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Experiencing MIS

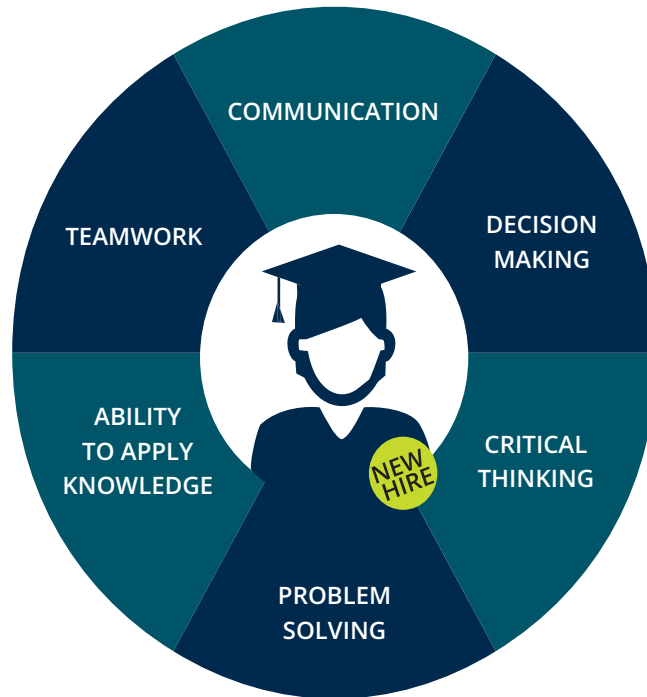
EIGHTH EDITION

David M. Kroenke • Randall J. Boyle



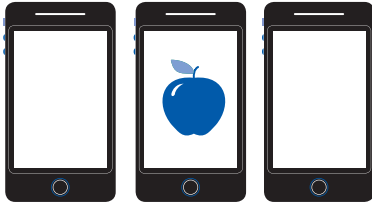
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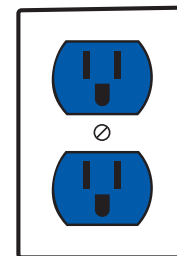
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Dear Student,

Honestly, this is a fun class. It's fun to take because you'll learn about things that dominate news headlines every day. You'll learn about things like self-driving cars, 3D printing, social media, Big Data, virtual reality, the cloud, and cyber security. No, it's not a programming class. It's not intended to be a class where you learn a bunch of boring technical terms and computer code. Not at all.

This class is about using technology to create value. For example, the smartphone sitting next to you is a piece of technology that is probably very valuable to you. It's an amazing piece of hardware that contains software, databases, and artificial intelligent agents. You use it to browse the Web, collaborate with friends, take pictures, post to social media, and make online purchases. More than 85 percent of college students have a smartphone, and 46 percent say they can't live without it. That's value, and they're willing to pay for it.

And that's what information systems are all about. Innovators like Steve Jobs, Bill Gates, Larry Ellison, Mark Zuckerberg, Larry Page, Sergey Brin, and Jeff Bezos have used technology to create value for their customers. As a result, they have made billions of dollars, revolutionized commerce, and created some of the largest companies in the world. And you can do the same thing in your personal life.

You can use technology to get a great job, increase your earning potential, and become indispensable to your future employer. You may not be a superstar entrepreneur like Steve Jobs, but you can exceed beyond your expectations by applying the knowledge you learn in this class. Companies are becoming increasingly dependent on technology. They need people who understand how to use *new* technology to solve *new* types of problems. And that's you.

Think about it. Over time, technology creates new jobs that didn't exist before. Mobile application developers, social media analysts, information security specialists, business intelligence analysts, and data architects didn't exist 20—even 10—years ago. Similarly, the best jobs 20 years from now probably don't currently exist.

The trick to turning information systems to your advantage is being able to predict technological innovations and then get ahead of them. During your career, you will find many opportunities for the innovative application of information systems in business and government—but only if you know how to look for them.

Once found, those opportunities become your opportunities when you—as a skilled, creative, non-routine problem solver—apply emerging technology to facilitate your organization's strategy. This is true whether your job is in marketing, operations, sales, accounting, finance, entrepreneurship, or another discipline.

