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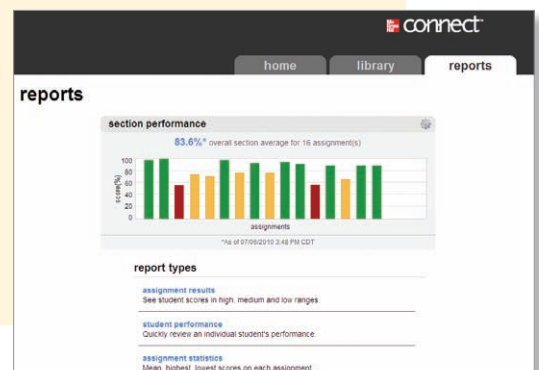
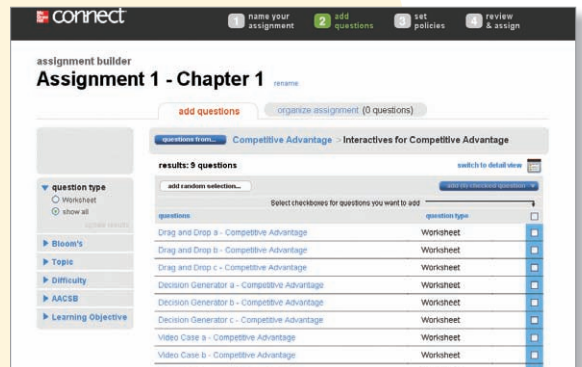
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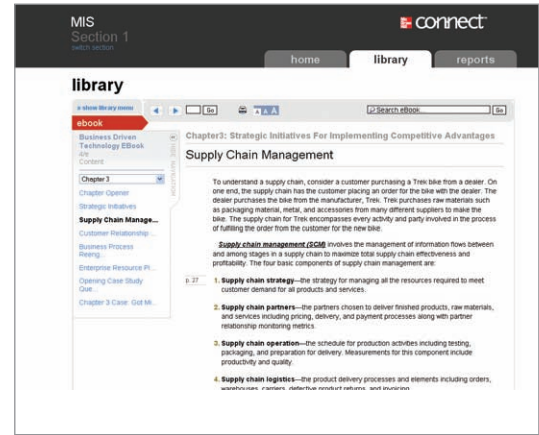


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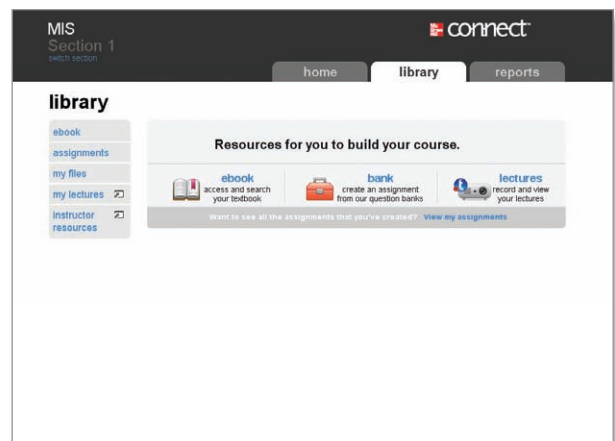
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Business Driven Information Systems

Paige Baltzan

Daniels College of Business, University of Denver

Business Driven Information Systems

FOURTH EDITION





BUSINESS DRIVEN INFORMATION SYSTEMS, FOURTH 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

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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 takes the difficult and often intangible MIS concepts, brings them 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 student's 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.** While 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.

WALKTHROUGH

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

Pinterest—Billboards for the Internet

Pinterest has been called the latest addiction for millions of people around the world. Pinterest, a visual social media network, allows users to create “interest boards” where they “pin” items of interests found on the web. Terms you need to understand to use Pinterest include:

- **Pin:** A link to an image from a computer or a website. Pins can include captions for other users. Users upload, or “pin,” photos or videos to boards.
- **Board:** Pins live on boards and users can maintain separate boards, which can be categorized by activity or interests, such as cooking, do-it-yourself activities, fitness, music, movies, etc.
- **Repin:** After pinning an item, it can be repinned by other Pinterest users, spreading the content virally. Repinning allows users to share items they like with friends and family.

