

Fifth Edition

BUSINESS DRIVEN Information Systems

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Education

Paige Baltzan

Business Driven Information Systems

Paige Baltzan

Daniels College of Business, University of Denver

Business Driven Information Systems

FIFTH EDITION





BUSINESS DRIVEN INFORMATION SYSTEMS, FIFTH EDITION

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DEDICATION

To Tony, Hannah, Sophie, and Gus:
What do you always remember?
That I Love You! That I'm Proud of You!

Paige

BRIEF CONTENTS

MODULE 1

Business Driven MIS

- Chapter 1 Management Information Systems: Business Driven MIS
- Chapter 2 Decisions and Processes: Value Driven Business
- Chapter 3 Ebusiness: Electronic Business Value
- Chapter 4 Ethics and Information Security: MIS Business Concerns

MODULE 2

Technical Foundations of MIS

- Chapter 5 Infrastructures: Sustainable Technologies
- Chapter 6 Data: Business Intelligence
- Chapter 7 Networks: Mobile Business

MODULE 3

Enterprise MIS

- Chapter 8 Enterprise Applications: Business Communications
- Chapter 9 Systems Development and Project Management: Corporate Responsibility

APPENDIX

- Appendix A Hardware and Software Basics
- Appendix B Networks and Telecommunications
- Appendix C Designing Databases

Apply Your Knowledge

Glossary

Notes

Credits

Index

CONTENTS

module 1

Business Driven MIS 1

CHAPTER 1 **Management Information Systems: Business Driven MIS 2**

Opening Case Study: The Internet of Things 3

Section 1.1 Business Driven MIS 5
COMPETING IN THE INFORMATION AGE 5
Data 6
Information 8
Business Intelligence 8
Knowledge 9
THE CHALLENGE OF DEPARTMENTAL COMPANIES AND THE MIS SOLUTION 11
The MIS Solution 12
Systems Thinking 14
MIS Department Roles and Responsibilities 14
Section 1.2 Business Strategy 15
IDENTIFYING COMPETITIVE ADVANTAGES 15
Swot Analysis: Understanding Business Strategies 17
THE FIVE FORCES MODEL—EVALUATING INDUSTRY ATTRACTIVENESS 19
Buyer Power 20
Supplier Power 20
Threat of Substitute Products or Services 21
Threat of New Entrants 21
Rivalry among Existing Competitors 21
Analyzing the Airline Industry 22
THE THREE GENERIC STRATEGIES—CHOOSING A BUSINESS FOCUS 23
VALUE CHAIN ANALYSIS—EXECUTING BUSINESS STRATEGIES 25
Learning Outcome Review 28
Opening Case Questions 30
Key Terms 30
Review Questions 30
Closing Case One: The World Is Flat: Thomas Friedman 31
Closing Case Two: Crushing Candy 32
Critical Business Thinking 33

Entrepreneurial Challenge 36
Apply Your Knowledge Business Projects 37
AYK Application Projects 41

CHAPTER 2 **Decisions and Processes: Value Driven Business 42**

Opening Case Study: Business Is Booming for Wearable Technologies 43

Section 2.1 Decision Support Systems 45
MAKING ORGANIZATIONAL BUSINESS DECISIONS 45
The Decision-Making Process 46
Decision-Making Essentials 46
MEASURING ORGANIZATIONAL BUSINESS DECISIONS 48
Efficiency and Effectiveness Metrics 49
USING MIS TO MAKE BUSINESS DECISIONS 51
Operational Support Systems 52
Managerial Support Systems 53
Strategic Support Systems 55
USING AI TO MAKE BUSINESS DECISIONS 58
Expert Systems 59
Neural Networks 60
Genetic Algorithms 60
Intelligent Agents 61
Virtual Reality 62
Section 2.2 Business Processes 62
MANAGING BUSINESS PROCESSES 62
Business Process Modeling 65
USING MIS TO IMPROVE BUSINESS PROCESSES 67
Operational Business Processes—Automation 68
Managerial Business Processes—Streamlining 70
Strategic Business Processes—Reengineering 71
Learning Outcome Review 77
Opening Case Questions 79
Key Terms 79
Review Questions 80
Closing Case One: Political Micro-Targeting: What Decision Support Systems Did for Barack Obama 80
Closing Case Two: Action Finally—Actionly 82
Critical Business Thinking 84
Entrepreneurial Challenge 85

Apply Your Knowledge Business Projects 86
AYK Application Projects 90

CHAPTER 3

Ebusiness: Electronic Business Value 91

Opening Case Study: Bitcoin 92

Section 3.1 Web 1.0: Ebusiness 93

DISRUPTIVE TECHNOLOGY 93

Disruptive versus Sustaining Technology 93
The Internet and World Wide Web—The Ultimate
Business Disruptors 94

WEB 1.0: THE CATALYST FOR EBUSINESS 94

Expanding Global Reach 97
Opening New Markets 97
Reducing Costs 97
Improving Effectiveness 99