Congratulations on deciding to study business. Use this course to help you obtain and then thrive in an interesting and rewarding career. Learn more than just the MIS terminology—understand the ways information systems are transforming business and the many, many ways you can participate in that transformation.

In this endeavor, we wish you, a future business professional, the very best success!

David Kroenke & Randy Boyle

The Guides



Each chapter includes two unique guides that focus on current issues in information systems. In each chapter, one of the guides focuses on an ethical issue in business. The other guide focuses on careers in the field of information systems. The content of each guide is designed to stimulate thought, discussion, and active participation in order to help *you* develop your problem-solving skills and become a better business professional.

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LEARNING AIDS FOR STUDENTS

We have structured this book so you can maximize the benefit from the time you spend reading it. As shown in the table below, each chapter includes a series of learning aids to help you succeed in this course.

Resource	Description	Benefit	Example
Question-Driven Chapter Learning Objectives	These queries, and the subsequent chapter sections written around them, focus your attention and make your reading more efficient.	Identify the main point of the section. When you can answer each question, you've learned the main point of the section.	Chapter 6, Q6-1: Why Is the Cloud the Future for Most Organizations?
Guides	Each chapter includes two guides that focus on current issues relating to information systems. One addresses ethics, and the other addresses information systems careers.	Stimulate thought and discussion. Learn about real-world IS jobs. Help you learn to respond to ethical dilemmas in business.	Chapter 5 <i>Ethics Guide</i> : Querying Inequality? Chapter 9 <i>Career Guide</i> : Manager, Data and Analytics
So What?	Each chapter of this text includes a feature called So What? This feature presents a current issue in IS that is relevant to the chapter content and asks you to consider why that issue matters to you as a future business professional.	Understand how the material in the chapter applies to everyday situations.	Chapter 2 SoWhat?: Augmented Collaboration
How Does the Knowledge in This Chapter Help You? (near the end of each chapter)	This section revisits the opening scenario and discusses what the chapter taught you about it.	Summarizes the "takeaway" points from the chapter as they apply to the company or person in the story and to you.	Chapter 11 How Does the Knowledge in This Chapter Help You?
Active Review	Each chapter concludes with a summary-and-review section, organized around the chapter's study questions.	Offers a review of important points in the chapter. If you can answer the questions posed, you understand the material.	Chapter 9 Active Review
Key Terms and Concepts	Highlight the major terms and concepts with their appropriate page references.	Provide a summary of key terms for review before exams.	Chapter 6 Key Terms and Concepts

Resource	Description	Benefit	Example
Using Your Knowledge	These exercises ask you to take your new knowledge one step further by applying it to a practice problem.	Tests your critical-thinking skills and keeps reminding you that you are learning material that applies to the real world.	Chapter 4 Using Your Knowledge
Collaboration Exercise	A team exercise that focuses on the chapter's topic.	Use Google Drive, Windows OneDrive, Microsoft SharePoint, or some other tool to collaborate on team answers.	Collaboration Exercise 3, which explores the use of information systems at a high-value bike rental service
Case Study	A case study closes each chapter. You will reflect on real organizations' use of the technology or systems presented in the chapter and recommend solutions to business problems.	Requires you to apply newly acquired knowledge to real situations.	Case Study 6: Cloud Solutions That Test for Consumer Risk and Financial Stability
Application Exercises (at the end of the book)	These exercises ask you to solve business situations using spreadsheet (Excel) or database (Access) applications and other Office applications.	Help develop your computer skills.	6-2, which builds on your knowledge from Chapter 6 by asking you to import spreadsheet data into Access and produce cost reports

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Experiencing MIS

Eighth Edition

Global Edition

David M. Kroenke

Randall J. Boyle



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To C. J., Carter, and Charlotte

—David Kroenke

To Courtney, Noah, Fiona, Layla, and Henry

—Randy Boyle

CONTENTS OVERVIEW

Experiencing MIS offers basic topic coverage of MIS in its 12 chapters and more in-depth, expanded coverage in its chapter extensions. This modular organization allows you to pick and choose among those topics. Here chapter extensions are shown below the chapters to which they are related. You will preserve continuity if you use each of the 12 chapters in sequence. In most cases, a chapter extension can be covered any time in the course after its related chapter. You need not use any of the chapter extensions if time is short.

