

# Contents

## Module I Foundation Concepts 2

### Chapter 1

#### Foundations of Information Systems in Business 3

##### Section I: Foundation Concepts: Information Systems in Business 4

The Real World of Information Systems 4

*What Is an Information System?* 4

**Real World Case 1: Sew What? Inc.: The Role of Information Technology in Small Business Success** 5

The Fundamental Roles of IS in Business 9

Trends in Information Systems 11

The Role of e-Business in Business 13

Types of Information Systems 14

*Operations Support Systems* 14

*Management Support Systems* 16

*Other Classifications of Information Systems* 17

Managerial Challenges of Information Technology 19

*Success and Failure with IT* 19

*Developing IS Solutions* 20

*Challenges and Ethics of IT* 22

*Challenges of IT Careers* 23

*The IS Function* 26

##### Section II: Foundation Concepts: The Components of Information Systems 27

System Concepts: A Foundation 27

*What Is a System?* 27

**Real World Case 2: JetBlue and the Veterans Administration: The Critical Importance of IT Processes** 28

*Feedback and Control* 30

*Other System Characteristics* 31

Components of an Information System 33

Information System Resources 34

*People Resources* 34

*Hardware Resources* 35

*Software Resources* 35

*Data Resources* 36

*Network Resources* 37

Information System Activities 37

*Input of Data Resources* 38

*Processing of Data into Information* 38

*Output of Information Products* 38

*Storage of Data Resources* 38

*Control of System Performance* 39

Recognizing Information Systems 39

**Real World Case 3: Heidelberg, Honeywell, and Eaton: Using Information Technology to Build Smart Products and Services** 44

**Real World Case 4: Lufthansa: Taking Mobile Computing to the Skies While Keeping the Mobile Workforce Connected** 46

**Real World Case 5: The Spark Batteries Ltd.** 48

### Chapter 2

#### Competing with Information Technology 50

##### Section I: Fundamentals of Strategic Advantage 51

Strategic IT 51

Competitive Strategy Concepts 51

*Competitive Forces and Strategies* 51

**Real World Case 1: IT Leaders: Reinventing IT as a Strategic Business Partner** 52

Strategic Uses of Information Technology 56

## xxii Contents

<i>Other Strategic Initiatives</i>	56
Building a Customer-Focused Business	58
The Value Chain and Strategic IS	62
<i>Value Chain Examples</i>	65

### **Section II: Using Information Technology for Strategic Advantage 67**

Strategic Uses of IT	67
Reengineering Business Processes	67
<b>Real World Case 2: Wachovia and Others: Trading Securities at the Speed of Light</b>	69
Becoming an Agile Company	71

Creating a Virtual Company	75
<i>Virtual Company Strategies</i>	75
Building a Knowledge-Creating Company	77
<i>Knowledge Management Systems</i>	78

**Real World Case 3: GE, Dell, Intel, GM, and Others: Debating the Competitive Advantage of Information Technology** 84

**Real World Case 4: GE Energy and GE Healthcare: Using Information Technology to Create Strategic Customer Relationships** 86

**Real World Case 5: Automotive: Gaining the Required Edge** 88

## **Module II Information Technologies 92**

### **Chapter 3**

### **Computer Hardware 93**

#### **Section I: Computer Systems: End-User and Enterprise Computing 94**

Introduction	94
A Brief History of Computer Hardware	94
<b>Real World Case 1: IBM, Wachovia, and PayPal: Grid Computing Makes It Easier and Cheaper</b>	95
Types of Computer Systems	99
Microcomputer Systems	100
<i>Computer Terminals</i>	102
<i>Network Computers</i>	103
<i>Information Appliances</i>	103
<i>Midrange Systems</i>	104
Mainframe Computer Systems	106
<i>Supercomputer Systems</i>	107
<i>The Next Wave of Computing</i>	109
Technical Note: The Computer System Concept	109
<i>Computer Processing Speeds</i>	111
Moore's Law: Where Do We Go from Here?	112

