Essentials of
MIS
Kenneth C. Laudon
Jane P. Laudon
11e

Integrating Business with Technology

By completing the projects in this text, students will be able to demonstrate business knowledge, application software proficiency, and Internet skills. These projects can be used by instructors as learning assessment tools and by students as demonstrations of business, software, and problem-solving skills to future employers. Here are some of the skills and competencies students using this text will be able to demonstrate:

Business Application skills: Use of both business and software skills in real-world business applications. Demonstrates both business knowledge and proficiency in spreadsheet, database, and Web page/blog creation tools.

Internet skills: Ability to use Internet tools to access information, conduct research, or perform online calculations and analysis.

Analytical, writing and presentation skills: Ability to research a specific topic, analyze a problem, think creatively, suggest a solution, and prepare a clear written or oral presentation of the solution, working either individually or with others in a group.

*** Dirt Bikes Running Case in MyMISLab**

Business Application Skills

Business Skills	Software Skills	Chapter
Finance and Accounting		
Financial statement analysis	Spreadsheet charts	Chapter 2*
	Spreadsheet formulas	Chapter 10
	Spreadsheet downloading and formatting	
Pricing hardware and software	Spreadsheet formulas	Chapter 5
Technology rent vs. buy decision	Spreadsheet formulas	Chapter 5*
Total Cost of Ownership (TCO) Analysis		
Analyzing telecommunications services and costs	Spreadsheet formulas	Chapter 7
Risk assessment	Spreadsheet charts and formulas	Chapter 8
Human Resources		
Employee training and skills tracking	Database design	Chapter 12*
	Database querying and reporting	
Manufacturing and Production		
Analyzing supplier performance and pricing	Spreadsheet date functions	Chapter 2
	Data filtering	
	Database functions	
Inventory management	Importing data into a database	Chapter 6
	Database querying and reporting	
Bill of materials cost sensitivity analysis	Spreadsheet data tables	Chapter 11*
	Spreadsheet formulas	
Sales and Marketing		
Sales trend analysis	Database querying and reporting	Chapter 1
Customer reservation system	Database querying and reporting	Chapter 3
Customer sales analysis	Database design	
Marketing decisions	Spreadsheet pivot tables	Chapter 11
Customer profiling	Database design	Chapter 6*
	Database querying and reporting	

Customer service analysis	Database design Database querying and reporting	Chapter 9
Sales lead and customer analysis	Database design Database querying and reporting	Chapter 12
Blog creation and design	Blog creation tool	Chapter 4

Internet Skills

Using online software tools for job hunting and career development	Chapter 1
Using online interactive mapping software to plan efficient transportation routes	Chapter 2
Researching product information Evaluating Web sites for auto sales	Chapter 3
Using Internet newsgroups for marketing	Chapter 4
Researching travel costs using online travel sites	Chapter 5
Searching online databases for products and services	Chapter 6
Using Web search engines for business research	Chapter 7
Researching and evaluating business outsourcing services	Chapter 8
Researching and evaluating supply chain management services	Chapter 9
Evaluating e-commerce hosting services	Chapter 10
Using shopping bots to compare product price, features, and availability	Chapter 11
Analyzing Web site design	Chapter 12

Analytical, Writing, and Presentation Skills *

Business Problem	Chapter
Management analysis of a business	Chapter 1
Value chain and competitive forces analysis Business strategy formulation	Chapter 3
Formulating a corporate privacy policy	Chapter 4
Employee productivity analysis	Chapter 7
Disaster recovery planning	Chapter 8
Locating and evaluating suppliers	Chapter 9
Developing an e-commerce strategy	Chapter 10

Essentials of Management Information Systems

Eleventh Edition

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New York University

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Azimuth Information Systems

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PEARSON

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The Laudons have two daughters, Erica and Elisabeth, to whom this book is dedicated.

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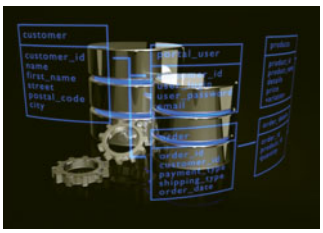

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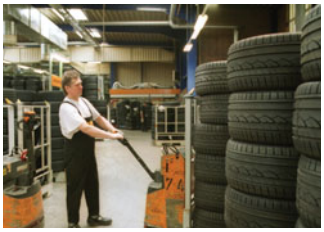

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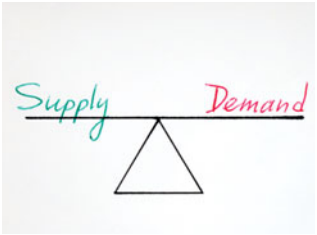

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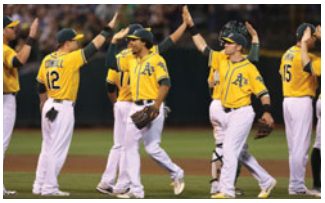

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Preface

We wrote this book for business school students who wanted an in-depth look at how today's business firms use information technologies and systems to achieve corporate objectives. Information systems are one of the major tools available to business managers for achieving operational excellence, developing new products and services, improving decision making, and achieving competitive advantage. Students will find here the most up-to-date and comprehensive overview of information systems used by business firms today. After reading this book, we expect students will be able to participate in, and even lead, management discussions of information systems for their firms.

When interviewing potential employees, business firms often look for new hires who know how to use information systems and technologies for achieving bottom-line business results. Our hope is that after reading this book and completing the course, you will be able to participate in, and even lead, management discussions of information systems and technologies at your firm. Regardless of whether you are an accounting, finance, management, operations management, marketing, or information systems major, the knowledge and information you find in this book will be valuable throughout your business career.

What's New in This Edition

CURRENCY

The 11th edition features all new opening, closing, and Interactive Session cases. The text, figures, tables, and cases have been updated through October 2013 with the latest sources from industry and MIS research.

NEW FEATURES

- Chapter-opening cases have added new case study questions.
- More online cases: MIS Classic Cases, consisting of five outstanding cases from previous editions on companies such as Kmart or Blockbuster/Netflix, will be available on the book's Web site. In addition, all of the chapter-ending cases from the previous edition (Ess10e) will be available online.
- The chapter on Ethical and Social Issues in Information Systems has been positioned earlier in the text as Chapter 4 to highlight the importance of this topic.
- Learning Tracks and Video Cases for each chapter are listed at the beginning of each chapter.

NEW TOPICS

- **Social Business:** Extensive coverage of social business, introduced in Chapter 2 and discussed throughout the text. Detailed discussions of enterprise (internal corporate) social networking as well as social networking in e-commerce.
- **Social, Mobile, Local:** New e-commerce content in Chapter 10 describing how social tools, mobile technology, and location-based services are transforming marketing and advertising.

- **Big Data:** Chapter 6 on Databases and Information Management rewritten to provide in-depth coverage of Big Data and new data management technologies, including Hadoop, in-memory computing, non-relational databases, and analytic platforms.
- **Cloud Computing:** Expanded and updated coverage of cloud computing in Chapter 5 (IT Infrastructure), with more detail on types of cloud services, private and public clouds, hybrid clouds, managing cloud services, and a new chapter-ending case on Amazon's cloud services. Cloud computing also covered in Chapter 6 (databases in the cloud); Chapter 8 (cloud security); Chapter 9 (cloud-based CRM); Chapter 10 (e-commerce); and Chapter 12 (cloud-based systems development).
- Consumerization of IT and BYOD
- Internet of Things
- Visual Web
- Location analytics
- Location-based services (geosocial, geoadvertising, geoinformation services)
- Social graph, social marketing, social search, social CRM
- Building an e-commerce presence
- Mobile device management
- Responsive Web design
- Expanded coverage of business analytics including big data analytics
- Mobile and native apps
- Cyberlockers
- Software-defined networking
- 3-D printing
- Quantum computing

What's New in MIS?