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PREFACE

In Chapter 1, we claim that MIS is the most important class in the business curriculum. That's a bold statement, and every year we ask whether it remains true. Is there any discipline having a greater impact on contemporary business and government than IS? We continue to doubt there is. Every year brings important new technology to organizations, and many of these organizations respond by creating innovative applications that increase productivity and help them accomplish their strategies.

Over the past year, we've seen long-discussed innovations take big leaps forward. Digital reality (sometimes called virtual reality) really took off. Microsoft (HoloLens), Meta (Meta 2), and Facebook (Oculus Rift) released their digital reality devices. The reviews for these devices from early adopters were glowing. These devices will create entirely new types of companies and could change the way people live, work, shop, and entertain themselves.

Smart devices dominated the annual Consumer Electronics Show (CES) again this year. Self-balancing motorcycles, ultra-thin (2.5 mm) TVs, and Bluetooth-enabled smart cycles were a hit at the annual display of the latest innovative products. Businesses see the potential value in smart devices. They also recognize the need to collect, store, and analyze the data these devices will generate. As a result, job candidates with skills in analytics, business intelligence, and Big Data are all in high demand right now.

In addition to changing the ways we live and gather data, recent innovations are changing the way companies work, too. For example, over the past year Amazon experienced tremendous success using Kiva robots in its fulfillment centers. It expanded their use to 20 warehouses around the world. These 45,000 Kiva robots have reduced operating costs by 20 percent (\$22 million per warehouse); they have also reduced click-to-ship times from 60 minutes to just 15 minutes.¹ If Amazon rolls out these robots to all of its 110 warehouses, it could save billions. Technology—in this case, an automated workforce—is fundamentally changing the way organizations operate. It's enabling them to be more productive, innovative, and adaptable.

Another technological advancement that made huge strides over the past year was self-driving cars. Tesla Motors turned a regular car into a self-driving car by simply pushing out a software update. The nearly autonomous vehicles have logged more than 1.3 billion miles on autopilot (with a few minor traffic incidents). Google, Mercedes Benz, and nearly all other automobile manufacturers are running full tilt to turn their traditional cars into fully autonomous smart cars. A recent study by Intel estimates the self-driving vehicle services to be worth \$7 trillion by 2050.² Consider what would happen if Amazon started using self-driving trucks. It could reduce shipping costs by 80 percent!

Of course, not all of this year's technology news has been good. Large-scale data breaches continue to be a major problem. Friend Finder Networks (412 million), Dailymotion (85 million), Fling (40 million), and MySpace (164 million) all suffered enormous data losses. In fact, this year we found out about the largest data breaches ever. Yahoo! announced that it experienced data breaches in 2013 (1 billion) and again in 2014 (500 million). Unfortunately, it chose not to notify users about these data breaches for years.

And these are just a fraction of the total number of organizations affected this year. Organizations saw a jump in the number of attacks from highly organized international hacking groups. The world saw the largest coordinated attack of critical systems using cryptographic ransomware ever. WannaCry malware crippled hundreds of corporate systems including but not limited to UK's National Health Service, FedEx, Nissan, Russian railway systems, Hitachi, and Renault.

This edition of the text has been updated for these developments as well as normal revisions that address emergent technologies like cloud-based services, artificial intelligence, machine learning, and so on.

All of these changes highlight the fact that more sophisticated and demanding users push organizations into a rapidly changing future—one that requires continual adjustments in business planning. In order to participate in this business environment, our graduates need to know how to apply emerging technologies to better achieve their organizations' strategies. Knowledge of MIS is critical to this endeavor. And this pace continues to remind us of Carrie Fisher's statement "The problem with instantaneous gratification is that it's just not fast enough."

WHY THIS EIGHTH EDITION?

To reiterate the preface of earlier editions, we believe it is exceedingly important to make frequent adaptations to this text because of the delays associated with long textbook revision cycles. Text materials we develop in April of one year are published in January of the next year and are first used by students in September—a minimum 17-month delay.

For some areas of study, a year and a half may not seem long because little changes in that amount of time. But in MIS, entire companies can be founded and then sold for billions of dollars in just a few years. YouTube, for example, was founded in February 2005 and then sold in November 2006 to Google for \$1.65B (21 months). And that wasn't just a one-time fluke. Facebook Inc. started in 2004, led the social media revolution, and became a public company currently (as of mid-2016) valued at \$341B. That's a whopping \$28B in growth per year for 12 years! MIS changes fast—very fast. We hope this new edition is the most up-to-date MIS textbook available.