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:** Do you consider Pinterest a form of disruptive or sustaining technology?
2. **Comprehension:** Categorize Pinterest as an example of Web 1.0 (ebusiness) or Web 2.0 (Business 2.0).
3. **Application:** Describe the ebusiness model and revenue model for Pinterest.
4. **Analysis:** What is open source software and how could Pinterest take advantage of it?

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 in three additional states. Before deciding whether to purchase Dentix, Dr. Rosen must consider several issues:

- The cost of purchasing Dentix.
- The location of the Dentix offices.
- The current number of customers per dentist, per office, and per state.
- The merger between the two companies.
- The professional reputation of Dentix.
- Other competitors.

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

Political Micro-Targeting: What Decision Support Systems Did for Barack Obama

On the day he took the oath of office in 2009, President Barack Obama spoke a word rarely heard in inaugural addresses—*data*—referencing indicators of economic and other crises. His use of the word is perhaps not so surprising. Capturing and analyzing data were crucial to Obama's rise to

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. ■ Threats to instant messaging. ■ Increasing PC performance. ■ Using anti-virus 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

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:

- Workbooks and worksheets.
- Working with cells and cell data.
- Printing worksheets.
- Formatting worksheets.
- Formulas.
- Working with charts and graphics.

T4. Decision Making Using Excel

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:

- IF
- Goal Seek
- Solver
- Scenario Manager

Support and Supplemental Material

All of the supplemental material supporting *Business Driven Information Systems* was developed by the author to ensure 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.

Online Learning Center (www.mhhe.com/baltzan) The McGraw-Hill website for *Business Driven Information Systems* includes support for students and faculty. All supplements will be available exclusively on the OLC. This will allow the authors to continually update and add to the instructor support materials. The following materials will be available on the OLC:

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 where 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.

Cohesion Case. The Broadway Café is a running case instructors can use to reinforce core material such as customer relationship management, supply chain management, business intelligence, and decision making. The case has 15 sections that challenge students to develop and expand their grandfather's coffee shop. Students receive hands-on experience in business and learn technology's true value of enabling business. Please note that the Cohesion Case is not a McGraw-Hill product but a Baltzan direct product. The case can be found at www.cohesioncase.com.

Video Content. Twenty videos accompany this text and cover topics from entrepreneurship to disaster recovery. Video content icons are placed throughout the text highlighting where we recommend watching the videos. Video IMs are also available so you can turn the videos into engaging classroom activities.

McGraw-Hill *Connect MIS*



Less Managing. More Teaching. Greater Learning.

McGraw-Hill *Connect MIS* is an online assignment and assessment solution that connects students with the tools and resources they'll need to achieve success.

McGraw-Hill *Connect MIS* helps prepare students for their future by enabling faster learning, more efficient studying, and higher retention of knowledge.

McGraw-Hill *Connect MIS* features

Connect MIS offers a number of powerful tools and features to make managing assignments easier, so faculty can spend more time teaching. With *Connect MIS*, students can engage with their coursework anytime and anywhere, making the learning process more accessible and efficient. *Connect MIS* offers you the features described next.

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With *Connect MIS*, creating assignments is easier than ever, so you can spend more time teaching and less time managing. The assignment management function enables you to:

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- Streamline lesson planning, student progress reporting, and assignment grading to make classroom management more efficient than ever.
- Go paperless with the eBook and online submission and grading of student assignments.

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When it comes to studying, time is precious. *Connect MIS* helps students learn more efficiently by providing feedback and practice material when they need it, where they need it. When it comes to teaching, your time also is precious. The grading function enables you to:

- Have assignments scored automatically, giving students immediate feedback on their work and side-by-side comparisons with correct answers.
- Access and review each response; manually change grades or leave comments for students to review.
- Reinforce classroom concepts with practice tests and instant quizzes.

Instructor Library

The *Connect MIS* Instructor Library is your repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture.

Student Study Center

The *Connect MIS* Student Study Center is the place for students to access additional resources. The Student Study Center:

- Offers students quick access to lectures, practice materials, ebooks, and more.
- Provides instant practice material and study questions, easily accessible on the go.
- Gives students access to the Personalized Learning Plan described next.

Student Progress Tracking

Connect MIS keeps instructors informed about how each student, section, and class is performing, allowing for more productive use of lecture and office hours. The progress-tracking function enables you to:

- View scored work immediately and track individual or group performance with assignment and grade reports.
- Access an instant view of student or class performance relative to learning objectives.
- Collect data and generate reports required by many accreditation organizations, such as AACSB.

