## E-commerce 2015 business. technology. society.

Kenneth C. Laudon | Carol Guercio Traver





### Complete Listing of Chapter Opening Cases, Insight Cases, E-commerce in Action Cases, and Case Studies

### CHAPTER 1 THE REVOLUTION IS JUST BEGINNING

Opening Case: Pinterest: A Picture Is Worth a Thousand Words Insight on Technology: Will Apps Make the Web Irrelevant? Insight on Business: Start-Up Boot Camp Insight on Society: Facebook and the Age of Privacy Case Study: The Pirate Bay: Searching for a Safe Haven

### CHAPTER 2 E-COMMERCE BUSINESS MODELS AND CONCEPTS

Opening Case: Tweet Tweet: Twitter's Business Model Insight on Society: Foursquare: Check Your Privacy at the Door Insight on Business: Crowdfunding Takes Off Insight on Technology: Battle of the Titans: Music in the Cloud Case Study: Freemium Takes Pandora Public

## CHAPTER 3 E-COMMERCE INFRASTRUCTURE: THE INTERNET, WEB, AND MOBILE PLATFORM

Opening Case: Google Glass: Augment My Reality Insight on Society: Government Surveillance and Regulation of the Internet Insight on Technology: Is HTML5 Ready for Prime Time? Insight on Business: Apps for Everything: The Apps Ecosystem Case Study: Akamai Technologies: Attempting to Keep Supply Ahead of Demand

### CHAPTER 4 BUILDING AN E-COMMERCE PRESENCE: WEB SITES, MOBILE SITES, AND APPS

Opening Case: USA Today Redesigns Insight on Business: Weebly Makes Creating Web Sites Easy Insight on Society: Designing for Accessibility Insight on Technology: Building a Mobile Presence Case Study: Orbitz Charts Its Mobile Trajectory

### CHAPTER 5 E-COMMERCE SECURITY AND PAYMENT SYSTEMS

Opening Case: Cyberwar: MAD 2.0 Insight on Business: Hackers Infiltrate Target Insight on Technology: Think Your Smartphone Is Secure? Insight on Society: Bitcoin Case Study: The Mobile Payment Marketplace: Goat Rodeo

### CHAPTER 6 E-COMMERCE MARKETING AND ADVERTISING CONCEPTS

Opening Case: Video Ads: Shoot, Click, Buy Insight on Business: Are the Very Rich Different From You and Me? Insight on Technology: The Long Tail: Big Hits and Big Misses Insight on Society: Every Move You Take, Every Click You Make, We'll Be Tracking You Case Study: Programmatic Advertising: Real-Time Marketing

### CHAPTER 7 SOCIAL, MOBILE, AND LOCAL MARKETING

Opening Case: Facebook: Putting Social Marketing to Work Insight on Society: Marketing to Children of the Web in the Age of Social Networks Insight on Business: Mobile Marketing: Land Rover Seeks Engagement on the Small Screen Insight on Technology: Fairmont Hotels: Using Google Analytics to Optimize Social and Mobile Marketing Case Study: ExchangeHunterJumper.com: Building a Brand with Social Marketing

### CHAPTER 8 ETHICAL, SOCIAL, AND POLITICAL ISSUES IN E-COMMERCE

Opening Case: The Right to Be Forgotten Insight on Technology: Theft and Innovation: The Patent Trial of the Century Insight on Business: Internet Sales Tax Battle Insight on Society: The Internet Drug Bazaar Case Study: The Google Books Settlement: Is It Fair?

### CHAPTER 9 ONLINE RETAILING AND SERVICES

Opening Case: Blue Nile Sparkles For Your Cleopatra E-Commerce in Action: Amazon.com Insight on Technology: Big Data and Predictive Marketing Insight on Society: Phony Reviews Insight on Business: Uber Revs Up Case Study: OpenTable: Your Reservation is Waiting

### CHAPTER 10 ONLINE CONTENT AND MEDIA

Opening Case: The Emerging Internet Broadcasting System (IBS) Insight on Society: Vox: The All Digital News Site Insight on Business: Digital Newsstands Grow Insight on Technology: Hollywood and the Internet: Let's Cut a Deal Case Study: Netflix: How Does This Movie End?

### CHAPTER 11 SOCIAL NETWORKS, AUCTIONS, AND PORTALS

Opening Case: Social Network Fever Spreads to the Professions Insight on Technology: The Appification of Facebook Insight on Society: The Dark Side of Social Networks Insight on Business: The Transformation of AOL Case Study: eBay Evolves

### CHAPTER 12 B2B E-COMMERCE: SUPPLY CHAIN MANAGEMENT AND COLLABORATIVE COMMERCE

Opening Case: Volkswagen Builds its B2B Platform Insight on Society: Where's My IPad? Supply Chain Risk and Vulnerability Insight on Technology: Your Shoes Are in the Cloud Insight on Business: Walmart Develops a Private Industrial Network Case Study: Elemica: Cooperation, Collaboration, and Community

## E-commerce



## business. technology. society.

#### V EN Н E E L E Т D Ι 0 Ν Τ Т

New York University

Kenneth C. Laudon Carol Guercio Traver

Azimuth Interactive, Inc.