THE FOUR EBUSINESS MODELS 100

Business-to-Business (B2B) 100
Business-to-Consumer (B2C) 101
Consumer-to-Business (C2B) 101
Consumer-to-Consumer (C2C) 102
Ebusiness Forms and Revenue-Generating
Strategies 102

EBUSINESS TOOLS FOR CONNECTING AND COMMUNICATING 103

Email 103
Instant Messaging 105
Podcasting 105
Videoconferencing 105
Web Conferencing 105
Content Management Systems 105

THE CHALLENGES OF EBUSINESS 106

Identifying Limited Market Segments 106
Managing Consumer Trust 106
Ensuring Consumer Protection 106
Adhering to Taxation Rules 107

Section 3.2 Web 2.0: Business 2.0 107

WEB 2.0: ADVANTAGES OF BUSINESS 2.0 107

Content Sharing Through Open Sourcing 108
User-Contributed Content 108
Collaboration Inside the Organization 109
Collaboration Outside the Organization 109

NETWORKING COMMUNITIES WITH BUSINESS 2.0 110

Social Tagging 111

BUSINESS 2.0 TOOLS FOR COLLABORATING 113

Blogs 113
Wikis 114
Mashups 114

THE CHALLENGES OF BUSINESS 2.0 115

Technology Dependence 115
Information Vandalism 116
Violations of Copyright and Plagiarism 116

WEB 3.0: DEFINING THE NEXT GENERATION OF ONLINE BUSINESS OPPORTUNITIES 116

Egovernment: The Government Moves Online 117
Mbusiness: Supporting Anywhere Business 118

Learning Outcome Review 118

Opening Case Questions 120

Key Terms 121

Review Questions 121

Closing Case One: Social Media and Ashton Kutcher 122

Closing Case Two: Pinterest—Billboards for the Internet 123

Critical Business Thinking 125

Entrepreneurial Challenge 128

Apply Your Knowledge Business Projects 128

AYK Application Projects 132

CHAPTER 4

Ethics and Information Security: MIS Business Concerns 133

Opening Case Study: Five Ways Hackers Can Get Into Your Business 134

Section 4.1 Ethics 136

INFORMATION ETHICS 136

Information Does Not Have Ethics, People Do 137

DEVELOPING INFORMATION MANAGEMENT POLICIES 139

Ethical Computer Use Policy 140
Information Privacy Policy 141
Acceptable Use Policy 141
Email Privacy Policy 142
Social Media Policy 143
Workplace Monitoring Policy 144

Section 4.2 Information Security 146

PROTECTING INTELLECTUAL ASSETS 146

Security Threats Caused by Hackers
and Viruses 147

THE FIRST LINE OF DEFENSE—PEOPLE 149

THE SECOND LINE OF DEFENSE—TECHNOLOGY 150

People: Authentication and Authorization 150
Data: Prevention and Resistance 153
Attack: Detection and Response 154

