

Management Information Systems

Managing the Digital Firm

Tenth Edition

Kenneth C. Laudon
Jane P. Laudon

Management Information Systems

MANAGING THE DIGITAL FIRM

TENTH EDITION SEMINAR LIBRARY
Department of Computer Science
UNIVERSITY OF KARACHI

Kenneth C. Laudon
New York University

Jane P. Laudon
Azimuth Information Systems

Complete Contents

Part One

Organizations, Management, and the Networked Enterprise 35

Chapter 1

Information Systems in Global Business Today 35

• **Opening Case:** Sensor Systems and Smart Ways of Working Help Toyota Secure Number One 37

1.1 The Role of Information Systems in Business Today 39

Globalization Opportunities 41 • The Emerging Digital Firm 41 • Strategic Business Objectives of Information Systems 42

• **Interactive Session: Organizations Virtual Management at Auctions** 43

1.2 Perspectives on Information Systems 47

What is an Information System? 48 • Dimensions of Information Systems 50

• **Interactive Session: Technology** UPS Competes Globally with Information Technology 54

It Isn't Just Technology: A Business Perspective on Information Systems 56 • Complementary Assets: Organizational Capital and the Right Business Model 58

1.3 Contemporary Approaches to Information Systems 60

Technical Approach 60 • Behavioral Approach 61 • Approach of This Text: Sociotechnical Systems 61

1.4 Hands-on MIS 63

Understanding Information Systems Requirements: Dirt Bikes USA 63 • Improving Decision Making: Using Databases to Analyze Sales Trends 64 • Achieving Operational Excellence: Using Internet Software to Budget for Shipping Costs 65

Learning Track Module: How Much Does IT Matter? 65

Summary 66 • **Key Terms** 67 • **Review Questions** 67 • **Discussion Questions** 67 • **Video Case** 67 • **Teamwork: Analyzing a Business System** 68

• **Case Study:** Morgan Stanley's Return on System Noninvestment 69

Chapter 2

Global E-Business: How Businesses Use Information Systems 72

• **Opening Case:** Information Systems Join the Tupperware Party 73

2.1 Business Processes and Information Systems 75

Business Processes 75 • How Information Technology Enhances Business Processes: Efficiency and Transformation 77

2.2 Types of Business Information Systems 78

Systems from a Functional Perspective 78

- ◆ **Interactive Session: Organizations** Information Systems Help Kia Solve Its Quality Problems 82
 - systems from a Constituency Perspective 86
- ◆ **Interactive Session: Management** Managing Travel Expenses: New Tools, New Savings 89

- Relationship of Systems to One Another 92
- 2.3 Systems That Span the Enterprise 93
 - Enterprise Applications 93 • Intranets and Extranets 100 • E-Business, E-Commerce, and E-Government 101
- 2.4 The Information Systems Function in Business 101
 - The Information Systems Department 102 • Organizing the Information Systems Function 102

- 2.5 Hands-on MIS 104
 - Analyzing Financial Performance: Dirt Bikes USA 105 • Improving Decision Making: Using a Spreadsheet to Select Suppliers 106 • Achieving Operational Excellence: Using Internet Software to Plan Efficient Transportation Routes 107

- Learning Track Module: Challenges of Using Business Information Systems** 107
 - Summary 108 • Key Terms 109 • Review Questions 109 • Discussion Questions 110 • Video Case 110 • Teamwork: Describing Management Decisions and Systems 110
- ◆ **Case Study: Can Information Systems Help Prevent a Public Health Crisis?** 111

Information Systems, Organizations, and Strategy 114

- ◆ **Opening Case: Will the New US Airways Be Able to Fly?** 115

- 3.1 Organizations and Information Systems 117
 - What Is an Organization? 118 • Features of Organizations 120
- 3.2 How Information Systems Impact Organizations and Business Firms 124
 - Economic Impacts 124 • Organizational and Behavioral Impacts 126 • The Internet and Organizations 129 • Implications for the Design and Understanding of Information Systems 129
- 3.3 Using Information Systems to Achieve Competitive Advantage 129
 - Porter's Competitive Forces Model 130 • Information System Strategies for Dealing with Competitive Forces 131