Lecture Capture

Increase the attention paid to lecture discussion by decreasing the attention paid to note taking. For an additional charge, Lecture Capture offers new ways for students to focus on the in-class discussion, knowing they can revisit important topics later. Lecture Capture enables you to:

- Record and distribute your lecture with a click of button.
- Record and index PowerPoint presentations and anything shown on your computer so it is easily searchable, frame by frame.
- Offer access to lectures anytime and anywhere by computer, iPod, or mobile device.
- Increase intent listening and class participation by easing students' concerns about note taking. Lecture Capture will make it more likely you will see students' faces, not the tops of their heads.

McGraw-Hill Connect Plus MIS

McGraw-Hill reinvents the textbook learning experience for the modern student with *Connect Plus MIS*. A seamless integration of an ebook and *Connect MIS*, *Connect Plus MIS* provides all of the *Connect MIS* features plus the following:

- An integrated ebook, allowing for anytime, anywhere access to the textbook.
- Dynamic links between the problems or questions you assign to your students and the location in the ebook where that problem or question is covered.
- A powerful search function to pinpoint and connect key concepts in a snap.

In short, *Connect MIS* offers you and your students powerful tools and features that optimize your time and energies, enabling you to focus on course content, teaching, and student learning. *Connect MIS* also

offers a wealth of content resources for both instructors and students. This state-of-the-art, thoroughly tested system supports you in preparing students for the world that awaits.

For more information about Connect, go to www.mcgrawhillconnect.com, or contact your local McGraw-Hill sales representative.

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.

Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. With Tegrity Campus, students quickly recall key moments by using Tegrity Campus's unique search feature. This search helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn all your students' study time into learning moments immediately supported by your lecture.

To learn more about Tegrity watch a two-minute Flash demo at <http://tegritycampus.mhhe.com>.

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 easily query 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 4e* 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 4e* 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. While *Business Driven Information Systems 4e* and the teaching package make no claim of any specific AACSB qualification or evaluation, within *Business Driven Information Systems 4e* 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



SimNet Online is McGraw-Hill's leading solution for learning Microsoft Office skills and beyond! SimNet is our online training and assessment solution for Microsoft Office skills, computing concepts, Internet Explorer, and Windows content. With no downloads for installation and completely online (requires Adobe Flash Player), SimNet is accessible for today's students through multiple browsers and is easy to use for all. Its consistent user interface and functionality will help save you time and help you be more successful in your course.


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- **Teach Me:** combines instructional text, graphics, and interactivity to present each skill.
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SimGrader is the most recent addition to SimNet Online, McGraw-Hill's online training and assessment software for Microsoft Office skills and more. This online program provides automatic grading of projects for Microsoft Office Suite and can be used seamlessly within SimNet Online or can be used separately if needed. Available with a full project library, SimGrader offers the widest range of projects from any of our Office series. Moreover, this offers instructors the benefit of utilizing projects that are specifically related to their student's needs and areas of study. SimNet and SimGrader are a completely online system that is easy-to-use for both instructors and students alike. Together, they provide an ideal solution for students to gain complete knowledge of Office skills and application.

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For more information, contact your McGraw-Hill sales representative or visit the SimNet Online Website, www.mhhe.com/simnet2010

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- 2. Deep integration of content and tools.** Not only do you get single sign-on with Connect™ and Create™, you also get deep integration of McGraw-Hill content and content engines right in Blackboard. Whether you're choosing a book for your course or building Connect™ assignments, all the tools you need are right where you want them—inside of Blackboard.
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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

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CHAPTER

Management Information Systems: Business Driven MIS

SECTION 1.1 Business Driven MIS

- Competing in the Information Age
- The Challenge: Departmental Companies
- The Solution: Management Information Systems

SECTION 1.2 Business Strategy

- Identifying Competitive Advantages
- The Five Forces Model—Evaluating Industry Attractiveness
- The Three Generic Strategies—Choosing a Business Focus
- Value Chain Analysis—Executing Business Strategies

CHAPTER OUTLINE

What's in IT for me?