Learning Outcome Review 155

Opening Case Questions 156

Key Terms 157

Review Questions 157

Closing Case One: Targeting Target 158

Closing Case Two: To Share—Or Not to Share 159

Critical Business Thinking 162

Entrepreneurial Challenge 164

Apply Your Knowledge Business Projects 164

AYK Application Projects 168

module 2

Technical Foundations of MIS 169

CHAPTER 5

Infrastructures: Sustainable Technologies 170

Opening Case Study: Box Up Your Data 171

Section 5.1 MIS Infrastructures 174

THE BUSINESS BENEFITS OF A SOLID MIS INFRASTRUCTURE 174

SUPPORTING OPERATIONS: INFORMATION MIS INFRASTRUCTURE 175

Backup and Recovery Plan 176

Disaster Recovery Plan 177

Business Continuity Plan 179

SUPPORTING CHANGE: AGILE MIS INFRASTRUCTURE 180

Accessibility 181

Availability 182

Maintainability 183

Portability 183

Reliability 183

Scalability 184

Usability 185

Section 5.2 Building Sustainable MIS Infrastructures 185

MIS AND THE ENVIRONMENT 185

Increased Electronic Waste 186

Increased Energy Consumption 187

Increased Carbon Emissions 187

SUPPORTING THE ENVIRONMENT: SUSTAINABLE MIS INFRASTRUCTURE 187

Grid Computing 188

Virtualized Computing 190

Cloud Computing 192

Learning Outcome Review 199

Opening Case Questions 200

Key Terms 201

Review Questions 201

Closing Case One: UPS Invests \$1 Billion to Go Green 202

Closing Case Two: Pandora's Music Box 203

Critical Business Thinking 204

Entrepreneurial Challenge 205

Apply Your Knowledge Business Projects 206

AYK Application Projects 210

CHAPTER 6

Data: Business Intelligence 211

Opening Case Study: Informing Information 212

Section 6.1 Data, Information, and Databases 215

THE BUSINESS BENEFITS OF HIGH-QUALITY INFORMATION 215

Information Type: Transactional and Analytical 215

Information Timeliness 217

Information Quality 217

Information Governance 220

STORING INFORMATION USING A RELATIONAL DATABASE MANAGEMENT SYSTEM 220

Storing Data Elements in Entities and Attributes 222

Creating Relationships Through Keys 222

Coca Cola Relational Database Example 223

USING A RELATIONAL DATABASE FOR BUSINESS ADVANTAGES 225

Increased Flexibility 225

Increased Scalability and Performance 225

Reduced Information Redundancy 226

Increased Information Integrity (Quality) 226

Increased Information Security 226

DRIVING WEBSITES WITH DATA 227

Section 6.2 Business Intelligence 229

SUPPORTING DECISIONS WITH BUSINESS INTELLIGENCE 229

The Problem: Data Rich, Information Poor 229

The Solution: Business Intelligence 230

THE BUSINESS BENEFITS OF DATA WAREHOUSING 231

DATA MARTS 232

Multidimensional Analysis 234

Information Cleansing or Scrubbing 234

THE POWER OF BIG DATA ANALYTICS 237

Data Mining 238

Data Analytics 240

Data Visualization 241

Learning Outcome Review 243

Opening Case Questions 244

Key Terms 245

Review Questions 245

Closing Case One: Data Visualization: Stories for the Information Age 246

Closing Case Two: Zillow 247

Critical Business Thinking 248

Entrepreneurial Challenge 250

Apply Your Knowledge Business Projects 250

AYK Application Projects 253

CHAPTER 7

Networks: Mobile Business 254

Opening Case Study: Disrupting the Taxi: Uber 255

Section 7.1 Connectivity: The Business Value of a Networked World 257

OVERVIEW OF A CONNECTED WORLD 257

Network Categories 258

Network Providers 258

Network Access Technologies 259

Network Protocols	262
Network Convergence	264
BENEFITS OF A CONNECTED WORLD	266
CHALLENGES OF A CONNECTED WORLD	269
Security	269
Social, Ethical, and Political Issues	269
Section 7.2 Mobility: The Business Value of a Wireless World	270
WIRELESS NETWORK CATEGORIES	270
Personal Area Networks	271
Wireless LANs	272
Wireless MANs	273
Wireless WAN—Cellular Communication System	274
Wireless WAN—Satellite Communication System	276
Protecting Wireless Connections	277
Managing Mobile Devices	278
BUSINESS APPLICATIONS OF WIRELESS NETWORKS	278
Radio-Frequency Identification (RFID)	279
Global Positioning System (GPS)	280
Geographic Information Systems (GIS)	280
Learning Outcome Review	283
Opening Case Questions	284
Key Terms	284
Review Questions	285
Closing Case One: Wireless Bikes	285
Closing Case Two: Square: Wireless Payments to an iPhone, Android, or iPad	286
Critical Business Thinking	287
Entrepreneurial Challenge	289
Apply Your Knowledge Business Projects	290
AYK Application Projects	293

module 3

Enterprise MIS 294

CHAPTER 8 Enterprise Applications: Business Communications 295

Opening Case Study: Dream It, Design It, 3D Print It 296

Section 8.1 Supply Chain Management 298

BUILDING A CONNECTED CORPORATION THROUGH INTEGRATIONS 298

Integration Tools 299

SUPPLY CHAIN MANAGEMENT 300

Visibility into the Supply Chain 302

TECHNOLOGIES REINVENTING THE SUPPLY CHAIN 304

3D Printing Supports Procurement 306

RFID Supports Logistics 307

Drones Support Logistics	308
Robotics Supports Materials Management	308
The Extended Supply Chain	309

Section 8.2 Customer Relationship Management and Enterprise Resource Planning 311

CUSTOMER RELATIONSHIP MANAGEMENT 311

The Power of the Customer 312

Measuring CRM Success 312

CRM Communication Channels 312

THE BENEFITS OF CRM 312

Evolution of CRM 314

Operational and Analytical CRM 316

Marketing and Operational CRM 317

Sales and Operational CRM 318

Customer Service and Operational CRM 319

Analytical CRM 320

EXTENDING CUSTOMER RELATIONSHIP MANAGEMENT 321

ENTERPRISE RESOURCE PLANNING 322

Core ERP Components 324

Extended ERP Components 327

Measuring ERP Success 327

ORGANIZATIONAL INTEGRATION WITH ERP 329

Mobile ERP 329

Cloud ERP and SaaS ERP 330

Tiered ERP Architectures 330

Learning Outcome Review 332

Opening Case Questions 334

Key Terms 334

Review Questions 334

Closing Case One: Zappos Is Passionate for Customers 335

Closing Case Two: Got Milk? It's Good for You—Unless It's Contaminated! 336

Critical Business Thinking 338

Entrepreneurial Challenge 340

Apply Your Knowledge Business Projects 341

AYK Application Projects 344

CHAPTER 9 Systems Development and Project Management: Corporate Responsibility 345