#### **Section II: Computer Peripherals: Input, Output, and Storage Technologies 114**

Peripherals	114
Input Technologies	114
<i>Pointing Devices</i>	114
<b>Real World Case 2: Apple, Microsoft, IBM, and Others: The Touch Screen Comes of Age</b>	115

<i>Pen-Based Computing</i>	118
<i>Speech Recognition Systems</i>	119
<i>Optical Scanning</i>	121
<i>Other Input Technologies</i>	122
Output Technologies	124
<i>Video Output</i>	124
<i>Printed Output</i>	126
Storage Trade-Offs	126
<i>Computer Storage Fundamentals</i>	127
<i>Direct and Sequential Access</i>	129
Semiconductor Memory	130
Magnetic Disks	131
<i>Types of Magnetic Disks</i>	132
<i>RAID Storage</i>	133
Magnetic Tape	133
Optical Disks	134
<i>Business Applications</i>	135
Radio Frequency Identification	136
<i>RFID Privacy Issues</i>	136
Predictions for the Future	139

**Real World Case 3: Northrup Grumman, Boeing, and Others: Employee Connectivity Trumps ROI as Wireless Mobile Devices Change the Work Environment** 147

**Real World Case 4: Apple Inc.: The iPod, the iMac, and the Business Lessons of Closed Systems** 149

**Real World Case 5: Storage Solutions for Business Productivity** 151

**Chapter 4****Computer Software 153****Section I: Application Software: End-User Applications 154**

Introduction to Software 154

*What Is Software?* 154*Types of Software* 154*Application Software for End Users* 154**Real World Case 1: Wolf Peak International: Failure and Success in Application Software for the Small to Medium Enterprise** 155

Business Application Software 159

Software Suites and Integrated Packages 159

Web Browsers and More 160

Electronic Mail, Instant Messaging, and Weblogs 162

Word Processing and Desktop Publishing 163

Electronic Spreadsheets 164

Presentation Graphics 165

Personal Information Managers 166

Groupware 167

Software Alternatives 168

*Application Service Providers* 169*Software Licensing* 169**Section II: System Software: Computer System Management 173**

System Software Overview 173

*Overview* 173**Real World Case 2: Power Distribution and Law Enforcement: Reaping the Benefits of Sharing Data Through XML** 174

Operating Systems 176

*Operating Systems Functions* 176*Microsoft Windows* 178*UNIX* 179*Linux* 180*Open-source Software* 180*OpenOffice.org 2* 181*Mac OS X* 181

Other System Management Programs 183

Programming Languages 185

*Machine Languages* 185*Assembler Languages* 185*High-Level Languages* 186*Fourth-Generation Languages* 187*Object-Oriented Languages* 187

Web Languages and Services 188

*HTML* 188*XML* 188*Java and .NET* 191*Web Services* 192

Programming Software 194

*Language Translator Programs* 195*Programming Tools* 195**Real World Case 3: Microsoft and Others: Developing Software for How Companies Do Business** 202**Real World Case 4: Google, Microsoft, and Others: Transforming the Desktop with Web Top Software Applications** 204**Real World Case 5: Crystal International: IT Service Management** 207**Chapter 5****Data Resource Management 209****Section I: Technical Foundations of Database Management 210**

Database Management 210

Fundamental Data Concepts 210

*Character* 210*Field* 210**Real World Case 1: Cogent Communications, Intel, and Others: Mergers Go More Smoothly When Your Data Are Ready** 211*Record* 214*File* 214*Database* 214

Database Structures 215

*Hierarchical Structure* 216*Network Structure* 217*Relational Structure* 217*Relational Operations* 217