This chapter sets the stage for the textbook. It starts from ground zero by providing a clear description of what information is and how it fits into business operations, strategies, and systems. It provides an overview of how companies operate in competitive environments and why they must continually define and redefine their business strategies to create competitive advantages. Doing so allows them to survive and thrive. Information systems are key business enablers for successful operations in competitive environments.

You, as a business student, must understand the tight correlation between business and technology. You must first recognize information's role in daily business activities, and then understand how information supports and helps implement global business strategies and competitive advantages. After reading this chapter, you should have a solid understanding of business driven information systems and their role in managerial decision making and problem solving.



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*.

Friedman argues that the world has become flat due to technological advances connecting people in China, India, and the United States as if we were all next-door neighbors. Physicians in India are reading X-rays for U.S. hospitals, and JetBlue Airways ticket agents take plane reservations for the company from the comfort of their Utah homes. Technology has eliminated some of the economic and cultural advantages developed countries enjoy, making the world a level playing field for all participants. Friedman calls this Globalization 3.0.

Globalization 1.0 started when Christopher Columbus discovered the world is round and the world shrank from large to medium. For the next several hundred years, countries dominated by white men controlled business. Globalization 2.0 began around 1800, during the Industrial Revolution, when the world went from medium to small. In this era international companies dominated by white men controlled business. Globalization 3.0 began in early 2000, removing distance from the business equation, and the world has gone from small to tiny. In this era, people of all colors from the four corners of the world will dominate business. Farmers in remote villages in Nepal carry an iPhone to access the world's knowledge at, say, Wikipedia or the stock market closing prices at Bloomberg.

Outsourcing, or hiring someone from another country to complete work remotely, will play an enormous role in this era. It has advantages and disadvantages. Outsourcing work to countries where labor is cheap drives down production costs and allows companies to offer lower prices to U.S. consumers. Having an accountant in China complete a U.S. tax return is just as easy as driving to the H&R Block office on the corner, and probably far cheaper. Calling an 800 number for service can connect consumers to an Indian, Canadian, or Chinese worker on the other end of the line. Of course, outsourcing also eliminates some U.S. manufacturing and labor jobs, causing pockets of unemployment. In fact, the United States has outsourced several million service and manufacturing jobs to offshore, low-cost producers.

Figure 1.1 shows Friedman's list of forces that flattened the world. They converged around the year 2000 and "created a flat world: a global, web-enabled platform for multiple forms of sharing knowledge and work, irrespective of time, distance, geography, and increasingly, language." Three powerful new economies began materializing at this time. In

FIGURE 1.1

Thomas Friedman's 10 Forces That Flattened the World

Friedman's 10 Forces That Flattened the World	
1. Fall of the Berlin Wall	The events of November 9, 1989, tilted the worldwide balance of power toward democracies and free markets.
2. Netscape IPO	The August 9, 1995, offering sparked massive investment in fiber-optic cables.
3. Work flow software	The rise of applications from PayPal to VPNs enabled faster, closer coordination among far-flung employees.
4. Open sourcing	Self-organizing communities, such as Linux, launched a collaborative revolution.
5. Outsourcing	Migrating business functions to India saved money <i>and</i> a Third World economy.
6. Offshoring	Contract manufacturing elevated China to economic prominence.
7. Supply chaining	Robust networks of suppliers, retailers, and customers increased business efficiency.
8. In-sourcing	Logistics giants took control of customer supply chains, helping mom-and-pop shops go global.
9. Informing	Power searching allowed everyone to use the Internet as a "personal supply chain of knowledge."
10. Wireless	Wireless technologies pumped up collaboration, making it mobile and personal.

India, China, and the former Soviet Union, more than 3 billion new willing and able participants walked onto the business playing field. Business students will be competing for their first jobs not only against other local students, but also against students from around the country and around the globe.¹

LEARNING OUTCOMES

- 1.1 Describe the information age and the differences among data, information, business intelligence, and knowledge.
- 1.2 Identify the different departments in a company and why they must work together to achieve success.
- 1.3 Explain systems thinking and how management information systems enable business communications.

COMPETING IN THE INFORMATION AGE

Did you know that . . .