The changes in this eighth edition are listed in Table 1. Substantial changes were made in Chapter 6 and Chapter Extension 8 to provide some context about where the cloud came from and how it differs from previous architectures. New discussion about scalability and the advantages of cloud-based services is included as well as new graphics that more clearly differentiate between IaaS, PaaS, and SaaS. Chapter content was reorganized around an example that explains how the Internet works by comparing it to the U.S. postal system. Hopefully, this new example ties abstract and unfamiliar networking concepts to real-world experiences that students have experienced.

Table 1 Changes in the Seventh Edition

Chapter	Change
1	New So What? Feature: A Is for Alphabet New and updated charts for CPU and data storage growth Updated BLS job statistics
2	New Ethics Guide: Big Brother Wearables New Career Guide: Software Product Manager Updated So What? Feature: Augmented Collaboration
3	New So What? Feature: The Autonomous Race New Career Guide: Technology and Operations Executive New Ethics Guide: The Lure of Love Bots Updated Amazon Case Study
4	New So What? Feature: New from CES 2017 New Career Guide: Supportability Account Manager Updated industry statistics throughout the chapter Expanded augmented/mixed/virtual reality discussion New Collaboration Exercise: Microsoft HoloLens Updated Mac OS X to macOS
5	New So What? Feature: Slick Analytics New Career Guide: Senior Database Engineer Chapter content and images updated to Microsoft Access 2016, Microsoft Excel 2016, and SharePoint 2016

Chapter	Change
6	<ul style="list-style-type: none"> Reorganized chapter content for Q1 and Q2 New Q1 discussion about the origin of the cloud New Q1 cloud adoption examples statistics New discussion about scalability Expanded cloud versus in-house comparison New Q2 example using transportation as a service New Q2 graphics to illustrate differences between IaaS, PaaS, and SaaS New Q2 example and graphics for CDNs Updated Active Review questions Expanded Q5 discussion to include AaaS and BaaS New So What? Feature: Quantum Learning New Career Guide: Senior Network Manager Updated industry statistics throughout the chapter
7	<ul style="list-style-type: none"> New ARES introduction New Career Guide: IT Technical Manager New Ethics Guide: Paid Deletion Updated Q7-4 for ARES Example
8	<ul style="list-style-type: none"> New ARES introduction New So What? Feature: Enhanced Golf Fan New Career Guide: Freelance Marketer & Content Creator Updated industry statistics throughout the chapter New Social Media chapter examples
9	<ul style="list-style-type: none"> New ARES Systems introduction New Career Guide: Senior Technical Analyst New Ethics Guide: MIS-diagnosis Updated chapter examples using ARES Updated Office 2016 figures
10	<ul style="list-style-type: none"> New ARES Systems introduction New So What? Feature: New Black Hat 2016 New Career Guide: Security Consultant New industry statistics and charts throughout the chapter New Ethics Guide: Exhaustive Cheating Discussion of packet sniffers and global ransomware attack (WannaCry)
11	<ul style="list-style-type: none"> New ARES Systems introduction New Career Guide: Director of Architecture New Ethics Guide: Training Your Replacement New industry statistics and charts throughout the chapter Expanded discussion on outsourcing specialized tech skills New Automated Labor case study
12	<ul style="list-style-type: none"> New ARES Systems Introduction New So What? Feature: Banking on IoT New Career Guide: Developing Your Personal Brand