- ◆ **Interactive Session: Technology** 7-Eleven Stores Ask the Customer by Asking the Data 135

- The Internet's Impact on Competitive Advantage 137 • The Business Value Chain Model 138

- ◆ **Interactive Session: Organizations** Amazon.com: An Internet Giant Fine-Tunes Its Strategy 141

- Synergies, Core Competencies, and Network-Based Strategies 143
- 3.4 Using Systems for Competitive Advantage: Management Issues 147
 - Sustaining Competitive Advantage 147 • Performing a Strategic Systems Analysis 148 • Managing Strategic Transitions 148

3.5 Hands-on MIS 149

Analyzing Competitive Strategy: Dirt Bikes USA 149 • Improving Decision Making: Using a Database to Clarify Business Strategy 149 • Improving Decision Making: Using Web Tools to Configure and Price an Automobile 151

Learning Track Module: The Changing Business Environment for Information Technology 151

Summary 152 • Key Terms 153 • Review Questions 153 • Discussion Questions 154 • Video Case 154 • Teamwork: Identifying Opportunities for Strategic Information Systems 154

◆ **Case Study: Blockbuster vs. Netflix: Which Will Win Out?** 155

Chapter 4

Ethical and Social Issues in Information Systems 158

◆ **Opening Case: Does Location Tracking Threaten Privacy?** 159

4.1 Understanding Ethical and Social Issues Related to Systems 161

A Model for Thinking About Ethical, Social, and Political Issues 163 • Five Moral Dimensions of the Information Age 164 • Key Technology Trends That Raise Ethical Issues 164

◆ **Interactive Session: Management Data for Sale** 167

4.2 Ethics in an Information Society 169

Basic Concepts: Responsibility, Accountability, and Liability 169 • Ethical Analysis 170 • Candidate Ethical Principles 171 • Professional Codes of Conduct 171 • Some Real-World Ethical Dilemmas 172

4.3 The Moral Dimensions of Information Systems 173

Information Rights: Privacy and Freedom in the Internet Age 173 • Property Rights: Intellectual Property 179 • Accountability, Liability, and Control 182 • System Quality: Data Quality and System Errors 183 • Quality of Life: Equity, Access, and Boundaries 183

◆ **Interactive Session: Organizations The Internet: Friend or Foe to Children?** 185

4.4 Hands-on MIS 191

Developing a Web Site Privacy Policy: Dirt Bikes USA 191 • Improving Operational Excellence: Creating a Simple Web Site Using Web Page Development Tools 192 • Improving Decision Making: Using Internet Newsgroups for Online Market Research 192

Learning Track Module: Developing a Corporate Code of Ethics for Information Systems 193

Summary 193 • Key Terms 194 • Review Questions 194 • Discussion Questions 195 • Video Case 195 • Teamwork: Developing a Corporate Ethics Code 195

◆ **Case Study: Is the Telephone Company Violating Your Privacy?** 196

◆ **Part One Project: Analyzing Business Processes for an Enterprise System** 199

Part Two Information Technology Infrastructure 201

Chapter 5

IT Infrastructure and Emerging Technologies 202

Opening Case: DreamWorks Animation Turns to Technology for Production Support 203

5.1 IT Infrastructure 205

Defining IT Infrastructure 205 • Evolution of IT Infrastructure: 1950-2007 207 • Technology Drivers of Infrastructure Evolution 211

5.2 Infrastructure Components 217

Computer Hardware Platforms 218 • Computer Software Platforms 220 • Data Management and Storage 221 • Networking/Telecommunications Platforms 222 • Internet Platforms 222 • Consulting and System Integration Services 223