### PEARSON

Boston Columbus Indianapolis New York San Francisco Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montreal Toronto Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Paul

Credits and acknowledgements borrowed from other sources and reproduced, with permission, in this textbook appear on page C-1.

Microsoft and/or its respective suppliers make no representations about the suitability of the information contained in the documents and related graphics published as part of the services for any purpose. All such documents and related graphics are provided "as is" without warranty of any kind. Microsoft and/or its respective suppliers hereby disclaim all warranties and conditions with regard to this information, including all warranties and conditions of merchantability, whether express, implied or statutory, fitness for a particular purpose, title and non-infringement. In no event shall Microsoft and/or its respective suppliers be liable for any special, indirect or consequential damages or any damages whatsoever resulting from loss of use, data or profits, whether in an action of contract, negligence or other tortious action, arising out of or in connection with the use or performance of information available from the services. The documents and related graphics contained herein could include technical inaccuracies or typographical errors. Changes are periodically added to the information herein. Microsoft and/or its respective suppliers may make improvements and/or changes in the product(s) and/or the program(s) described herein at any time. Partial screen shots may be viewed in full within the software version specified.

#### Trademarks

Microsoft® Windows®, and Microsoft Office® are registered trademarks of Microsoft Corporation in the U.S.A. and other countries. This book is not sponsored or endorsed by or affiliated with Microsoft Corporation.

#### Copyright © 2015, 2014, 2013 by Kenneth C. Laudon and Carol Guercio Traver.

Published by Pearson Education, Inc. All rights reserved. Manufactured in the United States of America. This publication is protected by copyright, and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. For information regarding permissions, request forms and the appropriate contacts within the Pearson Education Global Rights & Permissions Department, please visit www.pearsoned.com/permissions.

Acknowledgments of third-party content appear on the appropriate page within the text, which constitutes an extension of this copyright page.

Unless otherwise indicated herein, any third-party trademarks that may appear in this work are the property of their respective owners and any references to third-party trademarks, logos or other trade dress are for demonstrative or descriptive purposes only. Such references are not intended to imply any sponsorship, endorsement, authorization, or promotion of Pearson's products by the owners of such marks, or any relationship between the owner and Pearson Education, Inc. or its affiliates, authors, licensees or distributors.

Library of Congress Cataloging-in-Publication Information is available.

10 9 8 7 6 5 4 3 2 1



ISBN 10: 0133507165 ISBN 13: 9780133507164

## PREFACE

*E-commerce. Business. Technology. Society. 11E* provides you with an in-depth introduction to the field of e-commerce. We focus on concepts that will help you understand and take advantage of the evolving world of opportunity offered by e-commerce, which is dramatically altering the way business is conducted and driving major shifts in the global economy.

Just as important, we have tried to create a book that is thought-provoking and current. We use the most recent data available, and focus on companies that you are likely to encounter on a daily basis in your everyday life, such as Facebook, Google, Twitter, Amazon, YouTube, Pinterest, eBay, Uber, WhatsApp, Snapchat, and many more that you will recognize, as well as some exciting startups that may be new to you. We also have up-to-date coverage of the key topics in e-commerce today, from privacy and piracy, to government surveillance, cyberwar, social, local, and mobile marketing, Internet sales taxes, intellectual property, and more. You will find here the most up-todate and comprehensive overview of e-commerce today.

The e-commerce concepts you learn in this book will make you valuable to potential employers. The e-commerce job market is expanding rapidly. Many employers expect new employees to understand the basics of e-commerce, social and mobile marketing, and how to develop an e-commerce presence. Every industry today is touched in at least some way by e-commerce. The information and knowledge you find in this book will be valuable throughout your career, and after reading this book, we expect that you will be able to participate in, and even lead, management discussions of e-commerce for your firm.

### WHAT'S NEW IN THE 11TH EDITION

#### Currency

The 11th edition features all new or updated opening, closing, and "Insight on" cases. The text, as well as all of the data, figures, and tables in the book, have been updated through October 2014 with the latest marketing and business intelligence available from eMarketer, Pew Internet & American Life Project, Forrester Research, comScore, Gartner Research, and other industry sources.