Opening Case Study: Getting Your Project on Track 346

Section 9.1 Developing Enterprise Applications 349

THE SYSTEMS DEVELOPMENT LIFE CYCLE (SDLC) 349

Phase 1: Planning 349

Phase 2: Analysis 350

Phase 3: Design 353

Phase 4: Development 353

Phase 5: Testing 354

Phase 6: Implementation 354

Phase 7: Maintenance 355

SOFTWARE DEVELOPMENT METHODOLOGY:	
THE WATERFALL	356
AGILE SOFTWARE DEVELOPMENT METHODOLOGIES	359
Rapid Application Development (RAD) Methodology	360
Extreme Programming Methodology	360
Rational Unified Process (RUP) Methodology	360
Scrum Methodology	361
DEVELOPING A SERVICE-ORIENTED ARCHITECTURE	361
Service	361
Interoperability	363
Loose Coupling	363
Section 9.2 Project Management	364
USING PROJECT MANAGEMENT TO DELIVER SUCCESSFUL PROJECTS	364
Unclear or Missing Business Requirements	366
Skipped Phases	366
Changing Technology	367
The Cost of Finding Errors in the SDLC	367
Balance of the Triple Constraint	367
PRIMARY PROJECT PLANNING DIAGRAMS	369
OUTSOURCING PROJECTS	372
Outsourcing Benefits	373
Outsourcing Challenges	374
Learning Outcome Review	376
Opening Case Questions	377
Key Terms	378
Review Questions	378
Closing Case One: Disaster at Denver International Airport	379
Closing Case Two: Reducing Ambiguity in Business Requirements	380
Critical Business Thinking	381
Entrepreneurial Challenge	382
Apply Your Knowledge Business Projects	383
AYK Application Projects	387

appendices

APPENDIX A **Hardware and Software Basics** A.1

INTRODUCTION	A.1
HARDWARE BASICS	A.1
Central Processing Unit	A.2
Primary Storage	A.3
Secondary Storage	A.5
Input Devices	A.7

Output Devices	A.8
Communication Devices	A.9
COMPUTER CATEGORIES	A.9
SOFTWARE BASICS	A.12
System Software	A.12
Application Software	A.13
Distributing Application Software	A.14
Key Terms	A.15
Apply Your Knowledge	A.15

APPENDIX B **Networks and Telecommunications** B.1

INTRODUCTION	B.1
NETWORK BASICS	B.1
ARCHITECTURE	B.3
Peer-to-Peer Networks	B.3
Client/Server Networks	B.4
TOPOLOGY	B.5
PROTOCOLS	B.6
Ethernet	B.6
Transmission Control Protocol/Internet Protocol	B.7
MEDIA	B.8
Wire Media	B.8
Wireless Media	B.9
Key Terms	B.10
Apply Your Knowledge	B.10

APPENDIX C **Designing Databases** C.1

INTRODUCTION	C.1
THE RELATIONAL DATABASE MODEL	C.1
Entities and Attributes	C.2
Business Rules	C.3
DOCUMENTING ENTITY RELATIONSHIP DIAGRAMS	C.3
Basic Entity Relationships	C.4
Relationship Cardinality	C.6
RELATIONAL DATA MODEL AND THE DATABASE	C.7
From Entities to Tables	C.7
Logically Relating Tables	C.8
Key Terms	C.9
Apply Your Knowledge	C.9

Apply Your Knowledge	AYK.1
Glossary	G.1
Notes	N.1
Credits	C-1
Index	I.1

Business Driven Information Systems discusses various business initiatives first and how technology supports those initiatives second. The premise for this unique approach is that business initiatives should drive technology choices. Every discussion first addresses the business needs and then addresses the technology that supports those needs. This text provides the foundation that will enable students to achieve excellence in business, whether they major in operations management, manufacturing, sales, marketing, finance, human resources, accounting, or virtually any other business discipline. *Business Driven Information Systems* is designed to give students the ability to understand how information technology can be a point of strength for an organization.

Common business goals associated with information technology projects include reducing costs, improving productivity, improving customer satisfaction and loyalty, creating competitive advantages, streamlining supply chains, global expansion, and so on. Achieving these results is not easy. Implementing a new accounting system or marketing plan is not likely to generate long-term growth or reduce costs across an entire organization. Businesses must undertake enterprisewide initiatives to achieve broad general business goals such as reducing costs. Information technology plays a critical role in deploying such initiatives by facilitating communication and increasing business intelligence. Any individual anticipating a successful career in business whether it is in accounting, finance, human resources, or operation management must understand the basics of information technology that can be found in this text.

We have found tremendous success teaching MIS courses by demonstrating the correlation between business and IT. Students who understand the tight correlation between business and IT understand the power of this course. Students learn 10 percent of what they read, 80 percent of what they personally experience, and 90 percent of what they teach others. The business driven approach brings the difficult and often intangible MIS concepts to the student's level and applies them using a hands-on approach to reinforce the concepts. Teaching MIS with a business driven focus helps:

- Add credibility to IT.
- Open students' eyes to IT opportunities.
- Attract majors.
- Engage students.