5.3 Hardware Platform Trends and Emerging Technologies 223

The Integration of Computing and Telecommunications Platforms 223 • Grid Computing 224 • On-Demand Computing (Utility Computing) 225 • Autonomic Computing and Edge Computing 225 • Virtualization and Multicore Processors 227

5.4 Software Platform Trends and Emerging Technologies 228

The Rise of Linux and Open-Source Software 229

♦Interactive Session: Technology Is It Time for Open Source? 230

Java Is Everywhere 231 • Software for Enterprise Integration 232 • Ajax, Mashups, Web 2.0, and Web-Based Software Applications 236 • Software Outsourcing 238

♦Interactive Session: Technology Application Service Providers: Two Tales 241

5.5 Management Issues 242

Dealing with Infrastructure Change 242 • Management and Governance 243 • Making Wise Infrastructure Investments 243

5.6 Hands-on MIS 246

Improving Decision Making: Making the Rent vs. Buy Decision for Hardware and Software: Dirt Bikes USA 246 • Improving Decision Making: Using a Spreadsheet to Evaluate Hardware and Software Options 247 • Improving Decision Making: Using Web Research to Budget for a Sales Conference 248

Learning Track Modules: How Computer Hardware and Software Work; The Open Source Software Initiative 248

Summary 249 • Key Terms 250 • Review Questions 251 • Discussion Questions 251 • Video Case 251 • Teamwork: Evaluating Server Operating Systems 251

♦Case Study: Merrill Lynch Connects Past and Future Technology 252

Chapter 6

Foundations of Business Intelligence: Databases and Information Management 256

Opening Case: NASCAR Races to Manage Its Data 257

6.1 Organizing Data in a Traditional File Environment 259

	File Organization Concepts 260 • Problems with the Traditional File Environment 261
6.2	The Database Approach to Data Management 263 Database Management Systems 263 • Capabilities of Database Management Systems 267 • Designing Databases 270
6.3	Using Databases to Improve Business Performance and Decision Making 272 Data Warehouses 273 • Business Intelligence; Multidimensional Data Analysis, and Data Mining 274
	♦ Interactive Session: Organizations Databases: Crime-Fighting Weapon or Threat to Privacy? 278
	Databases and the Web 279
6.4	Managing Data Resources 281 Establishing an Information Policy 281 • Ensuring Data Quality 281
	♦ Interactive Session: Management What Can Be Done About Data Quality? 283
6.5	Hands-on MIS 284 Improving Decision Making: Redesigning the Customer Database: Dirt Bikes USA 284 • Achieving Operational Excellence: Building a Relational Database for Inventory Management 285 • Improving Decision Making: Searching Online Databases for Overseas Business Resources 286
	Learning Track Modules: Database Design, Normalization, and Entity-Relationship Diagramming; Introduction to SQL; Hierarchical and Network Data Models 287
	Summary 288 Key Terms 289 • Review Questions 289 • Discussion Questions 290 Video Case 290 • Teamwork: Identifying Entities and Attributes in an Online Database 290
	♦ Case Study: Panasonic Creates a Single Version of the Truth from Its Data 291

Chapter 7

Telecommunications, the Internet, and Wireless Technology 294

	Opening Case: Hyatt Regency Osaka Uses Wireless Networking for High-Touch Service 295
7.1	Telecommunications and Networking in Today's Business World 297 Networking and Communication Trends 297 • What Is a Computer Network? 298 • Key Digital Networking Technologies 300
7.2	Communications Networks 303 Signals: Digital vs. Analog 303 • Types of Networks 303 • Physical Transmission Media 306 Broadband Network Services and Technologies 308
7.3	The Internet 310 What Is the Internet? 311 • Internet Addressing and Architecture 311 • Internet Services 314 • The World Wide Web 315 • Intranets and Extranets 320 • Technologies and Tools for Communication and E-Business 320
	♦ Interactive Session: Management Monitoring Employees on Networks: Unethical or Good Business? 322