## xxiv Contents

<i>Multidimensional Structure</i>	218
<i>Objected-Oriented Structure</i>	218
<i>Evaluation of Database Structures</i>	221
Database Development	223
<i>Data Planning and Database Design</i>	224
<b>Section II: Managing Data Resources</b>	<b>228</b>
Data Resource Management	228
Types of Databases	228
<i>Operational Databases</i>	228
<i>Distributed Databases</i>	228
<b>Real World Case 2: Applebee's, Travelocity, and Others: Data Mining for Business Decisions</b>	229
<i>External Databases</i>	234
<i>Hypermedia Databases</i>	234
Data Warehouses and Data Mining	234
<i>Data Mining</i>	235
Traditional File Processing	238
<i>Problems of File Processing</i>	239
The Database Management Approach	240
<i>Database Management System</i>	241
<i>Database Interrogation</i>	244
<i>Database Maintenance</i>	246
<i>Application Development</i>	246
<b>Real World Case 3: Amazon, eBay, and Google: Unlocking and Sharing Business Databases</b>	252
<b>Real World Case 4: Emerson and Sanofi: Data Stewards Seek Data Conformity</b>	254
<b>Real World Case 5: Redbus.in: Automating Bus Travel Industry</b>	256
<b>Chapter 6</b>	
<b>Telecommunications and Networks</b>	<b>258</b>
<b>Section I: The Networked Enterprise</b>	<b>259</b>
The Networked Enterprise	259
The Concept of a Network	259
<b>Real World Case 1: Starbucks and Others: The Future of Public Wi-Fi</b>	261
<i>Metcalfe's Law</i>	262
Trends in Telecommunications	263
<i>Industry Trends</i>	264
<i>Technology Trends</i>	264
<i>Business Application Trends</i>	265
<i>Internet2</i>	265
The Business Value of Telecommunications Networks	266
The Internet Revolution	267
<i>Internet Service Providers</i>	268
<i>Internet Applications</i>	268
<i>The Business Value of the Internet</i>	271
The Role of Intranets	272
<i>The Business Value of Intranets</i>	272
The Role of Extranets	275
<b>Section II: Telecommunications Network Alternatives</b>	<b>279</b>
Telecommunications Alternatives	279
A Telecommunications Network Model	279
<b>Real World Case 2: Metric &amp; Multistandard Components Corp.: The Business Value of a Secure Self-Managed Network for a Small-to-Medium Business</b>	280
Types of Telecommunications Networks	283
<i>Wide Area Networks</i>	283
<i>Local Area Networks</i>	283
<i>Virtual Private Networks</i>	285
<i>Client/Server Networks</i>	287
<i>Network Computing</i>	288
<i>Peer-to-Peer Networks</i>	288
Digital and Analog Signals	290
Telecommunications Media	291
Wired Technologies	291
<i>Twisted-Pair Wire</i>	291
<i>Coaxial Cable</i>	291
<i>Fiber Optics</i>	292
<i>The Problem of "The Last Mile"</i>	292
Wireless Technologies	293
<i>Terrestrial Microwave</i>	293
<i>Communications Satellites</i>	293
<i>Cellular and PCS Systems</i>	294
<i>Wireless LANs</i>	295
<i>Bluetooth</i>	295
<i>The Wireless Web</i>	295

Telecommunications Processors	297
<i>Modems</i>	297
<i>Inter-network Processors</i>	298
<i>Multiplexers</i>	299
Telecommunications Software	299
<i>Network Management</i>	299
Network Topologies	300
Network Architectures and Protocols	301
<i>Protocols</i>	302
<i>Network Architectures</i>	302
<i>The OSI Model</i>	302

<i>The Internet's TCP/IP</i>	304
<i>Voice over IP</i>	305
Bandwidth Alternatives	306
Switching Alternatives	307
Network Interoperability	308
<b>Real World Case 3: SAIC, Hewlett-Packard, GE, and Others: The Business Case for Wireless Sensor Networks</b>	314
<b>Real World Case 4: Best Buy, MedStar Health, and Unifi: The Challenges and Benefits of Wireless Mobile Applications</b>	317
<b>Real World Case 5: Seconds &amp; Powerful</b>	319