FORMAT, FEATURES, AND HIGHLIGHTS

Business Driven Information Systems is state of the art in its discussions, presents concepts in an easy-to-understand format, and allows students to be active participants in learning. The dynamic nature of information technology requires all students, more specifically business students, to be aware of both current and emerging technologies. Students are facing complex subjects and need a clear, concise explanation to be able to understand and use the concepts throughout their careers. By engaging students with numerous case studies, exercises, projects, and questions that enforce concepts, *Business Driven Information Systems* creates a unique learning experience for both faculty and students.

- **Audience.** *Business Driven Information Systems* is designed for use in undergraduate or introductory MBA courses in management information systems, which are required in many business administration or management programs as part of the common body of knowledge for all business majors.
- **Logical Layout.** Students and faculty will find the text well organized with the topics flowing logically from one chapter to the next. The definition of each term is provided before it is covered in the chapter, and an extensive glossary is included at the back of the text. Each chapter offers a comprehensive opening case study, learning outcomes, closing case studies, key terms, and critical business thinking questions.

- **Thorough Explanations.** Complete coverage is provided for each topic that is introduced. Explanations are written so that students can understand the ideas presented and relate them to other concepts.
- **Solid Theoretical Base.** The text relies on current theory and practice of information systems as they relate to the business environment. Current academic and professional journals cited throughout the text are found in the Notes at the end of the book—a road map for additional, pertinent readings that can be the basis for learning beyond the scope of the chapters or plug-ins.
- **Material to Encourage Discussion.** All chapters contain a diverse selection of case studies and individual and group problem-solving activities as they relate to the use of information technology in business. Two comprehensive cases at the end of each chapter reinforce content. These cases encourage students to consider what concepts have been presented and then apply those concepts to a situation they might find in an organization. Different people in an organization can view the same facts from different points of view, and the cases will force students to consider some of those views.
- **Flexibility in Teaching and Learning.** Although most textbooks that are text only leave faculty on their own when it comes to choosing cases, *Business Driven Information Systems* goes much further. Several options are provided to faculty with case selections from a variety of sources, including *CIO*, *Harvard Business Journal*, *Wired*, *Forbes*, and *Time*, to name just a few. Therefore, faculty can use the text alone, the text and a complete selection of cases, or anything in between.
- **Integrative Themes.** Several integrative themes recur throughout the text, which adds integration to the material. Among these themes are value-added techniques and methodologies, ethics and social responsibility, globalization, and gaining a competitive advantage. Such topics are essential to gaining a full understanding of the strategies that a business must recognize, formulate, and in turn implement. In addition to addressing these in the chapter material, many illustrations are provided for their relevance to business practice.

Learning Outcomes

Learning Outcomes. These outcomes focus on what students should learn and be able to answer upon completion of the chapter.

section 3.1

Web 1.0: Ebusiness

LEARNING OUTCOMES

- 3.1** Compare disruptive and sustaining technologies and explain how the Internet and WWW caused business disruption.
- 3.2** Describe ebusiness and its associated advantages.
- 3.3** Compare the four ebusiness models.
- 3.4** Describe the six ebusiness tools for connecting and communicating.
- 3.5** Identify the four challenges associated with ebusiness.

Chapter Opening Case Study and Opening Case Questions

Chapter Opening Case Study. To enhance student interest, each chapter begins with an opening case study that highlights an organization that has been time-tested and value-proven in the business world. This feature serves to fortify concepts with relevant examples of outstanding companies. Discussion of the case is threaded throughout the chapter.



opening case study

The Internet of Things

Who are your best and worst customers? Who are your best and worst sales representatives? How much inventory do you need to meet demand? How can you increase sales or reduce costs? These are the questions you need to answer to run a successful business, and answering them incorrectly can lead directly to business failure. In the past few years, data collection and analytic technologies have been collecting massive amounts of data that can help answer these critical business questions. The question now becomes whether you have the right technical skills to collect and analyze your data.

Imagine your toothbrush telling you to visit your dentist because it senses a cavity. How would you react if your refrigerator placed an order at your local grocery store because your milk and eggs when about to expire? Over 20 years ago, a few professors at Massachusetts Institute of Technology (MIT) began describing the Internet of Things (IoT), which is a world where interconnected, Internet-enabled devices or “things” can collect and share data

Opening Case Questions. Located at the end of the chapter, poignant questions connect the chapter opening case with important chapter concepts.

OPENING CASE QUESTIONS

- 1. Knowledge:** Explain the Internet of Things and list three IoT devices.
- 2. Comprehension:** Explain why it is important for business managers to understand that data collection rates from IoT devices is increasing exponentially.
- 3. Application:** Demonstrate how data from an IoT device can be transformed into information and business intelligence.
- 4. Analysis:** Analyze the current security issues associated with IoT devices.
- 5. Synthesis:** Propose a plan for how a start-up company can use IoT device data to make better business decisions.