- The movie *Avatar* took more than four years to create and cost \$450 million.
- Lady Gaga's real name is Stefani Joanne Angelina Germanotta.
- Customers pay \$2.6 million for a 30-second advertising time slot during the Super Bowl.²

A **fact** is the confirmation or validation of an event or object. In the past, people primarily learned facts from books. Today, by simply pushing a button people can find out anything, from anywhere, at any time. We live in the **information age**, when infinite quantities of facts are widely available to anyone who can use a computer. The impact of information technology on the global business environment is equivalent to the printing press's impact on publishing and electricity's impact on productivity. College student startups were mostly unheard of before the information age. Now, it's not at all unusual to read about a business student starting a multimillion-dollar company from his or her dorm room. Think of Mark Zuckerberg, who started Facebook from his dorm, or Michael Dell (Dell Computers) and Bill Gates (Microsoft), who both founded their legendary companies as college students.

You may think only students well versed in advanced technology can compete in the information age. This is simply not true. Many business leaders have created exceptional opportunities by coupling the power of the information age with traditional business methods. Here are just a few examples:

- Amazon is not a technology company; its original business focus was to sell books, and it now sells nearly everything.
- Netflix is not a technology company; its primary business focus is to rent videos.
- Zappos is not a technology company; its primary business focus is to sell shoes, bags, clothing, and accessories.

Amazon's founder, Jeff Bezos, at first saw an opportunity to change the way people purchase books. Using the power of the information age to tailor offerings to each customer and speed the payment process, he in effect opened millions of tiny virtual bookstores, each with a vastly larger selection and far cheaper product than traditional bookstores. The success of his original business model led him to expand Amazon to carry many other types of products. The founders of Netflix and Zappos have done the same thing for videos and shoes. All these entrepreneurs were business professionals, not technology experts. However, they understood enough about the information age to apply it to a particular business, creating innovative companies that now lead entire industries.

Students who understand business along with the power associated with the information age will create their own opportunities and perhaps even new industries, as co-founders Chris DeWolfe and Tom Anderson did with MySpace and Mark Zuckerberg did

LO. 1.1: Describe the information age and the differences among data, information, business intelligence, and knowledge.

BUSINESS DRIVEN DISCUSSION

View from a Flat World

Bill Gates, founder of Microsoft, stated that 20 years ago most people would rather have been a B student in New York City than a genius in China because the opportunities available to students in developed countries were limitless. Today, many argue that the opposite is now true due to technological advances making it easier to succeed as a genius in China than a B student in New York. As a group, discuss if you agree or disagree with Bill Gates statement.³

with Facebook. Our primary goal in this course is to arm you with the knowledge you need to compete in the information age. The core drivers of the information age are:

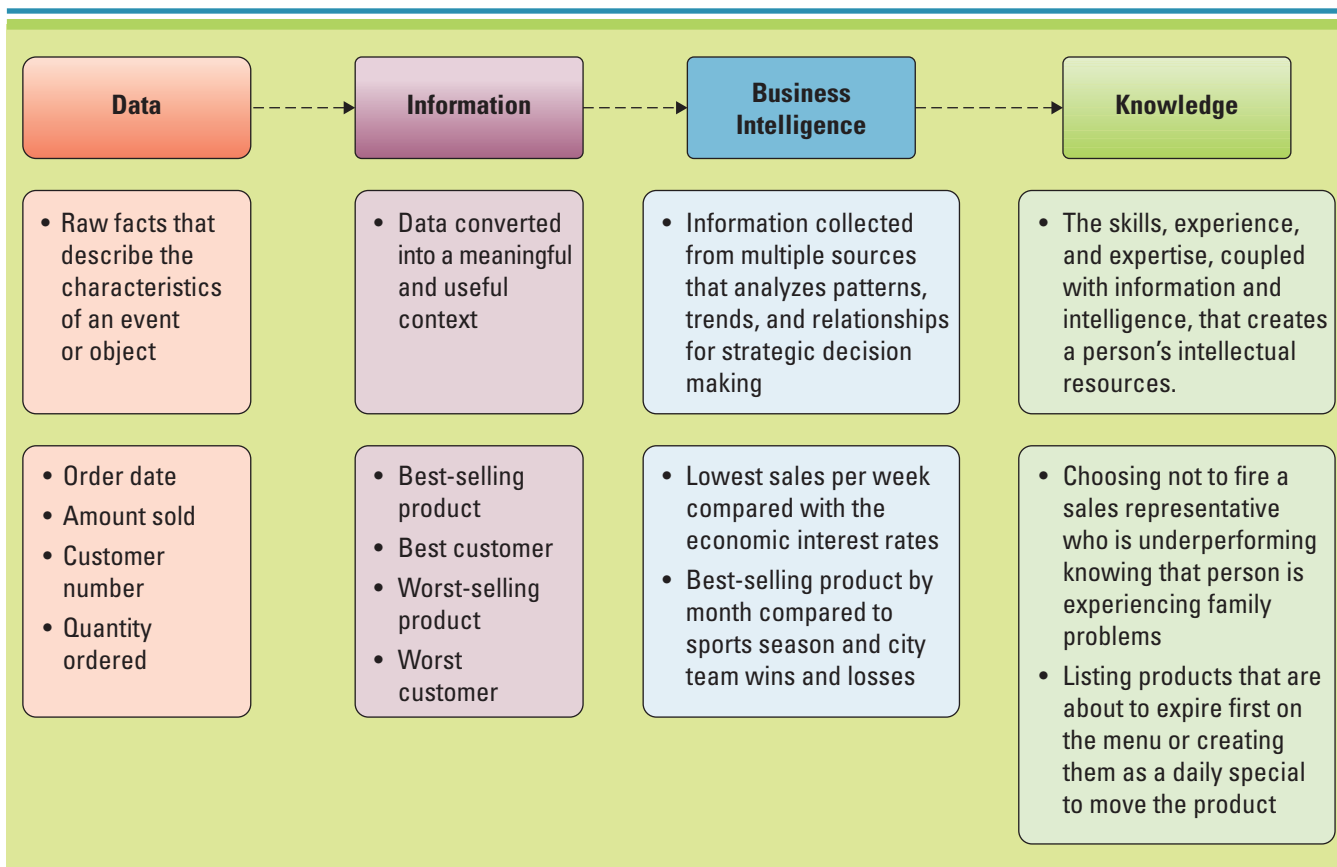
- Data
- Information
- Business intelligence
- Knowledge (see Figure 1.2)

FIGURE 1.2

The Differences among Data, Information, Business Intelligence, and Knowledge

Data

Data are raw facts that describe the characteristics of an event or object. Before the information age, managers manually collected and analyzed data, a time-consuming and complicated task without which they would have little insight into how to run their



business. Lacking data, managers often found themselves making business decisions about how many products to make, how much material to order, or how many employees to hire based on intuition or gut feelings. In the information age, successful managers compile, analyze, and comprehend massive amounts of data daily, which helps them make more successful business decisions.

Figure 1.3 shows sales data for Tony's Wholesale Company, a fictitious business that supplies snacks to stores. The data highlight characteristics such as order date, customer, sales representative, product, quantity, and profit. The second line in Figure 1.3, for instance, shows that Roberta Cross sold 90 boxes of Ruffles to Walmart for \$1,350, resulting in a profit of \$450 (note that Profit = Sales – Costs). These data are useful for understanding individual sales; however, they do not provide us much insight into how Tony's business is performing as a whole. Tony needs to answer questions that will help him manage his day-to-day operations such as:

- Who are my best customers?
- Who are my least-profitable customers?
- What is my best-selling product?
- What is my slowest-selling product?
- Who is my strongest sales representative?
- Who is my weakest sales representative?

What Tony needs, in other words, is not data but *information*.

Information

Information is data converted into a meaningful and useful context. Having the right information at the right moment in time can be worth a fortune. Having the wrong information at the right moment; or the right information at the wrong moment can be disastrous. The truth about information is that its value is only as good as the people who use it. People using the same information can make different decisions depending on how they interpret or analyze the information. Thus information has value only insofar as the people using it do as well.

Tony can analyze his sales data and turn them into information to answer all the above questions and understand how his business is operating. Figures 1.4 and 1.5, for instance, show us that Walmart is Roberta Cross's best customer, and that Ruffles is Tony's best product measured in terms of total sales. Armed with this information, Tony can identify and then address such issues as weak products and underperforming sales representatives.

