapt it for use on the site
- **Social networking administrators** responsible for managing Web virtual community elements
- **Online marketing managers** specialize in specific techniques used to build brands and increase market share using Web site and other online tools (e.g., e-mail marketing)
- **Customer service** reps help design and implement customer relationship management activities in electronic commerce operations

Staffing for Electronic Commerce (cont'd.)

- **Call center** is a company that handles incoming customer calls, e-mails for other companies
- **Systems administrator** is responsible for system's reliable and secure operation
- **Network operations** staff functions include load estimation and monitoring, resolving problems
 - Design and implementation of fault-resistant technologies and managing outsourced operations
- **Database administration** function support activities
 - Transaction processing, order entry, inquiry management, shipment logistics

Postimplementation Audits

- Also called **postaudit review**
- **Formal review** of project after up and running
- **Examine** project items established in planning stage and **compare** them to what actually happened
 - Objectives, performance specifications, cost estimates, and scheduled delivery dates
- **Blame identification approach** often used **in the past**
 - Focused on identifying individuals to blame for cost overruns and missed delivery dates
 - Generally unproductive and uncomfortable

Postimplementation Audits (cont'd.)

- Today audits are used to **gather lessons** learned from successes and failures
 - Create and update **standards** of best practices
- **Feedback** on strategies used provides valuable information for planning future projects
 - Gives participants meaningful learning experience
- Comprehensive audit report analyzes overall performance and how well project was administered
 - Considers if appropriate organizational structure was in place and specific project team(s) performance
 - Should compare actual results to objectives

Change Management

- **Information system** projects involve **change** which can be **upsetting** to people
- Employee concerns include the ability to cope with changes, to continue to do good work, and job security
 - Concerns lead to **increased stress**
- **Change management** is the process of helping employees cope with changes
 - Includes tactics designed to help employees feel involved with change
 - Helps employees overcome feelings of powerlessness