Learning Objectives

- Explain the key role of a systems analyst in business
- Describe the various types of systems an analyst might work on
- Explain the importance of technical, people, and business skills for an analyst
- Explain why ethical behavior is crucial for a systems analyst’s career
Learning Objectives (continued)

◆ Describe various job titles in the field and places of employment where analysis and design work is done

◆ Discuss the analyst’s role in strategic planning for an organization

◆ Describe the analyst’s role in a system development project

Overview

◆ Information systems are
  ● Crucial to success of modern business organizations
  ● Constantly being developed to make business more competitive
  ● Impact productivity and profits

◆ Keys to successful system development
  ● Thorough systems analysis and design
  ● Understanding what business requires
Overview (continued)

- Systems analysis – process of understanding in detail what a system should accomplish

- Systems design – process of specifying in detail how components of an information system should be physically implemented

- Systems analyst – uses analysis and design techniques to solve business problems using information technology

The Analyst as a Business Problem Solver

- Has computer technology knowledge and programming expertise
- Understands business problems
- Uses logical methods for solving problems
- Has fundamental curiosity
- Wants to make things better
- Is more of a business problem solver than a technical programmer
Analyst’s Approach to Problem Solving

- Research and understand the problem
- Verify benefits of solving problem outweigh the costs
- Define the requirements for solving the problem
- Develop a set of possible solutions (alternatives)
- Decide which solution is best and recommend
- Define the details of the chosen solution
- Implement the solution
- Monitor to ensure desired results

Systems That Solve Business Problems

- System – a collection of interrelated components functioning together to achieve an outcome
- Information systems – collection of interrelated components that collect, process, store, and provide as output the information needed to complete business tasks
- Subsystem – part of a larger system
- Functional decomposition – dividing a system into smaller subsystems and components
Information Systems and Subsystems

Figure 1-2


Information Systems and Component Parts

Figure 1-3

System Boundary vs. Automation Boundary

![Diagram](image)

**Figure 1-4**

Types of Information Systems

![Diagram](image)

**Figure 1-5**
Technical Knowledge and Skills

- An analyst should have fundamental technology knowledge of
  - Computers / peripheral devices (hardware)
  - Files and database systems
  - Input and output components and alternatives
  - Computer networks and protocols
  - Programming languages, operating systems, and utilities
  - Communication and collaboration technology
Technical Knowledge and Skills (continued)

◆ Analyst uses tools
  ● Software productivity packages
  ● Integrated development environments (IDEs) for programming languages
  ● Visual modeling tools and code generation tools

◆ Analyst understands SDLC techniques
  ● Project planning, cost/benefit, interviewing
  ● Systems requirements modeling including
  ● Design, database design, network configuration

Business Knowledge and Skills

◆ Analyst must understand
  ● Business functions performed by organization
  ● Strategies, plans, traditions, and values of the organization
  ● Organizational structure
  ● Organization management techniques
  ● Functional work processes

◆ Systems analysts typically study business administration/management in college with a major in CIS or MIS
People Knowledge and Skills

◆ Primarily a systems analyst must be an effective communicator

◆ A systems analyst must be able to perform various roles such as negotiator, teacher, mentor, collaborator, and manager

Integrity and Ethics

◆ Analyst has access to confidential information, such as salary, an organization’s planned projects, security systems, and so on.
  
  ● Must keep information private
  
  ● Any impropriety can ruin an analyst’s career
  
  ● An analyst plans the security in systems to protect confidential information
Systems Analyst Related Careers

- Employment picture is complex with traditional programming jobs not as prevalent as previously
- Many new opportunities exist in areas such as consulting, compliance, security, Web development, ERP support
- Typical job titles include:
  - Consultant – Business, Systems, Technical
  - Analyst – Business systems, Systems support
  - Developer – Web, systems
  - Architect – Web, System, Software

The Analyst’s Role in Strategic Planning

- Special projects affecting executives
  - Business process management – redesign and improvements to existing processes
- Strategic planning process
- Information systems strategic planning
  - Application architecture plan (business focus)
  - Technology architecture plan (infrastructure focus)
Components of an Information Systems Strategic Plan

- **Information systems strategic plan**
- **Application architecture plan**
- **Technology architecture plan**

Set of integrated information systems needed by the organization to carry out its business functions.