## Module III Business Applications 322

### Chapter 7

#### e-Business Systems 323

##### Section I: e-Business Systems 324

Introduction	324
Cross-Functional Enterprise Applications	324
<b>Real World Case 1: Cisco Systems: Telepresence and the Future of Collaboration</b>	325
<i>Enterprise Application Architecture</i>	328

Enterprise Application Integration	329
------------------------------------	-----

Transaction Processing Systems	331
<i>The Transaction Processing Cycle</i>	333

Enterprise Collaboration Systems	335
<i>Tools for Enterprise Collaboration</i>	336

##### Section II: Functional Business Systems 339

Introduction	339
--------------	-----

<i>IT in Business</i>	339
-----------------------	-----

Marketing Systems	339
-------------------	-----

<b>Real World Case 2: OHSU, Sony, Novartis, and Others: Strategic Information Systems—It's HR's Turn</b>	340
--	-----

<i>Interactive Marketing</i>	342
------------------------------	-----

<i>Targeted Marketing</i>	344
---------------------------	-----

<i>Sales Force Automation</i>	345
-------------------------------	-----

Manufacturing Systems	347
-----------------------	-----

<i>Computer-Integrated Manufacturing</i>	347
--	-----

Human Resource Systems	349
------------------------	-----

<i>HRM and the Internet</i>	349
-----------------------------	-----

<i>HRM and Corporate Intranets</i>	350
------------------------------------	-----

Accounting Systems	352
--------------------	-----

<i>Online Accounting Systems</i>	353
----------------------------------	-----

Financial Management Systems	353
------------------------------	-----

<b>Real World Case 3: Hilton Hotels Corporation: Data-Driven Hospitality</b>	360
--	-----

<b>Real World Case 4: Yahoo, Google, and Chrysler: How the Internet Is Changing Advertising and Marketing</b>	362
---	-----

<b>Real World Case 5: Drishtee.com: Connecting India Village by Village</b>	365
---	-----

### Chapter 8

#### Enterprise Business Systems 370

##### Section I: Getting All the Geese Lined Up: Managing at the Enterprise Level 371

##### Customer Relationship Management: The Business Focus 372

Introduction	372
--------------	-----

What Is CRM?	372
--------------	-----

<b>Real World Case 1: NetSuite Inc., Berlin Packaging, Churchill Downs, and Others: The Secret to CRM Is in the Data</b>	373
--	-----

<i>Contact and Account Management</i>	375
---------------------------------------	-----

<i>Sales</i>	375
--------------	-----

*Marketing and Fulfillment* 376  
*Customer Service and Support* 376  
*Retention and Loyalty Programs* 376  
The Three Phases of CRM 379  
Benefits and Challenges of CRM 380  
    *CRM Failures* 382  
Trends in CRM 383  
**Section II: Enterprise Resource Planning:  
The Business Backbone 385**  
Introduction 385  
What Is ERP? 385  
**Real World Case 2: IT Leaders, Vertex Distribution,  
and Prevention Partners: The Future of ERP May Lie with  
Open Source 386**  
Benefits and Challenges of ERP 391  
    *The Costs of ERP* 391  
    *Causes of ERP Failures* 393  
Trends in ERP 394  
**Section III: Supply Chain Management:  
The Business Network 397**  
Introduction 397  
What Is SCM? 397  
**Real World Case 3: Perdue Farms and Others: Supply  
Chain Management Meets the Holiday Season 398**  
    *Electronic Data Interchange* 402  
The Role of SCM 403  
Benefits and Challenges of SCM 405  
Trends in SCM 408  
**Real World Case 4: Autosystems: The Business Value of a  
Successful ERP System for a Small Manufacturer 415**  
**Real World Case 5: CRM for Building Closer  
Relationship with Dealers 417**