Chapter Extensions	Description of Change
Appl Ex	Updated data files New exercise looking up IT job salaries (O*NET and BLS) New exercise using an ad blocker (Adblock Plus) New exercise creating a mobile application (Microsoft Touch Develop) Updated Microsoft Office 2016 compliant files and chapter images
CE1	Discussion of constructive criticism and groupthink New examples of providing and receiving constructive criticism
CE2	Expanded discussion of real-time surveying software (Socrative) Updated SharePoint images
CE3	Updated mobile statistics
CE4	Chapter content and images updated to Microsoft Excel 2016
CE5	Chapter content and images updated to Microsoft Access 2016
CE6	Chapter content and images updated to Microsoft Access 2016 and Microsoft Excel 2016
CE7	Chapter content and images updated to Microsoft Access 2016 and Microsoft Excel 2016
CE8	Reorganized Chapter content for Q1-Q4 New Q4 example comparing the Internet and the U.S. postal system New Q4 content about DNS, TCP, IP addresses, Carriers, and IXPs Updated industry statistics throughout the chapter
CE9	Updated discussion about ERP leaders and market share statistics New discussion of Epicor ERP Updated discussion of the future of ERP systems
CE11	Updated chapter statistics
CE12	Updated RFM scoring
CE13	Chapter content and images updated to Microsoft Access 2016 and Microsoft Excel 2016
CE14	New chapter extension on AI and machine learning Discussion of why AI is important Discussion of how AI will affect organizations Discussion of how AI will affect you Discussion of the goals of AI Example of how AI works using machine learning and IBM's Watson
CE15	Updated chapter statistics and data breach examples
CE16	Updated section on localization using IBM Watson New examples in Q4 Legal Environment New statistics and discussion about international Internet access (fixed and mobile) New Career Guide: Director, Asian Operations
CE18	New statistics and discussion of agile methodologies and scrum use

This edition also includes a new chapter extension about artificial intelligence (AI) that focuses on the impacts of AI on organizations and workers. It looks at why AI has become so important within the last few years, and explores the long-term goals of this technology. We've included a simple machine learning example focused on spam filtering and a high-level look at IBM's Watson.

In addition, we've introduced a new "Career Guide" in this edition that lets students read firsthand accounts from people working in information systems jobs. Each of these guides is written by a MIS graduate and answers questions like "How did you get this type of job?" and "What does a typical workday look like for you?" Students taking an introductory course in MIS are often interested in majoring in MIS but aren't sure what it would be like to work in the field. These new guides answer some of the common questions students may have about working in the field.

Also, a secondary goal of these new Career Guides is to encourage female students not to be daunted by gender imbalances in a field that is 70 percent male and 30 percent female.³ Half of the new Career Guides are written by men and the other half by women. Hopefully, hearing from successful women working in MIS jobs will inspire female students considering a career in MIS.

Chapters 7 through 12 begin with a new discussion of ARES Systems, a cloud-based augmented-reality exercise startup. Chapters 1–6 continue to be introduced by Falcon Security, a privately owned company that provides surveillance and inspection services for companies using flying drones. In addition to motivating the chapter material, both case scenarios provide numerous opportunities for students to practice one of Chapter 1's key skills: "Assess, evaluate, and apply emerging technology to business."

This edition also continues to focus on teaching ethics. Every Ethics Guide asks students to apply Immanuel Kant's categorical imperative, Bentham and Mill's utilitarianism, or both to the business situation described in the guide. We hope you find the ethical considerations rich and deep with these exercises. The categorical imperative is introduced in the Ethics Guide in Chapter 1 (pages 56–57), and utilitarianism is introduced in the Ethics Guide in Chapter 2 (pages 82–83).

As shown in Table 1, additional changes were made to every chapter, including eight new So What? features, six new Ethics Guides, eleven new Career Guides, and updated chapter cases. Additional figures, like the one showing how CDNs work in Chapter 6, were added to make the text more accessible. Numerous changes were made throughout the chapters in an attempt to keep them up-to-date. MIS moves fast, and to keep the text current, we checked every fact, data point, sentence, and industry reference for obsolescence and replaced them as necessary.

STRUCTURE, ORGANIZATION, AND APPEARANCE OF THIS TEXT

Teaching today is a very different endeavor than it was years ago. Students have many more distractions and demands on their time. They are quick to tune in and quick to tune out, so much so that someone compared their attention spans to those of Labrador Retriever puppies. We can lament that fact, but we can't change it. What we can do is to meet students where they are and creatively attempt to obtain their engagement.

We designed this text with that hope and goal in mind. Every feature of this book is designed to make it easy for students to engage with the content, not by watering it down but rather, we hope, by making it interesting and relevant to them. This text is not an encyclopedia; it attempts to teach essential topics well. It does so by providing opportunities for students to actively engage with the content, by providing features to help students better manage their study time, and with an appearance that makes it easy for students to pick up and start.