Set of hardware, software, and communications networks required to implement all of the planned systems.

---

**Rocky Mountain Outfitters (RMO) and Its Strategic Information Systems Plan**

- RMO sports clothing manufacturer and distributor about to begin customer support system project.

- Need to understand the nature of the business, approach to strategic planning, and objectives for customer support system.

- RMO system development project used to demonstrate analysis and design concepts.

- Reliable Pharmaceutical Service (RPS) is a second case study for classroom purposes.
Introduction to Rocky Mountain Outfitters (RMO) Business

- Began in Park City, Utah supplying winter sports clothes to local ski shops
- Expanded into direct mail-order sales with small catalog—as catalog interest increased, opened retail store in Park City
- Became large, regional sports clothing distributor by early 2000s in Rocky Mountain and Western states
- Currently $180 million in annual sales and 600 employees and two retail stores
- Mail-order revenue is $90 million; phone-order revenue is $50 million
RMO Strategic Issues

◆ Innovative clothing distributor; featured products on Web site ahead of competitors

◆ Original Web site now underperforming
  ● Slow, poor coordination with in-house, poor supply chain management, poor technical support

◆ Market analysis showed alarming trends
  ● Sales growth too slow, age of customers increasing, Web sales small percentage of total
RMO Strategic Issues (continued)

- Enhanced Web site functions
  - Add specific product information, weekly specials, and all product offerings
- Detailed IS strategic plan
  - Supply chain management
  - Customer relationship management

RMO’s Organizational Structure

- Managed by original owners
  - John Blankens – President
  - Liz Blankens – Vice president of merchandising and distribution
- William McDougal – Vice president of marketing and sales
- JoAnn White – Vice president of finance and systems
  - Mac Preston – Chief Information Officer
RMO Current Organization

Figure 1-10

RMO Locations

Figure 1-11
RMO Information Systems Department

- Mac Preston – Assistant vice-president and chief information officer (CIO)
  - Recent promotion made after IS strategic plan created
  - CIO reports to finance and systems VP
  - CIO is increasingly important to future of RMO
  - Given its strategic importance, IS department will eventual report directly to the CEO

Figure 1-12

IS staffing
- Chief information officer
  - Administrative assistant (1)

Director of system support
- Managers (4)
- Telecom analysts (2)
- Database analysts (2)
- Operations (6)
- User support (4)
- Secretarial/clerical (2)
- Off-site operations (1)

Director of system development
- Project managers (4)
- Systems analysts (6)
- Programmer analysts (10)
- Secretarial/clerical (2)
Existing RMO Systems

◆ Small server cluster system
  ● Supports inventory, mail-order, accounting, and human resources
  ● High capacity network connects distribution and mail-order sites

◆ LANs and file servers
  ● Supports central office functions, distribution centers, and manufacturing centers

Existing RMO Systems (continued)

◆ Supply Chain Management System
  ● Client/Server system in C++ and DB2

◆ Mail Order System
  ● Mainframe COBOL/CICS. Unable to handle phone orders

◆ Phone order system
  ● Oracle and Visual Basic system built 6 years ago

◆ Retail store systems
  ● Eight-year-old point-of-sale and batch inventory package, overnight update with mainframe
Existing RMO Systems (continued)

- Office systems
  - LAN with office software, Internet, e-mail
- Human resources system
  - Thirteen-year-old mainframe-based payroll and benefits
- Accounting/finance system
  - Mainframe package bought from leading vendor
- Web Catalog and Order System
  - Outside company until 2011. Irregular performance

The Information Systems Strategic Plan

- Supports RMO strategic objectives
  - Build more direct customer relationships
  - Expand marketing beyond Western states
- Plan calls for a series of information system development and integration projects over several years
- Project launch: New customer support system to integrate phone orders, mail orders, and direct customer orders via Internet
RMO Technology Architecture Plan