## Chapter 9

### Electronic Commerce Systems 421

#### Section I: Electronic Commerce Fundamentals 422

Introduction to Electronic Commerce 422  
The Scope of e-Commerce 422

**Real World Case 1: KitchenAid and the Royal Bank  
of Canada: Do You Let Your Brand Go Online All by  
Itself? 423**

*e-Commerce Technologies* 425  
    *Categories of e-Commerce* 426  
Essential e-Commerce Processes 428  
    *Access Control and Security* 428  
    *Profiling and Personalizing* 429  
    *Search Management* 429  
    *Content and Catalog Management* 430  
    *Workflow Management* 432  
    *Event Notification* 433  
    *Collaboration and Trading* 434  
Electronic Payment Processes 434  
    *Web Payment Processes* 434  
    *Electronic Funds Transfer* 434  
    *Secure Electronic Payments* 435

#### Section II: e-Commerce Applications and Issues 437

*e-Commerce Trends* 437  
Business-to-Consumer e-Commerce 437  
**Real World Case 2: Entellium, Digg, Peerflix,  
Zappos, and Jigsaw: Success for Second Movers in e-  
Commerce 438**  
    *e-Commerce Success Factors* 440  
Web Store Requirements 445  
    *Developing a Web Store* 445  
    *Serving Your Customers* 448  
    *Managing a Web Store* 449  
Business-to-Business e-Commerce 450  
e-Commerce Marketplaces 451  
Clicks and Bricks in e-Commerce 454  
    *e-Commerce Integration* 454  
    *Other Clicks-and-Bricks Strategies* 456  
    *e-Commerce Channel Choices* 456

**Real World Case 3: eBay versus Google and Microsoft:  
The Competitive Battle for e-Commerce Supremacy 464**

**Real World Case 4: eBay Inc.: Running the Right Play  
in the Right Country 466**

**Real World Case 5: Making of egurucool.com 468**

**Chapter 10****Decision Support Systems 474****Section I: Decision Support in Business 475**

Introduction 475

*Information, Decisions, and Management 475***Real World Case 1: Hillman Group, Avnet, and Quaker Chemical: Process Transformation Through Business Intelligence Deployments 476***Information Quality 479*

Decision Structure 479

Decision Support Trends 481

Decision Support Systems 485

*Example 486**DSS Components 486*

Management Information Systems 488

*Management Reporting Alternatives 488*

Online Analytical Processing 489

*OLAP Examples 492**Geographic Information and Data Visualization Systems 495*

Using Decision Support Systems 498

*What-if Analysis 498**Sensitivity Analysis 499**Goal-Seeking Analysis 500**Optimization Analysis 500**Data Mining for Decision Support 501*

Executive Information Systems 503

*Features of an EIS 503*

Enterprise Portals and Decision Support 505

*Enterprise Information Portals 505*

Knowledge Management Systems 507

**Section II: Artificial Intelligence Technologies in Business 510**

Business and AI 510

An Overview of Artificial Intelligence 510

**Real World Case 2: Goodyear, JEA, OSUMC, and Monsanto: Cool Technologies Driving Competitive Advantage 511***The Domains of Artificial Intelligence 514*

Expert Systems 517

*Components of an Expert System 517**Expert System Applications 519**Benefits of Expert Systems 520**Limitations of Expert Systems 521*

Developing Expert Systems 522

*Knowledge Engineering 523*

Neural Networks 524

Fuzzy Logic Systems 525

*Fuzzy Logic in Business 526*

Genetic Algorithms 526

Virtual Reality 527

*VR Applications 528*

Intelligent Agents 530

**Real World Case 3: Oracle Corporation and Others: Dashboards for Executives and Business Professionals—The Power and the Challenge 538****Real World Case 4: Harrah's Entertainment, LendingTree, DeepGreen Financial, and Cisco Systems: Successes and Challenges of Automated Decision Making 541****Real World Case 5: Indian Distributors Ltd. 543****Module IV Development Processes 548****Chapter 11****Developing Business/IT Strategies 549****Section I: Planning Fundamentals 550**