ACTIVE ENGAGEMENT

The structure of this edition of *Experiencing MIS* provides many opportunities for active engagement. Each chapter includes a So What? feature that contains exercises and questions for students to answer to demonstrate the relevancy of the chapter's material to them. Each chapter also contains an Ethics Guide that looks at the ethical implications of the chapter content. These can be used for small in-class exercises. Finally, this edition contains 41 application exercises (see page 696).

FACILITATE STUDENT STUDY

Today's students were reared in an environment of constant stimulation and channel surfing, and it seems nearly impossible for many students to focus on a single topic for more than a few minutes. Again, we can wish it otherwise, but short attention spans are students' and our reality. And recent research does seem to substantiate students' claim that, except for texting in class, students can multitask in class without problem.⁵

This text is structured to accommodate today's students' learning styles. First, to help students manage their time, it is organized around questions. Each chapter or chapter extension starts with a list of questions. Each major heading of the material is one of those questions, and the end of the chapter or extension includes an Active Review in which students are asked to demonstrate their learning of the answer to each question. Students should study until they can answer the questions; that may be 5 minutes or 5 hours, but their job is to answer those questions. This technique, from Marilla Svinicki's research, vastly helps students manage their study time.⁶

You can also use the questions to structure class sessions or at least parts of those sessions.

You can open class by asking students to "do the questions." Go around the room and call on someone to answer a question or part of one.

Second, students learn more when they are emotionally engaged in the material. The purpose of the vignettes that introduce each chapter is to raise student emotion; their purpose is to cause students to care about the chapter material.

Third, 82 percent of students in the business school prefer visual learning to auditory (voice or word) learning.⁷ To make it easier for students to open this book and continue to read it, interesting and engaging art and photos have been used. *In every instance, however, we have insisted that the photo or art be related to the topic under discussion; these photos are not simply eye candy.* Pearson allows us to personally review and approve every photo and art exhibit in this text. We believe a good book does not have to appear boring, but all art must be relevant.

FEATURES FOR ENGAGING THE STUDENT

Experiencing MIS was written to make it impossible for readers of this text to miss the importance of MIS in business. The text is designed to be approachable, easy to use, sometimes humorous, with an upbeat and in-your-face attitude, but always with the goal of underlining the importance of MIS to all businesspeople in the 21st century.

An important part of making the text approachable was choosing a modular design. The text consists of 12 short chapters along with 19 supplemental discussions, called chapter extensions.

The modular nature of this text is discussed in more detail later in this preface.

EMPHASIS ON COLLABORATION

As with prior editions, this text emphasizes collaboration. It is one of Reich's key skills for the 21st-century professional, as described in Chapter 1. We believe we need not only to require our students to collaborate but also to teach them key skills for doing so. The first two chapter extensions present collaboration techniques and collaboration information systems, respectively. Each chapter also includes a collaboration exercise at the end of the chapter.

OPENING SCENARIOS FOR PARTS AND CHAPTERS

Each part and each chapter opens with a scenario intended to get students involved emotionally. We want students to mentally place themselves in the situation and to realize that this situation—or something like it—could happen to them. Each scenario sets up the chapter’s content and provides an obvious example of why the chapter is relevant to them. These scenarios help support the goals of student motivation and learning transfer.

Furthermore, both of these introductory cases involve the application of new technology to existing businesses. Our goal is to provide opportunities for students to see and understand how businesses are affected by new technology and how they need to adapt while, we hope, providing numerous avenues for you to explore such adaptation with your students.

In developing these scenarios, we endeavor to create business situations rich enough to realistically carry the discussions of information systems while at the same time simple enough that students with little business knowledge and even less business experience can understand. We also attempt to create scenarios that will be interesting to teach. This edition introduces the new ARES case and continues the Falcon Security case from the seventh edition.

FALCON SECURITY

The chapters in Parts 1 and 2 are introduced with dialogue from key players at Falcon Security, a privately owned company that provides surveillance and inspection services for companies using flying drones. We wanted to develop the case around an interesting business model that students would want to learn more about. Drones get a lot of attention in the press, but students may not know a lot about how they’re used in business. Drones are getting cheaper and easier to fly and have a lot more functionality than they did just a few years ago. It’s likely that students will see drones deployed widely during their careers.