A **variable** is a data characteristic that stands for a value that changes or varies over time. For example, in Tony's data, price and quantity ordered can vary. Changing

Order Date	Customer	Sales Representative	Product	Qty	Unit Price	Total Sales	Unit Cost	Total Cost	Profit
4-Jan	Walmart	PJ Helgoth	Doritos	41	\$24	\$ 984	\$18	\$738	\$246
4-Jan	Walmart	Roberta Cross	Ruffles	90	\$15	\$1,350	\$10	\$900	\$450
5-Jan	Safeway	Craig Schultz	Ruffles	27	\$15	\$ 405	\$10	\$270	\$135
6-Jan	Walmart	Roberta Cross	Ruffles	67	\$15	\$1,005	\$10	\$670	\$335
7-Jan	7-Eleven	Craig Schultz	Pringles	79	\$12	\$ 948	\$ 6	\$474	\$474
7-Jan	Walmart	Roberta Cross	Ruffles	52	\$15	\$ 780	\$10	\$520	\$260
8-Jan	Kroger	Craig Schultz	Ruffles	39	\$15	\$ 585	\$10	\$390	\$195
9-Jan	Walmart	Craig Schultz	Ruffles	66	\$15	\$ 990	\$10	\$660	\$330
10-Jan	Target	Craig Schultz	Ruffles	40	\$15	\$ 600	\$10	\$400	\$200
11-Jan	Walmart	Craig Schultz	Ruffles	71	\$15	\$1,065	\$10	\$710	\$355

FIGURE 1.3

Tony's Snack Company Data

Order Date	Customer	Sales Representative	Product	Quantity	Unit Price	Total Sales	Unit Cost	Total Cost	Profit
26-Apr	Walmart	Roberta Cross	Fritos	86	\$ 19	\$ 1,634	\$ 17	\$ 1,462	\$ 172
29-Aug	Walmart	Roberta Cross	Fritos	76	\$ 19	\$ 1,444	\$ 17	\$ 1,292	\$ 152
7-Sep	Walmart	Roberta Cross	Fritos	20	\$ 19	\$ 380	\$ 17	\$ 340	\$ 40
22-Nov	Walmart	Roberta Cross	Fritos	39	\$ 19	\$ 741	\$ 17	\$ 663	\$ 78
30-Dec	Walmart	Roberta Cross	Fritos	68	\$ 19	\$ 1,292	\$ 17	\$ 1,156	\$ 136
7-Jul	Walmart	Roberta Cross	Pringles	79	\$ 18	\$ 1,422	\$ 8	\$ 632	\$ 790
6-Aug	Walmart	Roberta Cross	Pringles	21	\$ 12	\$ 252	\$ 6	\$ 126	\$ 126
2-Oct	Walmart	Roberta Cross	Pringles	60	\$ 18	\$ 1,080	\$ 8	\$ 480	\$ 600
15-Nov	Walmart	Roberta Cross	Pringles	32	\$ 12	\$ 384	\$ 6	\$ 192	\$ 192
21-Dec	Walmart	Roberta Cross	Pringles	92	\$ 12	\$ 1,104	\$ 6	\$ 552	\$ 552
28-Feb	Walmart	Roberta Cross	Ruffles	67	\$ 15	\$ 1,005	\$ 10	\$ 670	\$ 335
6-Mar	Walmart	Roberta Cross	Ruffles	8	\$ 15	\$ 120	\$ 10	\$ 80	\$ 40
16-Mar	Walmart	Roberta Cross	Ruffles	68	\$ 15	\$ 1,020	\$ 10	\$ 680	\$ 340
23-Apr	Walmart	Roberta Cross	Ruffles	34	\$ 15	\$ 510	\$ 10	\$ 340	\$ 170
4-Aug	Walmart	Roberta Cross	Ruffles	40	\$ 15	\$ 600	\$ 10	\$ 400	\$ 200
18-Aug	Walmart	Roberta Cross	Ruffles	93	\$ 15	\$ 1,395	\$ 10	\$ 930	\$ 465
5-Sep	Walmart	Roberta Cross	Ruffles	41	\$ 15	\$ 615	\$ 10	\$ 410	\$ 205
12-Sep	Walmart	Roberta Cross	Ruffles	8	\$ 15	\$ 120	\$ 10	\$ 80	\$ 40
28-Oct	Walmart	Roberta Cross	Ruffles	50	\$ 15	\$ 750	\$ 10	\$ 500	\$ 250
21-Nov	Walmart	Roberta Cross	Ruffles	79	\$ 15	\$ 1,185	\$ 10	\$ 790	\$ 395
29-Jan	Walmart	Roberta Cross	Sun Chips	5	\$ 22	\$ 110	\$ 18	\$ 90	\$ 20
12-Apr	Walmart	Roberta Cross	Sun Chips	85	\$ 22	\$ 1,870	\$ 18	\$ 1,530	\$ 340
16-Jun	Walmart	Roberta Cross	Sun Chips	55	\$ 22	\$ 1,210	\$ 18	\$ 990	\$ 220
				1,206	\$383	\$20,243	\$273	\$14,385	\$5,858