Projects and Case Studies

Case Studies. This text is packed with 27 case studies illustrating how a variety of prominent organizations and businesses have successfully implemented many of this text's concepts. All cases are timely and promote critical thinking. Company profiles are especially appealing and relevant to your students, helping to stir classroom discussion and interest.

Apply Your Knowledge. At the end of each chapter you will find several Apply Your Knowledge projects that challenge students to bring the skills they have learned from the chapter to real business problems. There are also 33 Apply Your Knowledge projects on the OLC that accompanies this text (www.mhhe.com/baltzan) that ask students to use IT tools such as Excel, Access, and Dreamweaver to solve business problems. These projects help to develop the application and problem-solving skills of your students through challenging and creative business-driven scenarios.

APPLY YOUR KNOWLEDGE BUSINESS PROJECTS

PROJECT I Making Business Decisions

You are the vice president of human resources for a large consulting company. You are compiling a list of questions that you want each job interviewee to answer. The first question on your list is, "How can MIS enhance your ability to make decisions at our organization?" Prepare a one-page report to answer this question.

PROJECT II DSS and EIS

Dr. Rosen runs a large dental conglomerate—Teeth Doctors—that employs more than 700 dentists in six states. Dr. Rosen is interested in purchasing a competitor called Dentix that has 150 dentists

End-of-Chapter Elements

Each chapter contains complete pedagogical support in the form of:

Key Terms. With page numbers referencing where they are discussed in the text.

KEY TERMS		
Business intelligence (BI), 8	Fact, 5	Product differentiation, 20
Business process, 23	Feedback, 14	Rivalry among existing competitors, 20
Business strategy, 15	First-mover advantage, 17	Services, 12
Buyer power, 18	Goods, 12	Supplier power, 19
Chief information officer (CIO), 15	Information, 7	Supply chain, 19
Chief knowledge officer (CKO), 15	Information age, 5	Support value activities, 24
	Knowledge, 10	Switching costs, 18
	Knowledge worker, 10	

Two Closing Case Studies. Reinforcing important concepts with prominent examples from businesses and organizations. Discussion questions follow each case study.

CLOSING CASE ONE

The World Is Flat: Thomas Friedman

Christopher Columbus proved in 1492 that the world is round. For centuries, sailors maneuvered the seas, discovering new lands, new people, and new languages as nations began trading goods around the globe. Then Thomas Friedman, a noted columnist for *The New York Times*, published his book *The World Is Flat*.

Critical Business Thinking. The best way to learn MIS is to apply it to scenarios and real-world business dilemmas. These projects require students to apply critical thinking skills and chapter concepts to analyze the problems and make recommended business decisions.

CRITICAL BUSINESS THINKING

1. Modeling a Business Process

Do you hate waiting in line at the grocery store? Do you find it frustrating when you go to the video rental store and cannot find the movie you wanted? Do you get annoyed when the pizza delivery person brings you the wrong order? This is your chance to reengineer the process that drives you

Entrepreneurial Challenge. This unique feature represents a running project that allows students to challenge themselves by applying the MIS concepts to a real business. The flexibility of the case allows each student to choose the type of business he or she would like to operate throughout the case. Each chapter provides hands-on projects your students can work with their real-business scenarios.

ENTREPRENEURIAL CHALLENGE

BUILD YOUR OWN BUSINESS

1. You realize that you need a digital dashboard to help you operate your business. Create a list of all of the components you would want to track in your digital dashboard that would help you run your business. Be sure to justify how each component would help you gain insight into the operations of your business and flag potential issues that could ruin your business. (Be sure to identify

About the Plug-Ins

Located on the OLC that accompanies this text (www.mhhe.com/baltzan), the overall goal of the plug-ins is to provide an alternative for faculty who find themselves in the situation of having to purchase an extra book to support Microsoft Office 2010 or 2013. The plug-ins presented here offer integration with the core chapters and provide critical knowledge using essential business applications, such as Microsoft Excel, Microsoft Access, DreamWeaver, and Microsoft Project. Each plug-in uses hands-on tutorials for comprehension and mastery.

Plug-In	Description
T1. Personal Productivity Using IT	<p>This plug-in covers a number of things to do to keep a personal computer running effectively and efficiently. The 12 topics covered in this plug-in are:</p> <ul style="list-style-type: none">■ Creating strong passwords.■ Performing good file management.■ Implementing effective backup and recovery strategies.■ Using zip files.■ Writing professional emails.■ Stopping spam.■ Preventing phishing.■ Detecting spyware.■ Threads to instant messaging.■ Increasing PC performance.■ Using antivirus software.■ Installing a personal firewall.

End-of-Plug-In Elements

Each plug-in contains complete pedagogical support in the form of:

Plug-In Summary. Revisits the plug-in highlights in summary format.