Introduction 550

Organizational Planning 550

**Real World Case 1: Forrester, NMSU, Exante Financial Services, and Others: Getting Real about Strategic Planning 551**

The Scenario Approach 553

Planning for Competitive Advantage 556

*SWOT Analysis 557*

Business Models and Planning 558

## xxviii Contents

Business/IT Planning	558
<i>Information Technology Architecture</i>	561
<i>Balanced Scorecard</i>	562
Identifying Business/IT Strategies	563
Business Application Planning	565
<i>Business/IT Architecture Planning</i>	569
<b>Section II: Implementation Challenges</b>	<b>571</b>
Implementation	571
Implementing Information Technology	571
<b>Real World Case 2: Blue Cross and Blue Shield and Others: Understanding the Science behind Change</b>	<b>572</b>
End-User Resistance and Involvement	576
Change Management	579
<i>A Change Management Process</i>	581
<b>Real World Case 3: 7-Eleven Japan, Eli Lilly, Mobegan Sun, UPS, Vanguard, Carlson Companies, and Raytheon: The Portfolio Approach to IT Investment Planning and Management</b>	<b>588</b>
<b>Real World Case 4: Infosys Technologies: The Implementation Challenges of Knowledge Management Initiatives</b>	<b>590</b>
<b>Real World Case 5:</b>	<b>593</b>

## Chapter 12

### Developing Business/IT Solutions 599

#### Section I: Developing Business Systems 600

IS Development	600
The Systems Approach	600
<i>Systems Thinking</i>	600
<b>Real World Case 1: PayPal: Going Global All Languages at a Time</b>	<b>601</b>
Systems Analysis and Design	604
The Systems Development Life Cycle	604
Starting the Systems Development Process	604
<i>Feasibility Studies</i>	606
<i>Operational Feasibility</i>	606
<i>Economic Feasibility</i>	606
<i>Technical Feasibility</i>	607
<i>Human Factors Feasibility</i>	608
<i>Legal/Political Feasibility</i>	608

Systems Analysis	609
<i>Organizational Analysis</i>	610
<i>Analysis of the Present System</i>	610
<i>Logical Analysis</i>	611
<i>Functional Requirements Analysis and Determination</i>	612
Systems Design	612
<i>Prototyping</i>	612
<i>The Prototyping Process</i>	613
<i>User Interface Design</i>	615
<i>System Specifications</i>	617
End-User Development	617
<i>Focus on IS Activities</i>	618
<i>Doing End-User Development</i>	619
<b>Section II: Implementing Business Systems 622</b>	
Implementation	622
Implementing New Systems	623
<b>Real World Case 2: Queen's Medical Center, National Public Radio, Worldspan, and Others: Your IT Project Has Been Backlogged</b>	<b>624</b>
Project Management	627
<i>What Is a Project?</i>	628
<i>The Process of Project Management</i>	628
Evaluating Hardware, Software, and Services	630
<i>Hardware Evaluation Factors</i>	631
<i>Software Evaluation Factors</i>	631
<i>Evaluating IS Services</i>	631
Other Implementation Activities	632
<i>Testing</i>	633
<i>Data Conversion</i>	633
<i>Documentation</i>	635
<i>Training</i>	635
<i>System Conversion Strategies</i>	636
<i>Direct Conversion</i>	637
<i>Parallel Conversion</i>	637
<i>Pilot Conversion</i>	638
<i>Phased Conversion</i>	638
<i>Postimplementation Activities</i>	638
<i>Systems Maintenance</i>	638
<i>Postimplementation Review</i>	639



**Real World Case 3: Intuit Inc.: Innovation in Customer-Driven Development of Small Business and Consumer Software** 647

**Real World Case 4: Hewlett-Packard: Managing the**

*Implementation of Radical Change in IT Staffing, Systems, and Application Development* 649