- Distribute business applications
  - Across multiple locations and systems
  - Reserve data center for Web server, database, and telecommunications
- Strategic business processes via Internet
  - Supply chain management (SCM)
  - Direct customer ordering via dynamic Web site
  - Customer relationship management (CRM)
- Web-based intranet for business functions

RMO Application Architecture Plan

- Supply chain management (SCM)
  - Product development, product acquisition, manufacturing, inventory management
- Customer support system (CSS)
  - Integrate order-processing and fulfillment system with SCM
  - Support customer orders (mail, phone, Web)
- Strategic information management system
  - Extract and analyze SCM and CSS information for strategic and operational decision making and control
RMO Application Architecture Plan (continued)

- Retail store system (RSS)
  - Replace existing retail store system with system integrated with CSS

- Accounting/finance system
  - Purchase intranet application to maximize employee access to financial data for planning and control

- Human resources (HR) system
  - Purchase intranet application to maximize employee access to human resources forms, procedures, and benefits information

Timetable for RMO Strategic Plan


- 2010-2011: Project beginning now. New development to implement an order-processing and fulfillment system that seamlessly integrates with the supply chain management system to support the three order-processing requirements, mail order, phone order, and direct customer access via the Web.

- 2011: Package solution that can extract and analyze supply chain and customer support information for strategic and operational decision making and control.

- 2011: Package solution that can integrate with customer support system.

- 2012: Package intranet solution.

- 2013: Package intranet solution.
The Customer Support System (CSS)

- RMO core competency is their ability to develop and maintain customer loyalty
- CSS is a core system supporting complete customer relationship management
  - Inquiries, order entry, order tracking, shipping, back ordering, returns, sales analysis
- Systems analysis activities will define system requirements in detail
- Strategic plan’s stated objectives will form guidelines as project proceeds

Analyst as a System Developer

- Part 1: The systems analyst
  - Chapter 1: The world of the information systems analyst (this chapter)
  - Chapter 2: Approaches to system development
    - Predictive and adaptive SDLCs
    - Traditional approach
    - Object-oriented approach
  - Chapter 3: The analyst as a project manager
Part 2: Systems analysis tasks

- Chapter 4: Beginning the analysis: Investigating system requirements
- Chapter 5: Modeling system requirements
- Chapter 6: Traditional approach to requirements
- Chapter 7: Object-oriented approach to requirements
- Chapter 8: Evaluating alternatives for requirements, environment, and implementation

Part 3: Systems design tasks

- Chapter 9: Moving to design
- Chapter 10: Traditional approach to design
- Chapter 11: Object-oriented design: Principles
- Chapter 12: Object-oriented design: Use Case Realizations
- Chapter 13: Designing databases
Analyst as a System Developer (continued)

- Chapter 14: Designing the user interface
- Chapter 15: Designing system interfaces, controls, and security
- Part 4: Implementation and support
  - Chapter 16: Making the system operational
  - Chapter 17: Current trends in system development
- Supplemental Online Chapters
  - Online Chapter 1: Software packages and ERP

Analyst as a System Developer (continued)

- Online Appendices:
  - Project management, finance, planning, interviewing
  - Project schedules with PERT/CPM charts
  - Calculating net present value, payback period, and return on investment
  - Presenting the results to management
Summary

- A systems analyst solves business problems using information systems technology

- Problem solving means looking into business problem in great detail, completely understanding problem, and choosing best solution

- Information system development is much more than writing programs

Summary (continued)

- System – collection of interrelated components that function together to achieve some outcome

- Information systems outcome – solution to a business problem

- Information systems, subsystems, and components interact with and include hardware, software, inputs, outputs, data, people, and procedures
Summary (continued)

- Systems analyst has broad knowledge and variety of skills, including technical, business, and people.

- Integrity and ethical behavior are crucial to success for the analyst.

- Systems analyst encounters a variety of rapidly changing technologies.

- Systems analyst works on strategic plans and then system development projects.