Making Business Decisions. Small scenario-driven projects that help students focus individually on decision making as they relate to the topical elements in the chapters.

T2. Basic Skills Using Excel	<p>This plug-in introduces the basics of using Microsoft Excel, a spreadsheet program for data analysis, along with a few fancy features. The six topics covered in this plug-in are:</p> <ul style="list-style-type: none">■ Workbooks and worksheets.■ Working with cells and cell data.■ Printing worksheets.■ Formatting worksheets.■ Formulas.■ Working with charts and graphics.
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T4. Decision Making Using Excel	<p>This plug-in examines a few of the advanced business analysis tools used in Microsoft Excel that have the capability to identify patterns, trends, and rules, and create “what-if” models. The four topics covered in this plug-in are:</p> <ul style="list-style-type: none">■ IF■ Goal Seek■ Solver■ Scenario Manager
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Support and Supplemental Material

All of the supplemental material supporting *Business Driven Information Systems* was developed by the author to ensure that you receive accurate, high-quality, and in-depth content. Included is a complete set of materials that will assist students and faculty in accomplishing course objectives.

Video Exercises. Each of the videos that accompany the text is supported by detailed teaching notes on how to turn the videos into classroom exercises to which your students can apply the knowledge they are learning after watching the videos.

Test Bank. This computerized package allows instructors to custom design, save, and generate tests. The test program permits instructors to edit, add, or delete questions from the test banks; analyze test results; and organize a database of tests and students' results.

Instructor's Manual (IM). The IM, written by the author, includes suggestions for designing the course and presenting the material. Each chapter is supported by answers to end-of-chapter questions and problems, and suggestions concerning the discussion topics and cases.

PowerPoint Presentations. A set of PowerPoint slides, created by the author, accompanies each chapter and features bulleted items that provide a lecture outline, plus key figures and tables from the text, and detailed teaching notes on each slide.

Image Library. Text figures and tables, as permission allows, are provided in a format by which they can be imported into PowerPoint for class lectures.

Project Files. The author has provided files for all projects that need further support, such as data files.

Tegrity Campus: Lectures 24/7



Tegrity Campus is a service that makes class time available 24/7 by automatically capturing every lecture in a searchable format for students to review when they study and complete assignments. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio. Students can replay any part of any class with easy-to-use browser-based viewing on a PC or Mac.

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Assurance of Learning Ready

Many educational institutions today are focused on the notion of *assurance of learning*, an important element of some accreditation standards. *Business Driven Information Systems* is designed specifically to support your assurance of learning initiatives with a simple, yet powerful solution.

Each test bank question for *Business Driven Information Systems* maps to a specific chapter learning outcome/objective listed in the text. You can use our test bank software, EZ Test and EZ Test Online, or in *Connect MIS* to query easily for learning outcomes/objectives that directly relate to the learning objectives for your course. You can then use the reporting features of EZ Test to aggregate student results in similar fashion, making the collection and presentation of assurance of learning data simple and easy.

AACSB Statement

The McGraw-Hill Companies is a proud corporate member of AACSB International. Understanding the importance and value of AACSB accreditation, *Business Driven Information Systems* recognizes the curricula guidelines detailed in the AACSB standards for business accreditation by connecting selected questions in the test bank to the six general knowledge and skill guidelines in the AACSB standards.

The statements contained in *Business Driven Information Systems* are provided only as a guide for the users of this textbook. The AACSB leaves content coverage and assessment within the purview of individual schools, the mission of the school, and the faculty. Although *Business Driven Information Systems* and the teaching package make no claim of any specific AACSB qualification or evaluation, within *Business Driven Information Systems* we have labeled selected questions according to the six general knowledge and skills areas.

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Apply Your Knowledge

Business Driven Information Systems contains 33 projects that focus on student application of core concepts and tools. These projects can be found on the OLC at www.mhhe.com/baltzan.

Project Number	Project Name	Project Type	Plug-In	Focus Area	Project Level	Skill Set	Page Number
1	Financial Destiny	Excel	T2	Personal Budget	Introductory	Formulas	AYK.4
2	Cash Flow	Excel	T2	Cash Flow	Introductory	Formulas	AYK.4
3	Technology Budget	Excel	T1, T2	Hardware and Software	Introductory	Formulas	AYK.4
4	Tracking Donations	Excel	T2	Employee Relationships	Introductory	Formulas	AYK.4
5	Convert Currency	Excel	T2	Global Commerce	Introductory	Formulas	AYK.5
6	Cost Comparison	Excel	T2	Total Cost of Ownership	Introductory	Formulas	AYK.5
7	Time Management	Excel or Project	T12	Project Management	Introductory	Gantt Charts	AYK.6
8	Maximize Profit	Excel	T2, T4	Strategic Analysis	Intermediate	Formulas or Solver	AYK.6
9	Security Analysis	Excel	T3	Filtering Data	Intermediate	Conditional Formatting, Autofilter, Subtotal	AYK.7
10	Gathering Data	Excel	T3	Data Analysis	Intermediate	Conditional Formatting	AYK.8
11	Scanner System	Excel	T2	Strategic Analysis	Intermediate	Formulas	AYK.8
12	Competitive Pricing	Excel	T2	Profit Maximization	Intermediate	Formulas	AYK.9
13	Adequate Acquisitions	Excel	T2	Break-Even Analysis	Intermediate	Formulas	AYK.9
14	Customer Relations	Excel	T3	CRM	Intermediate	PivotTable	AYK.9
15	Assessing the Value of Information	Excel	T3	Data Analysis	Intermediate	PivotTable	AYK.10
16	Growth, Trends, and Forecasts	Excel	T2, T3	Data Forecasting	Advanced	Average, Trend, Growth	AYK.11
17	Shipping Costs	Excel	T4	SCM	Advanced	Solver	AYK.12
18	Formatting Grades	Excel	T3	Data Analysis	Advanced	If, LookUp	AYK.12