Plenty. In fact, there's a whole new world of doing business using new technologies for managing and organizing. What makes the MIS field the most exciting area of study in schools of business is the continuous change in technology, management, and business processes. (Chapter 1 describes these changes in more detail.)

A continuing stream of information technology innovations is transforming the traditional business world. Examples include the emergence of cloud computing, the growth of a mobile digital business platform based on smartphones and tablet computers, and not least, the use of social networks by managers to achieve business objectives. Most of these changes have occurred in the last few years. These innovations are enabling entrepreneurs and innovative traditional firms to create new products and services, develop new business models, and transform the day-to-day conduct of business. In the process, some old businesses, even industries, are being destroyed while new businesses are springing up.

For instance, the emergence of online video stores like Netflix for streaming, and Apple iTunes for downloading, has forever changed how premium video is distributed, and even created. Netflix in 2013 attracted 30 million subscribers to its DVD rental and streaming movie business. Netflix now accounts for 90% of streaming premium movies and TV shows, and consumes an estimated 33% of Internet bandwidth in the United States. Netflix has moved into premium TV show production with House of Cards, and Arrested Development, challenging cable networks like HBO, and potentially disrupting the cable industry dominance of TV show production. Apple's iTunes now accounts for 67% of movie and TV show downloads and has struck deals with major Hollywood studios to obtain the right to distribute recent movies and TV shows. A trickle of viewers are unplugging from cable and using only the Internet for entertainment.

E-commerce is back, generating over $420 billion in revenues in 2013, and estimated to grow to over $637 billion in 2017. Amazon's revenues grew 27 percent to $61 billion in the 12-month period ending June 30, 2013, despite the recession, while offline retail grew by 5 percent. E-commerce is changing how firms design, produce and deliver their

products and services. E-commerce has reinvented itself again, disrupting the traditional marketing and advertising industry and putting major media and content firms in jeopardy. Facebook and other social networking sites such as YouTube, Twitter, and Tumblr, exemplify the new face of e-commerce in the 21st Century. They sell services. When we think of e-commerce we tend to think of a selling physical products. While this iconic vision of e-commerce is still very powerful and the fastest growing form of retail in the U.S., growing up alongside is a whole new value stream based on selling services, not goods. It's a services model of e-commerce. Growth in social commerce is spurred by powerful growth of the mobile platform: 35% of Facebook's users access the service from mobile phones and tablets. Information systems and technologies are the foundation of this new services-based e-commerce.

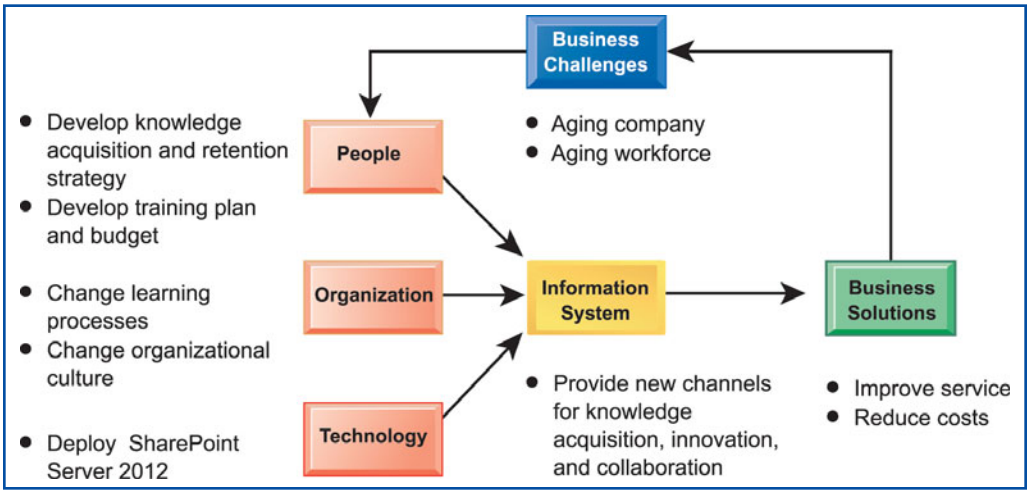
Likewise, the management of business firms has changed: With new mobile smartphones, high-speed wireless Wi-Fi networks, and wireless laptop computers, remote salespeople on the road are only seconds away from their managers' questions and oversight. Managers on the move are in direct, continuous contact with their employees. The growth of enterprise-wide information systems with extraordinarily rich data means that managers no longer operate in a fog of confusion, but instead have online, nearly instant, access to the really important information they need for accurate and timely decisions. In addition to their public uses on the Web, wikis and blogs are becoming important corporate tools for communication, collaboration, and information sharing.

The 11th Edition: The Comprehensive Solution for the MIS Curriculum

Since its inception, this text has helped to define the MIS course around the globe. This edition continues to be authoritative, but is also more customizable, flexible, and geared to meeting the needs of different colleges, universities, and individual instructors.

This book is now part of a complete learning package that includes the core text and an extensive offering of supplemental materials on the Web.

The core text consists of 12 chapters with hands-on projects covering the most essential topics in MIS. An important part of the core text is the Video Case Study and Instructional Video Package: 24 video case studies (2 per chapter) plus 16 instructional videos that illustrate business uses of information systems, explain new technologies, and explore concepts. Videos are keyed to the topics of each chapter.



A diagram accompanying each chapter-opening case graphically illustrates how people, organization, and technology elements work together to create an information system solution to the business challenges discussed in the case.

In addition, for students and instructors who want to go deeper into selected topics, there are 49 online Learning Tracks that cover a variety of MIS topics in greater depth.

MyMISLab™ provides more in-depth coverage of chapter topics, career resources, additional case studies, supplementary chapter material, and data files for hands-on projects.

THE CORE TEXT

The core text provides an overview of fundamental MIS concepts using an integrated framework for describing and analyzing information systems. This framework shows information systems composed of people, organization, and technology elements and is reinforced in student projects and case studies.

Chapter Organization

Each chapter contains the following elements:

- A Chapter Outline that includes lists of all the supplemental Learning Tracks and Video Cases for each chapter
- A chapter-opening case describing a real-world organization to establish the theme and importance of the chapter
- A diagram analyzing the opening case in terms of the people, organization, and technology model used throughout the text
- A series of Learning Objectives
- Two Interactive Sessions with Case Study Questions
- A Review Summary keyed to the Student Learning Objectives
- A list of Key Terms that students can use to review concepts
- Review questions for students to test their comprehension of chapter material
- Discussion questions raised by the broader themes of the chapter
- A series of Hands-on MIS Projects consisting of two Management Decision Problems, a hands-on application software project, and a project to develop Internet skills
- A Collaboration and Teamwork Project to develop teamwork and presentation skills, with options for using open source collaboration tools
- A chapter-ending case study for students to apply chapter concepts

KEY FEATURES

We have enhanced the text to make it more interactive, leading-edge, and appealing to both students and instructors. The features and learning tools are described in the following sections:

Business-Driven with Real-World Business Cases and Examples

The text helps students see the direct connection between information systems and business performance. It describes the main business objectives driving the use of information systems and technologies in corporations all over the world: operational excellence; new products and services; customer and supplier intimacy; improved decision making; competitive advantage; and survival. In-text examples and case studies show students how specific companies use information systems to achieve these objectives.