Sorting the data reveals the information that Roberta Cross's total sales to Walmart were \$20,243 resulting in a profit of \$5,858.
(Profit \$5,858 = Sales \$20,243 – Costs \$14,385)

FIGURE 1.4

Tony's Data Sorted by Customer "Walmart" and Sales Representative "Roberta Cross"

variables allows managers to create hypothetical scenarios to study future possibilities. Tony may find it valuable to anticipate how sales or cost increases affect profitability. To estimate how a 20 percent increase in prices might improve profits, Tony simply changes the price variable for all orders, which automatically calculates the amount of new profits. To estimate how a 10 percent increase in costs hurts profits, Tony changes the cost variable for all orders, which automatically calculates the amount of lost profits. Manipulating variables is an important tool for any business.

Business Intelligence

Business intelligence (BI) is information collected from multiple sources such as suppliers, customers, competitors, partners, and industries that analyzes patterns, trends, and relationships for strategic decision making. BI manipulates multiple variables and in some cases even hundreds of variables including such items as interest rates, weather conditions, and even gas prices. Tony could use BI to analyze internal data such as company sales, along with external data about the environment such as competitors, finances, weather, holidays, and even sporting events. Both internal and external variables affect snack sales, and analyzing these variables will help Tony determine ordering levels and sales forecasts. For instance, BI can predict inventory requirements for Tony's business for the week before the Super Bowl if, say, the home team is playing, average

BUSINESS DRIVEN MIS

How can global warming be real when there is so much snow and cold weather? That's what some people wondered after a couple of massive snowstorms buried Washington, D.C. Politicians across the capital made jokes and built igloos as they disputed the existence of climate change. Some concluded the planet simply could not be warming with all the snow on the ground.

These comments frustrated Joseph Romm, a physicist and climate expert with the Center for American Progress. He spent weeks turning data into information and graphs to educate anyone who would listen as to why this reasoning was incorrect. Climate change is all about analyzing data, turning it into information to detect trends. You cannot observe climate change by looking out the window; you have to review decades of weather data with advanced tools to really understand the trends.

Increasingly we see politicians, economists, and newscasters taking tough issues and boiling them down to simplistic arguments over what the data mean, each interpreting the data and spinning the data to support their views and agendas. You need to understand the data and turn them into useful information or else you will not understand when someone is telling the truth and when you are being lied to.

Brainstorm two or three types of data economists use to measure the economy. How do they turn the data into information? What issues do they encounter when attempting to measure the economy? As a manager, what do you need to understand when reading or listening to economic and business reports?⁴

Manipulating the Data to Find Your Version of the Truth

Tony's Business Information	Name	Total Profit
Who is Tony's best customer by total sales?	Walmart	\$ 560,789
Who is Tony's least-valuable customer by total sales?	Walgreens	\$45,673
Who is Tony's best customer by profit?	7-Eleven	\$ 324,550
Who is Tony's least-valuable customer by profit?	King Soopers	\$ 23,908
What is Tony's best-selling product by total sales?	Ruffles	\$ 232,500
What is Tony's weakest-selling product by total sales?	Pringles	\$ 54,890
What is Tony's best-selling product by profit?	Tostitos	\$ 13,050
What is Tony's weakest-selling product by profit?	Pringles	\$ 23,000
Who is Tony's best sales representative by profit?	R. Cross	\$1,230,980
Who is Tony's weakest sales representative by profit?	Craig Schultz	\$ 98,980
What is the best sales representative's best-selling product by total profit?	Ruffles	\$ 98,780
Who is the best sales representative's best customer by total profit?	Walmart	\$ 345,900
What is the best sales representative's weakest-selling product by total profit?	Sun Chips	\$ 45,600
Who is the best sales representative's weakest customer by total profit?	Krogers	\$ 56,050

FIGURE 1.5

Information Gained after Analyzing Tony's Data