(Continued)

Project Number	Project Name	Project Type	Plug-In	Focus Area	Project Level	Skill Set	Page Number
19	Moving Dilemma	Excel	T2, T3	SCM	Advanced	Absolute vs. Relative Values	AYK.13
20	Operational Efficiencies	Excel	T3	SCM	Advanced	PivotTable	AYK.14
21	Too Much Information	Excel	T3	CRM	Advanced	PivotTable	AYK.14
22	Turnover Rates	Excel	T3	Data Mining	Advanced	PivotTable	AYK.15
23	Vital Information	Excel	T3	Data Mining	Advanced	PivotTable	AYK.15
24	Breaking Even	Excel	T4	Business Analysis	Advanced	Goal Seek	AYK.16
25	Profit Scenario	Excel	T4	Sales Analysis	Advanced	Scenario Manager	AYK.16
26	Electronic Résumés	HTML	T9, T10, T11	Electronic Personal Marketing	Introductory	Structural Tags	AYK.17
27	Gathering Feedback	Dreamweaver	T9, T10, T11	Data Collection	Intermediate	Organization of Information	AYK.17
28	Daily Invoice	Access	T5, T6, T7, T8	Business Analysis	Introductory	Entities, Relationships, and Databases	AYK.17
29	Billing Data	Access	T5, T6, T7, T8	Business Intelligence	Introductory	Entities, Relationships, and Databases	AYK.19
30	Inventory Data	Access	T5, T6, T7, T8	SCM	Intermediate	Entities, Relationships, and Databases	AYK.20
31	Call Center	Access	T5, T6, T7, T8	CRM	Intermediate	Entities, Relationships, and Databases	AYK.21
32	Sales Pipeline	Access	T5, T6, T7, T8	Business Intelligence	Advanced	Entities, Relationships, and Databases	AYK.23
33	Online Classified Ads	Access	T5, T6, T7, T8	Ecommerce	Advanced	Entities, Relationships, and Databases	AYK.23



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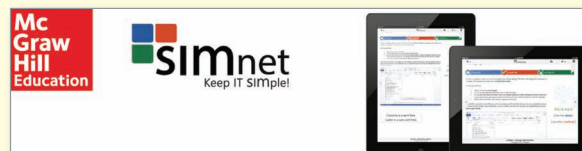
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Before joining the Daniels College faculty in 1999, Paige spent several years working for a large telecommunications company and an international consulting firm, where she participated in client engagements in the United States as well as South America and Europe. Paige lives in Lakewood, Colorado, with her husband, Tony, and daughters Hannah and Sophie.

Business Driven MIS

MOST COMPANIES TODAY rely heavily on the use of management information systems (MIS) to run various aspects of their businesses. Whether they need to order and ship goods, interact with customers, or conduct other business functions, management information systems are often the underlying infrastructure performing the activities. Management information systems allow companies to remain competitive in today's fast-paced world and especially when conducting business on the Internet. Organizations must adapt to technological advances and innovations to keep pace with today's rapidly changing environment. Their competitors certainly will!

No matter how exciting technology is, successful companies do not use it simply for its own sake. Companies should have a solid business reason for implementing technology. Using a technological solution just because it is available is not a good business strategy.

The purpose of Module 1 is to raise your awareness of the vast opportunities made possible by the tight correlation between business and technology. Business strategies and processes should always drive your technology choices. Although awareness of an emerging technology can sometimes lead us in new strategic directions, the role of information systems, for the most part, is to support existing business strategies and processes.

module 1



MODULE 1:
Business Driven MIS

MODULE 2:
Technical Foundations
of MIS

MODULE 3:
Enterprise MIS

Module 1: Business Driven MIS

CHAPTER 1: Management Information Systems: Business Driven MIS

CHAPTER 2: Decisions and Processes: Value Driven Business

CHAPTER 3: Ebusiness: Electronic Business Value

CHAPTER 4: Ethics and Information Security: MIS Business Concerns