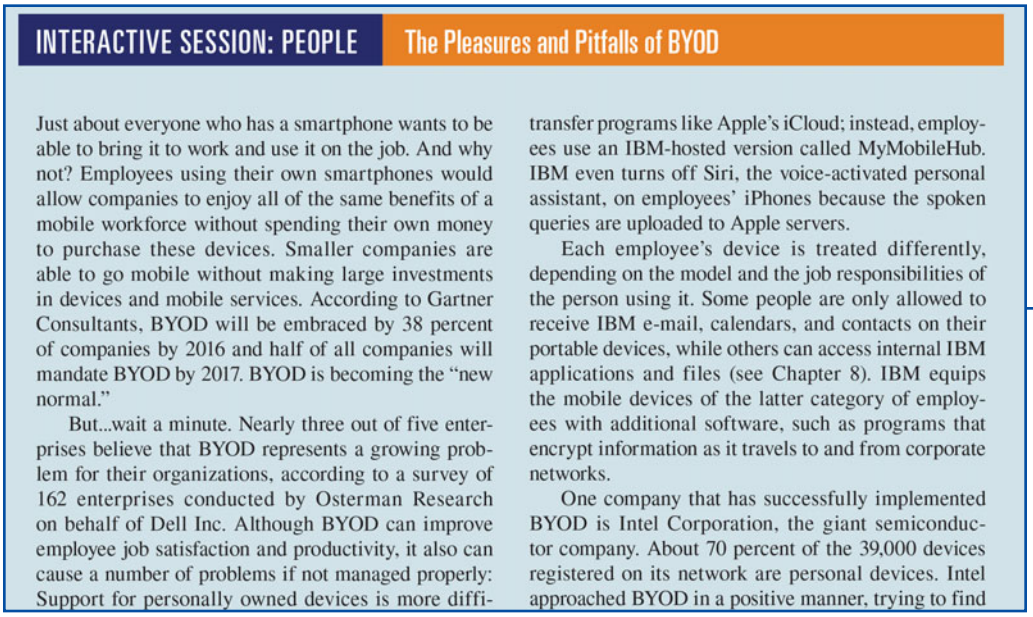
We use only current (2013) examples from business and public organizations throughout the text to illustrate the important concepts in each chapter. All the case studies describe companies or organizations that are familiar to students, such as the San Francisco Giants, Facebook, Walmart, Google, Apple, and Procter & Gamble.

Interactivity

There's no better way to learn about MIS than by doing MIS! We provide different kinds of hands-on projects where students can work with real-world business scenarios and data, and

learn firsthand what MIS is all about. These projects heighten student involvement in this exciting subject.

- **Online Video Case Package.** Students can watch short videos online, either in-class or at home or work, and then apply the concepts of the book to the analysis of the video. Every chapter contains at least two business video cases that explain how business firms and managers are using information systems, describe new management practices, and explore concepts discussed in the chapter. Each video case consists of a video about a real-world company, a background text case, and case study questions. These video cases enhance students' understanding of MIS topics and the relevance of MIS to the business world. In addition, there are 16 Instructional Videos that describe developments and concepts in MIS keyed to respective chapters.
- **Interactive Sessions.** Two short cases in each chapter have been redesigned as Interactive Sessions to be used in the classroom or online to stimulate student interest and active learning. Each case concludes with case study questions. The case study questions provide topics for class discussion, Internet discussion, or written assignments.



INTERACTIVE SESSION: PEOPLE The Pleasures and Pitfalls of BYOD

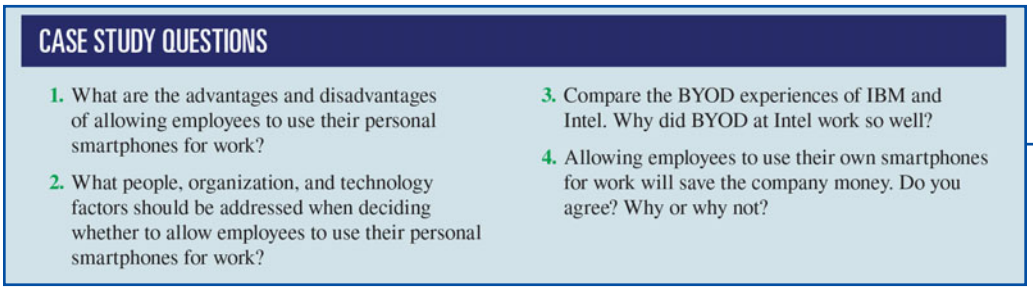
Just about everyone who has a smartphone wants to be able to bring it to work and use it on the job. And why not? Employees using their own smartphones would allow companies to enjoy all of the same benefits of a mobile workforce without spending their own money to purchase these devices. Smaller companies are able to go mobile without making large investments in devices and mobile services. According to Gartner Consultants, BYOD will be embraced by 38 percent of companies by 2016 and half of all companies will mandate BYOD by 2017. BYOD is becoming the "new normal."

But...wait a minute. Nearly three out of five enterprises believe that BYOD represents a growing problem for their organizations, according to a survey of 162 enterprises conducted by Osterman Research on behalf of Dell Inc. Although BYOD can improve employee job satisfaction and productivity, it also can cause a number of problems if not managed properly: Support for personally owned devices is more difficult transfer programs like Apple's iCloud; instead, employees use an IBM-hosted version called MyMobileHub. IBM even turns off Siri, the voice-activated personal assistant, on employees' iPhones because the spoken queries are uploaded to Apple servers.

Each employee's device is treated differently, depending on the model and the job responsibilities of the person using it. Some people are only allowed to receive IBM e-mail, calendars, and contacts on their portable devices, while others can access internal IBM applications and files (see Chapter 8). IBM equips the mobile devices of the latter category of employees with additional software, such as programs that encrypt information as it travels to and from corporate networks.

One company that has successfully implemented BYOD is Intel Corporation, the giant semiconductor company. About 70 percent of the 39,000 devices registered on its network are personal devices. Intel approached BYOD in a positive manner, trying to find

Each chapter contains two Interactive Sessions on People, Organizations, or Technology using real-world companies to illustrate chapter concepts and issues.



CASE STUDY QUESTIONS

1. What are the advantages and disadvantages of allowing employees to use their personal smartphones for work?
2. What people, organization, and technology factors should be addressed when deciding whether to allow employees to use their personal smartphones for work?
3. Compare the BYOD experiences of IBM and Intel. Why did BYOD at Intel work so well?
4. Allowing employees to use their own smartphones for work will save the company money. Do you agree? Why or why not?

Case Study Questions encourage students to apply chapter concepts to real-world companies in class discussions, student presentations, or writing assignments.

- **Hands-on MIS Projects.** Every chapter concludes with a Hands-on MIS Projects section containing three types of projects: two Management Decision Problems, a hands-on application software exercise using Microsoft Excel, Access, or Web page and blog creation tools, and a project that develops Internet business skills. A Dirt Bikes USA running case in MyMISLab provides additional hands-on projects for each chapter.