**Real World Case 5: Automating Resident Welfare Activities** 652

## Module V Management Challenges 654

### Chapter 13

#### Security and Ethical Challenges 655

##### Section I: Security, Ethical, and Societal Challenges of IT 656

Introduction 656

*Business/IT Security, Ethics, and Society* 656

Ethical Responsibility of Business Professionals 656

**Real World Case 1: Ethics, Moral Dilemmas, and Tough Decisions: The Many Challenges of Working in IT** 657

*Business Ethics* 660

*Technology Ethics* 661

*Ethical Guidelines* 661

Computer Crime 663

*Hacking and Cracking* 665

*Cyber Theft* 667

*Unauthorized Use at Work* 668

*Software Piracy* 671

*Theft of Intellectual Property* 671

*Computer Viruses and Worms* 672

*Adware and Spyware* 675

Privacy Issues 677

*Privacy on the Internet* 678

*Computer Matching* 680

*Privacy Laws* 680

*Computer Libel and Censorship* 680

The Current State of Cyber Law 681

Other Challenges 681

*Employment Challenges* 681

*Computer Monitoring* 682

*Challenges in Working Conditions* 683

*Challenges to Individuality* 683

Health Issues 684

*Ergonomics* 684

Societal Solutions 684

##### Section II: Security Management of Information Technology 686

Introduction 686

Tools of Security Management 686

**Real World Case 2: Raymond James Financial, BCD Travel, Houston Texans, and Others: Worrying about What Goes out, Not What Comes in** 687

Inter-networked Security Defenses 690

*Encryption* 692

*Firewalls* 693

*Denial of Service Attacks* 695

*e-Mail Monitoring* 696

*Virus Defenses* 697

Other Security Measures 699

*Security Codes* 699

*Backup Files* 700

*Security Monitors* 700

*Biometric Security* 700

*Computer Failure Controls* 701

*Fault-Tolerant Systems* 702

*Disaster Recovery* 703

System Controls and Audits 704

*Information System Controls* 704

*Auditing IT Security* 705

**Real World Case 3: Cyber Scams: Four Top Cyber Criminals—Who They Are and What They Do** 711

**Real World Case 4: Lowe's, TCI, Bank of America, ChoicePoint, and Others: Failures in Data Security Management** 713

**Real World Case 5: Phishing: Customers Beware!** 716

## Chapter 14

### Enterprise and Global Management of Information Technology 718

#### Section I: Managing Information Technology 719

Business and IT 719

Managing Information Technology 719

**Real World Case 1: Toyota, Procter & Gamble, Hess Corporation, and Others: Retiring CIOs and the Need for Succession Planning** 720

Business/IT Planning 723

*Information Technology Architecture* 724

Managing the IT Function 725

Organizing IT 726

*Managing Application Development* 728

*Managing IS Operations* 728

*IT Staff Planning* 728

*The CIO and Other IT Executives* 729

*Technology Management* 731

*Managing User Services* 731

Outsourcing and Offshoring IT and IS 732

*Offshoring* 733

Failures in IT Management 736

*Management Involvement* 736

*IT Governance* 738

#### Section II: Managing Global IT 741

The International Dimension 741

Global IT Management 741

**Real World Case 2: Reinsurance Group of America and Fonterra: Going for Unified Global Operations** 742

Cultural, Political, and Geoeconomic Challenges 745

Global Business/IT Strategies 746

Global Business/IT Applications 747

Global IT Platforms 750

*The Internet as a Global IT Platform* 751

Global Data Access Issues 752

*Internet Access Issues* 754

Global Systems Development 755

*Systems Development Strategies* 755

**Real World Case 3: General Motors: Factory IT Faces Its Biggest Test Yet** 761

**Real World Case 4: IBM Corporation: Competing Globally by Offshoring IT Workers and Giving Away Technology** 764

**Real World Case 5: RFID Implementation at Abbisbek Industries** 766

**Review Quiz Answers** 768

**Selected References** 772

**Glossary for Business Professionals** 785

**Name Index** 809

**Company Index** 812

**Subject Index** 817