Falcon Security is considering strengthening its competitive advantage by 3D printing its own drones. Buying fleets of drones is expensive, and they become outdated quickly. However, were the company to do so, it would be changing its fundamental business model, or at least adding to it. Making drones would require Falcon Security to hire new employees, develop new business processes, and potentially develop a new IS to support the custom-built drones. All of this is good fodder for Chapter 3 and for underlining the importance of the ways IS needs to support evolving business strategy.

Ultimately, Falcon Security determines that it does not want to become a drone manufacturer. It could print some drone parts, but not enough to make it cost effective. They’d still have to buy a lot of expensive component parts to assemble an airworthy drone, something they’re not sure they can do consistently. Falcon decides to focus on its core strength of providing integrated security services.

Students may object that, in studying Falcon Security, they devoted considerable time to an opportunity that ultimately didn’t make business sense and was rejected. But this outcome is at least as informative as a successful outcome. The example uses knowledge of processes as well as application of business intelligence to avoid making a serious blunder and wasting substantial money. Falcon Security didn’t have to open a factory and 3D-print a fleet of custom-built drones just to find out it would be a mistake. It could make a prototype, *analyze* the costs and benefits, and then avoid making the mistake in the first place. The very best way to solve a problem is not to have it!

ARES

The Augmented Reality Exercise System (ARES) is an embryonic entrepreneurial opportunity that uses digital reality devices (Microsoft HoloLens), data-gathering exercise equipment, and the cloud to share integrated data among users, health clubs, and employers. ARES allows users to virtually bike with friends, famous cyclists, or even “pacers” mimicking their previous performance.

ARES is based on a real-world prototype developed for the owner of a health club who wanted to connect the workout data of his club members to their workout data at home and to their employers, insurance companies, and healthcare professionals. The prototype was written in C#, and the code runs against an Azure database in the cloud. It used the Windows Phone emulator that is part of Visual Studio.

As reflected in the ARES case, the developers realized it was unlikely to succeed because Dr. Flores was too busy as a cardiac surgeon to make his startup a success. Therefore, he sold it to a successful businessman who changed the staff and the strategy and repurposed the software to take advantage of new digital reality hardware. All of this is described at the start of Chapter 7.

USE OF THE CATEGORICAL IMPERATIVE AND UTILITARIANISM IN ETHICS GUIDES

Since the introduction of the Ethics Guides into the first edition of this text, we believe there was a shift in students’ attitudes about ethics. Students seem, at least many of them, to be more cynical and callous about ethical issues.

As a result, in the fifth edition, we began to use Kant’s categorical imperative and Bentham and Mill’s utilitarianism to ask students, whose ethical standards are often immature, to adopt the categorical imperative and utilitarian perspectives rather than their own perspectives and, in some cases, in addition to their own perspectives. By doing so, the students are asked to “try on” those criteria, and we hope in the process they think more deeply about ethical principles than they do when we allow them simply to apply their personal biases.

The Ethics Guide in Chapter 1 introduces the categorical imperative, and the guide in Chapter 2 introduces utilitarianism. If you choose to use these perspectives, you will need to assign both of those guides.

MODULAR DESIGN

Not every MIS class is the same, and even though most MIS professors would agree on the basic content of this class, each professor has his or her own interests, expertise, and emphasis. Further, courses differ not only because of student and professor interests, but also because of the local employment environment, the grade level at which the class is taught, the background and educational maturity of students, and so on.

To support such specialization, the text is organized into short chapters and optional chapter extensions. Each of the 12 short chapters describes the minimum essentials of a topic. Additional material is then presented in 18 optional chapter extensions. Thus, for example, Chapter 9 -addresses the basic ideas and purpose of business intelligence. That chapter is then supported by two chapter extensions: one on data mining and one on reporting and OLAP.

You can pick the extensions that relate to your class’s interests and needs, or you can use just the chapter itself and skip the extensions without loss of continuity. For a more specific description of how the book is organized, see the section titled “How Is the Content Organized?”

GUIDES

This book contains boxed essays called “guides” that amplify each chapter’s core material. These features have two purposes. First, the Career Guides are intended to give students a glimpse at real-world information systems jobs. Each career guide focuses on the relevant chapter material