Two real-world business scenarios per chapter provide opportunities for students to apply chapter concepts and practice management decision making.

2. Dollar General Corporation operates deep-discount stores offering housewares, cleaning supplies, clothing, health and beauty aids, and packaged food, with most items selling for $1. Its business model calls for keeping costs as low as possible. The company has no automated method for keeping track of inventory at each store. Managers know approximately how many cases of a particular product the store is supposed to receive when a delivery truck arrives, but the stores lack technology for scanning the cases or verifying the item count inside the cases. Merchandise losses from theft or other mishaps have been rising and now represent over 3 percent of total sales. What decisions have to be made before investing in an information system solution?

Students practice using software in real-world settings for achieving operational excellence and enhancing decision making.

Store & Region Sales Database

II	Store N	Sales Regio	Item N	Item Descriptic	Unit Pric	Units Sol	Week Ending	Click to Add
1	1	South	2005	17" Monitor	$229.00	28	10/27/2013	
2	1	South	2005	17" Monitor	$229.00	30	11/24/2013	
3	1	South	2005	17" Monitor	$229.00	9	12/29/2013	
4	1	South	3006	101 Keyboard	$19.95	30	10/27/2013	
5	1	South	3006	101 Keyboard	$19.95	35	11/24/2013	
6	1	South	3006	101 Keyboard	$19.95	39	12/29/2013	
7	1	South	6050	PC Mouse	$8.95	28	10/27/2013	
8	1	South	6050	PC Mouse	$8.95	3	11/24/2013	
9	1	South	6050	PC Mouse	$8.95	38	12/29/2013	
10	1	South	8500	Desktop CPU	$849.95	25	10/27/2013	
11	1	South	8500	Desktop CPU	$849.95	27	11/24/2013	
12	1	South	8500	Desktop CPU	$849.95	33	12/29/2013	
13	2	South	2005	17" Monitor	$229.00	8	10/27/2013	
14	2	South	2005	17" Monitor	$229.00	8	11/24/2013	
15	2	South	2005	17" Monitor	$229.00	10	12/29/2013	
16	2	South	3006	101 Keyboard	$19.95	8	10/27/2013	

Each chapter features a project to develop Internet skills for accessing information, conducting research, and performing online calculations and analysis.

IMPROVING DECISION MAKING: USING WEB TOOLS TO CONFIGURE AND PRICE AN AUTOMOBILE

Software skills: Internet-based software
Business skills: Researching product information and pricing

In this exercise, you will use software at car-selling Web sites to find product information about a car of your choice and use that information to make an important purchase decision. You will also evaluate two of these sites as selling tools.

You are interested in purchasing a new Ford Escape (or some other car of your choice). Go to the Web site of CarsDirect (www.carsdirect.com) and begin your investigation. Locate the Ford Escape. Research the various Escape models, choose one you prefer in terms of price, features, and safety ratings. Locate and read at least two reviews. Surf the Web site of the manufacturer, in this case Ford (www.ford.com). Compare the information available on Ford's Web site with that of CarsDirect for the Ford Escape. Try to locate the lowest price for the car you want in a local dealer's inventory. Suggest improvements for CarsDirect.com and Ford.com.

- **Collaboration and Teamwork Projects.** Each chapter features a collaborative project that encourages students working in teams to use Google Drive, Google Docs, or other open-source collaboration tools. The first team project in Chapter 1 asks students to build a collaborative Google site.

Assessment and AACSB Assessment Guidelines

The Association to Advance Collegiate Schools of Business (AACSB) is a not-for-profit corporation of educational institutions, corporations and other organizations that seeks to improve business education primarily by accrediting university business programs. As a part of its accreditation activities, the AACSB has developed an Assurance of Learning Program designed to ensure that schools do in fact teach students what they promise. Schools are required to state a clear mission, develop a coherent business program, identify student learning objectives, and then prove that students do in fact achieve the objectives.

We have attempted in this book to support AACSB efforts to encourage assessment-based education. The front end papers of this edition identify student learning objectives and anticipated outcomes for our Hands-on MIS projects. On the Laudon Web site is a more inclusive and detailed assessment matrix that identifies the learning objectives of each chapter and points to all the available assessment tools for ensuring students in fact do achieve the learning objectives. Because each school is different and may have different missions and learning objectives, no single document can satisfy all situations. The authors will provide custom advice on how to use this text in colleges with different missions and assessment needs. Please e-mail the authors or contact your local Pearson Prentice Hall representative for contact information.

For more information on the AACSB Assurance of Learning Program, and how this text supports assessment-based learning, please visit the Web site for this book.

Customization and Flexibility: New Learning Track Modules

Our Learning Tracks feature gives instructors the flexibility to provide in-depth coverage of the topics they choose. There are 49 Learning Tracks available to instructors and students. A Learning Tracks list at the beginning of each chapter directs students to short essays or additional chapters in MyMISLab. This supplementary content takes students deeper into MIS topics, concepts and debates; reviews basic technology concepts in hardware, software, database design, telecommunications, and other areas; and provide additional hands-on software instruction. The 11th Edition includes new Learning Tracks on E-Commerce Payment Systems, LAN Topologies, Building an E-Commerce Web Site, 4th Generation Languages, and Occupational and Career Outlook for Information Systems Majors 2012–2018.

Author-Certified Test bank and Supplements

- **Author-Certified Test Bank.** The authors have worked closely with skilled test item writers to ensure that higher level cognitive skills are tested. Test bank multiple choice questions include questions on content, but also include many questions that require analysis, synthesis, and evaluation skills.
- **Annotated Slides.** The authors have prepared a comprehensive collection of fifty PowerPoint slides to be used in your lectures. Many of these slides are the same as used by Ken Laudon in his MIS classes and executive education presentations. Each of the slides is annotated with teaching suggestions for asking students questions, developing in-class lists that illustrate key concepts, and recommending other firms as examples in addition to those provided in the text. The annotations are like an Instructor's Manual built into the slides and make it easier to teach the course effectively.

Student Learning-Focused

Student Learning Objectives are organized around a set of study questions to focus student attention. Each chapter concludes with a Review Summary and Review Questions organized around these study questions.

MYMISLAB

MyMISLab is a Web-based assessment and tutorial tool that provides practice and testing while personalizing course content and providing student and class assessment and reporting. Your course is not the same as the course taught down the hall. Now, all the

resources both you and your students need for course success are in one place – flexible and easily organized and adapted for your individual course experience. Visit www.mymislab.com to see how you can teach, learn, experience MIS.

Career Resources

The Instructor's Resource section of the Laudon Web site also provides extensive Career Resources, including job-hunting guides and instructions on how to build a Digital Portfolio demonstrating the business knowledge, application software proficiency, and Internet skills acquired from using the text. The portfolio can be included in a resume or job application or used as a learning assessment tool for instructors.

Instructional Support Materials

Instructor's Resource

The support materials described in the following sections are conveniently available for adopters on the Instructor's Resource Center.

Image Library

The Image Library is an impressive resource to help instructors create vibrant lecture presentations. Almost every figure and photo in the text is provided and organized by chapter for convenience. These images and lecture notes can be imported easily into Microsoft PowerPoint to create new presentations or to add to existing ones.

Instructor's Manual

The Instructor's Manual features not only answers to review, discussion, case study, and group project questions but also an in-depth lecture outline, teaching objectives, key terms, teaching suggestions, and Internet resources.

Test Item File

The Test Item File is a comprehensive collection of true–false, multiple-choice, fill-in-the-blank, and essay questions. The questions are rated by difficulty level and the answers are referenced by section. The test item file also contains questions tagged to the AACSB learning standards. An electronic version of the Test Item File is available in TestGen and TestGen conversions are available for BlackBoard or WebCT course management systems. All TestGen files are available for download at the Instructor Resource Center.

PowerPoint Slides

Electronic color slides created by Azimuth Interactive Corporation, Inc., are available in Microsoft PowerPoint. The slides illuminate and build on key concepts in the text.

Video Cases and Instructional Videos

Instructors can download step-by-step instructions for accessing the video cases from the Instructor Resources Center. See page xix for a list of video cases and instructional videos.

Learning Track Modules

49 Learning Tracks provide additional coverage topics for students and instructors. See page xx for a list of the Learning Tracks available for this edition.

VIDEO CASES AND INSTRUCTIONAL VIDEOS

Chapter	Video
Chapter 1: Business Information Systems in Your Career	Case 1: UPS Global Operations with the DIAD Case 2: Google Data Center Efficiency Best Practices Instructional Video 1: Green Energy Efficiency in a Data Center Using Tivoli Architecture (IBM) Instructional Video 2: Tour IBM's Raleigh Data Center
Chapter 2: Global E-business and Collaboration	Case 1: Walmart's Retail Link Supply Chain Case 2: Salesforce.com: The Emerging Social Enterprise Instructional Video 1: US Foodservice Grows Market with Oracle CRM on Demand
Chapter 3: Achieving Competitive Advantage with Information Systems	Case 1: National Basketball Association: Competing on Global Delivery With Akamai OS Streaming Case 2: IT and Geo-Mapping Help a Small Business Succeed Case 3: Materials Handling Equipment Corp: Enterprise Systems Drive Corporate Strategy for a Small Business Instructional Video 1: SAP BusinessOne ERP: From Orders to Final Delivery and Payment
Chapter 4: Ethical and Social Issues in Information Systems	Case 1: What Net Neutrality Means for You Case 2: Facebook Privacy Case 3: Data Mining for Terrorists and Innocents Instructional Video 1: Viktor Mayer Schönberger on The Right to Be Forgotten
Chapter 5: IT Infrastructure: Hardware and Software	Case 1: ESPN.com: Getting to eXtreme Scale On the Web Case 2: Salesforce.com: SFA on the iPhone and iPod Touch Case 3: Hudson's Bay Company and IBM: Virtual Blade Platform Instructional Video 1: Google and IBM Produce Cloud Computing Instructional Video 2: IBM Blue Cloud Is Ready-to-Use Computing
Chapter 6: Foundations of Business Intelligence: Databases and Information Management	Case 1: Dubuque Uses Cloud Computing and Sensors to Build a Smarter City Case 2: Maruti Suzuki Business Intelligence and Enterprise Databases
Chapter 7: Telecommunications, the Internet, and Wireless Technology	Case 1: Telepresence Moves Out of the Boardroom and Into the Field Case 2: Virtual Collaboration With Lotus Sametime
Chapter 8: Securing Information Systems	Case 1: Stuxnet and Cyberwarfare Case 2: Cyberespionage: The Chinese Threat Case 3: IBM Zone Trusted Information Channel (ZTIC) Instructional Video 1: Sony PlayStation Hacked; Data Stolen from 77 Million Users Instructional Video 2: Zappos Working to Correct Online Security Breach Instructional Video 3: Meet the Hackers: Anonymous Statement on Hacking SONY
Chapter 9: Achieving Operational Excellence and Customer Intimacy: Enterprise Applications	Case 1: Workday: Enterprise Cloud Software-as-a-Service (SaaS) Case 2: Evolution Homecare Manages Patients with Microsoft Dynamics CRM Instructional Video 1: GSMS Protects Products and Patients By Serializing Every Bottle of Drugs
Chapter 10: E-commerce: Digital Markets, Digital Goods	Case 1: Groupon: Deals Galore Case 2: Etsy: A Marketplace and Community Case 3: Ford AutoXchange B2B Marketplace
Chapter 11: Improving Decision Making and Managing Knowledge	Case 1: How IBM's Watson Became a Jeopardy Champion Case 2: Alfresco: Open Source Document Management and Collaboration Case 3: FreshDirect Uses Business Intelligence to Manage Its Online Grocery. Case 4: Business Intelligence Helps the Cincinnati Zoo Work Smarter Instructional Video 1: Analyzing Big Data: IBM Watson: Watson After Jeopardy
Chapter 12: Building Information Systems and Managing Projects	Case 1: IBM: BPM in a Service-Oriented Architecture Case 2: IBM Helps the City of Madrid With Real-Time BPM Software Instructional Video 1: BPM: Business Process Management Customer Story Instructional Video 2: Workflow Management Visualized

LEARNING TRACKS

Chapter	Learning Tracks
Chapter 1: Business Information Systems in Your Career	How Much Does IT Matter? The Changing Business Environment for IT The Business Information Value Chain The Mobile Digital Platform Occupational and Career Outlook for Information Systems Majors 2012-2020
Chapter 2: Global E-business and Collaboration	Systems From a Functional Perspective IT Enables Collaboration and Teamwork Challenges of Using Business Information Systems Organizing the Information Systems Function
Chapter 3: Achieving Competitive Advantage with Information Systems	Challenges of Using Information Systems for Competitive Advantage Primer on Business Process Design and Documentation Primer on Business Process Management
Chapter 4: Ethical and Social Issues in Information Systems	Developing a Corporate Code of Ethics for IT
Chapter 5: IT Infrastructure: Hardware and Software	How Computer Hardware and Software Work Service Level Agreements Cloud Computing The Open Source Software Initiative The Evolution of IT Infrastructure Technology Drivers of IT Infrastructure Fourth Generation Languages
Chapter 6: Foundations of Business Intelligence: Databases and Information Management	Database Design, Normalization, and Entity-Relationship Diagramming Introduction to SQL Hierarchical and Network Data Models
Chapter 7: Telecommunications, the Internet, and Wireless Technology	Broadband Network Services and Technologies Cellular System Generations Wireless Applications for Customer Relationship Management, Supply Chain Management, and Healthcare Introduction to Web 2.0 LAN Topologies
Chapter 8: Securing Information Systems	The Booming Job Market in IT Security The Sarbanes-Oxley Act Computer Forensics General and Application Controls for Information Systems Management Challenges of Security and Control Software Vulnerability and Reliability
Chapter 9: Achieving Operational Excellence and Customer Intimacy: Enterprise Applications	SAP Business Process Map Business Processes in Supply Chain Management and Supply Chain Metrics Best-Practice Business Processes in CRM Software
Chapter 10: E-commerce: Digital Markets, Digital Goods	E-Commerce Challenges: The Story of Online Groceries Build an E-commerce Business Plan Hot New Careers in E-Commerce E-commerce Payment Systems Building an E-commerce Web Site
Chapter 11: Improving Decision Making and Managing Knowledge	Building and Using Pivot Tables The Expert System Inference Engine Challenges of Knowledge Management Systems
Chapter 12: Building Information Systems and Managing Projects	Capital Budgeting Methods for Information Systems Investments Enterprise Analysis: Business Systems Planning and Critical Success Factors Unified Modeling Language Information Technology Investments and Productivity

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Information Systems in the Digital Age

PART I

1 Business Information Systems in Your Career

2 Global E-business and Collaboration

3 Achieving Competitive Advantage with Information Systems

4 Ethical and Social Issues in Information Systems

Part I introduces the major themes and the problem-solving approaches that are used throughout this book. While surveying the role of information systems in today's businesses, this part raises several major questions: What is an information system? Why are information systems so essential in businesses today? How can information systems help businesses become more competitive? What do I need to know about information systems to succeed in my business career? What ethical and social issues are raised by widespread use of information systems?

Business Information Systems in Your Career

CHAPTER 1

STUDENT LEARNING OBJECTIVES

After completing this chapter, you will be able to answer the following questions:

1. How are information systems transforming business, and what is their relationship to globalization?
2. Why are information systems so essential for running and managing a business today?
3. What exactly is an information system? How does it work? What are its people, organizational, and technology components?
4. How will a four-step method for business problem solving help you solve information system-related problems?
5. How will information systems affect business careers, and what information systems skills and knowledge are essential?

LEARNING TRACKS

1. How Much Does IT Matter?
2. The Changing Business Environment for Information Technology
3. The Business Information Value Chain
4. The Mobile Digital Platform
5. Occupational and Career Outlook for Information Systems Majors 2012-2020

VIDEO CASES

Case 1: UPS Global Operations with the DIAD

Case 2: Google Data Center Efficiency Best Practices

Instructional Video 1: Green Energy Efficiency in a Data Center Using Tivoli Architecture (IBM)

Instructional Video 2: Tour IBM's Raleigh Data Center

Chapter Outline

Chapter-Opening Case: *The San Francisco Giants Win Big with Information Technology*

1.1 The Role of Information Systems in Business Today

1.2 Perspectives on Information Systems and Information Technology

1.3 Understanding Information Systems: A Business Problem-Solving Approach

1.4 Information Systems and Your Career

Business Problem-Solving Case: *A New Look at Electronic Medical Records*

THE SAN FRANCISCO GIANTS WIN BIG WITH INFORMATION TECHNOLOGY

The San Francisco Giants are one of the oldest U.S. baseball teams, and one of the most successful as well. They have won the most games of any team in the history of American baseball and any North American professional sports team. The Giants have captured 22 National League pennants and appeared in 19 World Series competitions—both records in the National League. Their most recent triumph was winning the 2012 World Series. The Giants have outstanding players (with the most Hall of Fame players in all of professional baseball) and coaches, but some of their success, both as a team and as a business, can be attributed to their use of information technology.

Baseball is very much a game of statistics, and all the major teams are constantly analyzing their data on player performance and optimal positioning on the field (see the Chapter 11 opening case on Moneyball). But the Giants are doing more. They have started to use a video system from Sportsvision called Fieldf/x, which helps teams analyze player reaction times. The information the system produces on player speed and response time, such as how quickly an outfielder comes in for a ball or reacts to line drives, will make player data analysis much more accurate. In some cases, it will provide information that didn't exist before. Fieldf/x generates a million records per game.

© Cynthia Lindow/Alamy.

That amounts to 5 billion records in three years, the amount of time required to provide a high level of confidence in the data. In addition to player and team statistics, the Giants are starting to collect data about fans, including ticket purchases and social media activity.

Under the leadership of chief information officer (CIO) Bill Schlough, the San Francisco Giants have pioneered in dynamic ticket pricing, based on software from Qcue, in which the price of a ticket fluctuates according to the level of demand for a particular ball game. It's similar to the dynamic ticket pricing used in the airline industry. If a game is part of a crucial series, the Giants are playing an in-division rival, or the game appears to be selling out especially fast, ticket prices will rise. If the game isn't a big draw, ticket prices fall. The Giants have sold out 100 percent of their home games since October 2010, and have increased season ticket sales from 21,000 in 2010 to 29,000 in 2012.

Season ticket-holders don't normally attend every game, and this can lose revenue for a team. Every time a fan with a season ticket decides to stay home from a game, the sports franchise loses an average of $20 in concession and merchandise sales. To make sure stadium seats are always filled, the Giants created a secondary online ticket market where season ticket holders can resell tickets they are not using over the Internet. The Giants's information technology specialists found a way to activate and deactivate the bar codes on tickets so that they can be resold. The system is also a way for the Giants to provide additional service to customers.

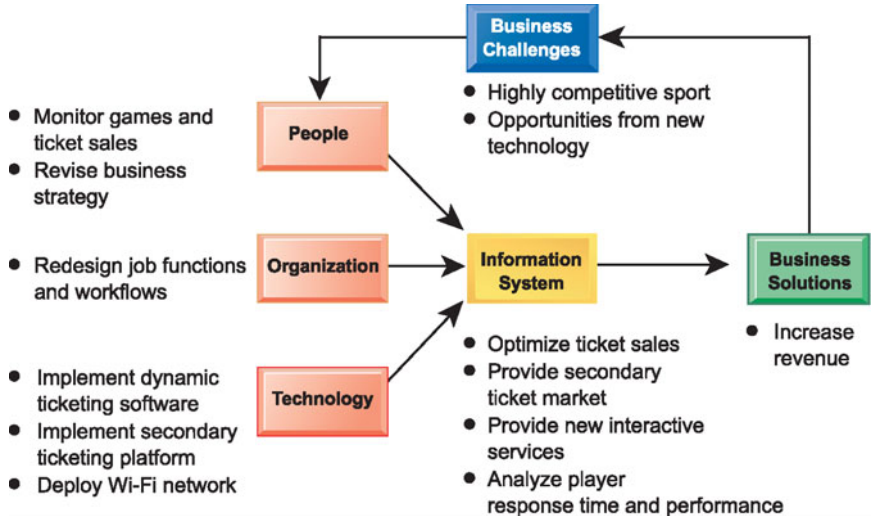
The Giants have also taken advantage of wireless technology to enhance their fans' experience. AT&T Park, the Giants' stadium, has a large high-speed wireless network, which fans can use to check scores and video highlights or do e-mail. A "social media headquarters" called @Cafe provides a space for fans to congregate, plug in, buy an iced coffee, read tweets, view other fans' photos, and even connect with the players.

Sources: Peter High, "Interview with World Champion San Francisco Giants CIO and San Jose Giants Chairman, Bill Schlough," *Forbes*, February 4, 2013; Nicole Laskowski, "Tech-savvy San Francisco Giants Aim for Bleachers with @ Café," SearchCIO.com, June 20, 2013; Michael Vizard, "Sport Franchises Use IT to Keep Fans in Seats, *CIO Insight,* January 18, 2013; www.sanfranciscogiants.mlb.com, accessed April 19, 2013; and Fritz Nelson, "Chief of the Year," *Information Week*, December 17, 2012.

The challenges facing the San Francisco Giants and other baseball teams show why information systems are so essential today. Major league baseball is a business as well as a sport, and teams such as the Giants need to take in revenue from games in order to stay in business. Major league baseball is also a business where what matters above all is winning, and any way of using information to improve player performance is a competitive edge.

The chapter-opening diagram calls attention to important points raised by this case and this chapter. To increase stadium revenue, the San Francisco Giants developed a dynamic ticket pricing system designed to adjust ticket prices to customer demand and to sell seats at the optimum price. The team developed another ticketing system that enables existing ticketholders to sell their tickets easily online to someone else. An additional way of cultivating customers is to deploy modern information technology at AT&T Park, including a massive Wi-Fi wireless network with interactive services. To improve player performance, the Giants implemented a system that captures video on players and then uses the data to analyze player speed and reaction times.

Here are some questions to think about: What role does technology play in the San Francisco Giants's success as a baseball team? Assess the contributions of the systems described in this case study.



1.1 The Role of Information Systems in Business Today

It's not business as usual in America any more, or the rest of the global economy. In 2013, American businesses will invest nearly $1 trillion in information systems hardware, software, and telecommunications equipment—more than half of all capital investment in the United States. In addition, they will spend another $600 billion on business and management consulting and information technology services, much of which involves redesigning firms' business operations to take advantage of these new technologies. More than half of all business investment in the United States each year involves information systems and technologies, and these expenditures grew at around 4 percent in 2012, far faster than the economy as a whole (BEA, 2013; Gartner 2013). Worldwide, expenditures for information technology exceeded $3.6 trillion.

HOW INFORMATION SYSTEMS ARE TRANSFORMING BUSINESS

You can see the results of this massive spending around you every day by observing how people conduct business. Cell phones, smartphones, tablet computers, e-mail, and online conferencing over the Internet have all become essential tools of business. In 2012, more than 102 million businesses had dot-com Internet sites registered. Approximately 193 million adult Americans are online, 19 million purchase something every day on the Internet, 40 million research a product, and 116 million use a search engine. What this means is that if you and your business aren't connected to the Internet and wireless networks, chances are you are not being as effective as you could be (Pew Internet and American Life, 2013).

Despite the economic downturn, in 2012 FedEx moved over one billion packages in the United States, mostly overnight, and United Parcel Service (UPS) moved more than 4 billion packages, as businesses sought to sense and respond to rapidly changing customer demand, reduce inventories to the lowest possible levels, and achieve higher levels of operational efficiency. The growth of e-commerce has had a significant impact on UPS's shipping volume. Supply chains have become more fast paced, with companies of all sizes depending on the delivery of just-in-time inventory to help them compete. Companies today manage their inventories in near real time in order to reduce their overhead costs and get to market faster. If you are not a part of this new supply chain management economy, chances are your business is not as efficient as it could be.

As newspaper readership continues to decline, 150 million people read at least some of their news online, 110 million read actual newspapers online, and 170 million use a social networking site like Facebook, Tumblr, or Google+. Over 100 million bank online, and around 74 million now read blogs, creating an explosion of new writers, readers, and new forms of

customer feedback that did not exist before. Adding to this mix of new social media, about 100 million people use Twitter, the online and cellular text messaging service, including 80 percent of Fortune 500 firms communicating with their customers. This means your customers are empowered and able to talk to each other about your business products and services. Do you have a solid online customer relationship program in place? Do you know what your customers are saying about your firm? Is your marketing department listening?

E-commerce and Internet advertising are growing in 2013 at around 7 percent at a time when traditional advertising and commerce have been flat. Google's online ad revenues surpassed $50 billion in 2012. Is your advertising department reaching this new Web-based customer?

New federal security and accounting laws require many businesses to keep e-mail messages for five years. Coupled with existing occupational and health laws requiring firms to store employee chemical exposure data for up to 60 years, these laws are spurring the growth of digital information now estimated to be 1.8 zettabytes (1.8 trillion gigabytes), equivalent to more than 50,000 Libraries of Congress. Does your compliance department meet the minimal requirements for storing financial, health, and occupational information? If they don't, your entire business may be at risk.

Briefly, it's a new world of doing business, one that will greatly affect your future business career. Along with the changes in business come changes in jobs and careers. No matter whether you are a finance, accounting, management, marketing, operations management, or information systems major, how you work, where you work, and how well you are compensated will all be affected by business information systems. The purpose of this book is to help you understand and benefit from these new business realities and opportunities.

WHAT'S NEW IN MANAGEMENT INFORMATION SYSTEMS?

Lots! What makes management information systems the most exciting topic in business is the continual change in technology, management use of the technology, and the impact on business success. New businesses and industries appear, old ones decline, and successful firms are those that learn how to use the new technologies. Table 1.1 summarizes the major new themes in business uses of information systems. These themes will appear throughout the book in all the chapters, so it might be a good idea to take some time now and discuss these with your professor and other students.

In the technology area are three interrelated changes: (1) the mobile digital platform composed of smartphones and tablet devices, (2) the growing business use of "big data," and (3) the growth in "cloud computing," where more and more business software runs over the Internet.

IPhones, Android phones, BlackBerrys, and high definition tablet computers are not just gadgets or entertainment outlets. They represent new emerging computing and media platforms based on an array of new hardware and software technologies. More and more business computing is moving from PCs and desktop machines to these mobile devices. Managers are increasingly using these devices to coordinate work, communicate with employees, and provide information for decision making. In 2013, more than half of Internet users will access the Web through mobile devices. To a large extent these devices change the character of corporate computing.

Managers routinely use online collaboration and social technologies in order to make better, faster decisions. As management behavior changes, how work gets organized, coordinated, and measured also changes. By connecting employees working on teams and projects, the social network is where work gets done, where plans are executed, and where managers manage. Output from social networks as well as from Web traffic and machine-generated data from sensors is creating vast pools of Big Data, with the potential for much more fine-grained data analysis and insights.

The strength of cloud computing, and the growth of the mobile digital platform, mean that organizations can rely more on telework, remote work, and distributed decision making.

TABLE 1.1
What's New in MIS

Change	Business Impact
TECHNOLOGY	
Cloud computing platform emerges as a major business area of innovation	A flexible collection of computers on the Internet begins to perform tasks traditionally performed on corporate computers. Major business applications are delivered online as an Internet service (Software as a Service-SaaS).
Big Data	Businesses look for insights from huge volumes of data from Web traffic, e-mail messages, social media content, and machines (sensors).
A mobile digital platform emerges to compete with the PC as a business system	The Apple iPhone and Android mobile devices are able to download hundreds of thousands of applications to support collaboration, location-based services, and communication with colleagues. Small tablet computers, including the iPad and Kindle Fire, challenge conventional laptops as platforms for consumer and corporate computing.
MANAGEMENT	
Managers adopt online collaboration and social networking software to improve coordination, collaboration, and knowledge sharing.	Google Apps, Google Sites, Microsoft's Windows SharePoint Services, and IBM's Lotus Connections are used by over 100 million business professionals worldwide to support blogs, project management, online meetings, personal profiles, social bookmarks, and online communities.
Business intelligence applications accelerate.	More powerful data analytics and interactive dashboards provide real-time performance information to managers to enhance decision making.
Virtual meetings proliferate.	Managers adopt telepresence, video conferencing, and Web conferencing technologies to reduce travel time, and cost, while improving collaboration and decision making.
ORGANIZATIONS	
Social business	Businesses use social networking platforms, including Facebook, Twitter, and internal corporate social tools, to deepen interactions with employees, customers, and suppliers. Employees use blogs, wikis, e-mail texting, and messaging to interact in online communities.
Telework gains momentum in the workplace.	The Internet, wireless laptops, smartphones, and tablet computers make it possible for growing numbers of people to work away from the traditional office. 55 percent of U.S. businesses have some form of remote work program.
Co-creation of business value	Sources of business value shift from products to solutions and experiences and from internal sources to networks of suppliers and collaboration with customers. Supply chains and product development become more global and collaborative; customer interactions help firms define new products and services.

This same platform means firms can outsource more work, and rely on markets (rather than employees) to build value. It also means that firms can collaborate with suppliers and customers to create new products, or make existing products more efficiently.

You can see some of these trends at work in the Interactive Session on People. Millions of managers and employees rely heavily on the mobile digital platform to coordinate suppliers

INTERACTIVE SESSION: PEOPLE Meet the New Mobile Workers

How much of your job can you do from the palm of your hand? Probably more than you think. There are many job functions today that can be performed using an iPad, iPhone, BlackBerry, or Android mobile device, both for rank-and-file employees and their managers. Businesses large and small are benefiting.

The BlackBerry used to be the favorite mobile handheld for business because it was optimized for e-mail and messaging, with strong security and tools for accessing internal corporate systems. Now that's changing. Companies large and small are starting to deploy Apple's iPhone and iPad as well as Android devices to conduct more of their work. They are enhancing their security systems so that mobile users can remotely access corporate systems with confidence. And they are developing more far-reaching applications to take advantage of the stunning mobile and graphic capabilities.

Many of the recent mobile applications have been for e-mailing, or for supplementing existing workplace tasks, like digital flight manuals for airplane pilots on iPads or checking in guests at hotels. But now, as mobile technology becomes more affordable and easy to use, it's spreading core work functions as well, such as marketing materials for pharmaceutical reps, customer account software for service technicians, and apps for farmers to test the quality of cow's milk.

Jackson Kayak is the leading whitewhater kayak manufacturer. Its president, Eric Jackson, is a champion kayaker who spends half of each year following competitions and events throughout North America. Eric's job requires that he participate in athletic events, monitor industry trends in the field, and meet directly with dealers and customers. With the iPhone and iPad, Jackson claims he can run the entire 120-person company from afar.

Jackson's Wi-Fi-equipped RV connects wirelessly to company headquarters in Sparta, Tennessee. When Jackson's not on Wi-Fi, he uses his iPad 3G cellular connection. The iPad gives him instant access to his entire operation, so he can analyze customer data, refresh Website content, or approve new designs. Jackson's iPad includes calendars, e-mail, contact management, and the ability to create and edit documents, spreadsheets, and presentations—all the tools this executive needs to communicate with the home office, dealers, and customers.

Back at the shop, Jackson Kayak's managers and employees find iPad and iPhone equally invaluable. In the factory, Chief Operations Officer John Ratliff can compare Jackson Kayak's manufacturing equipment side-by-side with images of replacement parts on the iPad to make sure he's getting the correct pieces. The iPhone and iPad have become so indispensable that the company outfitted its entire workforce, from customer service, to design, to quality control, with iPhones. Many have iPads as well.

Using handhelds to run the business is not limited to small companies. PepsiCo manufactures and sells brands including Pepsi, Gatorade, Mountain Dew, Tropicana, Quaker, and Frito-Lay worldwide and has over 300,000 employees. The company uses a complex web of interlocking distribution systems to move its products from its manufacturing and warehouse facilities onto trucks and then into stores in time to meet customer demand. PepsiCo runs about 17,000 distribution routes each day. The iPhone and iPad help employees of PepsiCo's North America Beverages division ensure that the right products arrive in the right locations as quickly and efficiently as possible.

In the past, PepsiCo drivers and merchandisers began each day by picking up printed schedules with order quantities and tasks to be performed at each outlet, from unloading cases of soda to setting up new product displays. It was difficult to accommodate last-minute changes in orders because communicating with the delivery drivers was difficult when they were on the road.

PepsiCo North America Beverages created a custom in-house app for the iPhone called Power4Merch, which immediately notifies merchandisers when a driver has arrived at a store. The merchandiser's iPhone has an electronic timecard, and he can see his schedule, the store details, the account profiles, and everything he needs to know to service the store.

PepsiCo managers use iPads with custom applications to monitor their teams' performance; pull up pricing, planograms, and contracts; and help coordinate deliveries with merchandising. The Manager's Briefcase app provides territory sales managers with electronic versions of all the paperwork and resources they need to manage their teams, including store audits, employee coaching forms, and automated notifications to merchandisers. A manager can make manpower assignments directly on the iPad. The iPad automatically sends a notification to the merchandiser's iPhone informing him he has an additional stop to make, for example. In the past, managers had to spend much of their time on the phone, checking e-mail in the office, and checking paperwork. With the iPad, the manager starts and ends his day with his team.

The second iPad app, called SPOTLight, gives managers instant access to their Web-based SharePoint

content. They can pull out pricing, display planograms, customer development agreements, or new contracts.

PepsiCo's iPhone and iPad systems are integrated with its established corporate information systems. The company uses Mobile Device Management from AirWatch to securely deploy and manage its mobile applications and also takes advantage of the built-in security on iPhone and iPad to protect them from unauthorized access.

PepsiCo's main competitor, beverage-bottling company Coca-Cola Enterprises Inc. (CCE), is benefiting from mobile technology as well. CCE uses mobile field service software from ServiceMax Inc. to streamline the work activities of its technicians, who service restaurant soda fountains and fix vending machines.Previously, after a technician visited a customer on site, he would go back to his car, transfer information from paper notes into a database on his laptop, and transmit it to Coca-Cola's aging centralized software system. Many technicians spent an extra half hour at the end of each day polishing their paperwork.

In 2012 about 100 CCE employees started using ServiceMax apps on iPhones to dispatch technicians to a day's worth of service calls, provide detailed customer information, automatically update lists of service parts stored in their vans, and transfer information to the billing department. The new system cut administration time for service technicians by a third, and employees are freed up to service other companies' equipment in addition to CCE's own. ServiceMax charges about $1000 per person per year for a subscription.

Sources: Shira Ovide, "Meet the New Mobile Workers," *The Wall Street Journal*, March 11, 2013; "Apple iPad in Business," www.apple.com, accessed April 18, 2013; and Aaron Freimark, "Apple Offers More iPad Management Features Than You Might Think," searchconsumerization.com, April 2, 2013.

CASE STUDY QUESTIONS

1. What kinds of applications are described here? What business functions do they support? How do they improve operational efficiency and decision making?
2. Identify the problems that businesses in this case study solved by using mobile digital devices.
3. What kinds of businesses are most likely to benefit from equipping their employees with mobile digital devices such as iPhones and iPads?
4. One company deploying iPhones has said, "The iPhone is not a game changer, it's an industry changer. It changes the way that you can interact with your customers" and "with your suppliers." Discuss the implications of this statement.

iPhone and iPad Business Applications

1. *Salesforce Mobile*
2. *Cisco WebEx*
3. *SAP Business ByDesign*
4. *iWork*
5. *QuickBooks Online*
6. *Adobe Reader*
7. *Oracle Business Intelligence*
8. *Dropbox*

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Whether it's attending an online meeting, checking orders, working with files and documents, or obtaining business intelligence, Apple's iPhone and iPad offer unlimited possibilities for business users. A stunning multitouch display, full Internet browsing, and capabilities for messaging, video and audio transmission, and document management, make each an all-purpose platform for mobile computing.