In addition, we have added new material throughout the text on a number of e-commerce topics that have appeared in the headlines during 2014, including the following:

- Sharing economy companies such as Uber and Airbnb (Chapters 1, 2, 6, and 9)
- Information technology and business model disruption (Chapter 2)
- Public, private, and hybrid clouds; Amazon Web Services; proposed changes in Internet governance; Internet access drones; the Internet of Things, wearable computing (Apple Watch), smart houses, and connected cars (Chapter 3)

- PHP, Ruby on Rails, Django, PHP, LAMP, Python; mobile first design, responsive Web design, and adaptive Web design; cross-platform mobile app development tools (Chapter 4)
- Heartbleed bug; Cryptolocker and other forms of ransomware; carder forums; the Target and JPMorgan Chase data breaches; DDoS smokescreening; OpenSSL flaws; code signing for mobile devices; next generation firewalls; Bitcoin and mobile payment systems such as Apple Pay (Chapter 5)
- Native advertising; Google search algorithm changes; programmatic advertising; ad fraud and viewability issues; marketing automation systems (Chapter 6)
- Dark social; changes to Facebook's marketing tools; Twitter's new marketing tools and MoPub advertising network; Pinterest's Promoted Pins; proximity marketing; BLE; and Apple iBeacons (Chapter 7)
- The Right to be Forgotten; data brokers; facial recognition technology; NSA surveillance; White House report on privacy implications of Big Data; Apple iPhone and Google Android encryption algorithms; Facebook and OKCupid social experiment furor; Google YouTube-Viacom case settlement; Alice Corporation Supreme Court patent decision; the FCC and net neutrality; ISP/cable merger proposals (Chapter 8)
- Social commerce Buy buttons; subscription-based retail business models; omnichannel retailing; the use of Big Data in retail marketing; sharing economy companies (Chapter 9)
- Amazon, Yahoo, and YouTube enter the entertainment business; new "digital-first" newspaper business models and the emergence of all-digital news sites such as Vox and Vice; e-book business model turmoil; Apple e-book price-fixing case; social TV (Chapter 10)
- Apps and social networks; mobile messaging apps such as WhatsApp, Snapchat, Slingshot, and Bolt; social network monetization; Yahoo portal struggles (Chapter 11)
- Impact of B2C e-commerce on B2B e-commerce; supply chain visibility; cloud-based B2B; mobile B2B; Collaboration 2.0 (Chapter 12)

### Themes

E-commerce today is greatly different from e-commerce only seven years ago. The iPhone was introduced in 2007. The iPad tablet was first introduced in 2010 and has already gone through several generations! The smartphone and tablet devices have changed e-commerce into a social, local, and mobile experience. The 11th edition spotlights the following themes and content:

### Headlines

- Social, Mobile, Local: We have included an entire chapter describing social, mobile, and local marketing. Content about social networks, the mobile platform, and local e-commerce appears throughout the book.
  - » Social networks such as Facebook, Twitter, Pinterest, and LinkedIn continue their rapid growth, laying the groundwork for a social network marketing platform

- » The mobile platform composed of smartphones and tablet computers takes off and becomes a major factor in search, marketing, payment, retailing and services, and online content. Mobile device use poses new security and privacy issues as well.
- » Location-based services lead to explosive growth in local advertising and marketing.
- Online privacy continues to deteriorate, driven by a culture of self-revelation and powerful technologies for collecting personal information online without the knowledge or consent of users.
- Internet security risks increase; cyberwarfare becomes a new way of conducting warfare among nation-states and a national security issue.

### Business

- E-commerce revenues surge after the recession.
- Internet advertising growth resumes, at a faster rate than traditional advertising.
- Social marketing grows faster than traditional online marketing like search and display advertising.
- E-books take off and expand the market for text, supported by the iPad, Kindle, Nook, and iPhone.
- · Newspapers struggle to define a digital first news service
- Streaming of popular TV shows and movies (Netflix, Amazon, and Hulu.com) becomes a reality, as Internet distributors and Hollywood and TV producers strike deals for Web distribution that also protects intellectual property.
- "Free" and "freemium" business models compete to support digital content.
- New mobile payment platforms emerge to challenge PayPal.
- B2B e-commerce exceeds pre-recession levels as firms become more comfortable with digital supply chains.

#### Technology

- Smartphones, tablets, and e-book readers, along with associated software applications, and coupled with 4G cellular network expansion, fuel rapid growth of the mobile platform.
- Investment in cloud computing increases, providing the computing infrastructure for a massive increase in online digital information and e-commerce.
- Cloud-based streaming services for music and video challenge sales of downloads and physical product.
- Software apps fuel growth in app sales, marketing, and advertising; transforming software production and distribution.
- Touch interface operating systems dominate mobile devices. Windows 8 introduced with a touch screen interface, mimicking Apple's iOS and Google Android smartphones.
- The cost of developing sophisticated Web sites continues to drop due to declining software and hardware prices and open source software tools.

- Internet and cellular network capacity is challenged by the rapid expansion in digital traffic generated by mobile devices; the use of bandwidth caps tier-pricing expands.
- Internet telecommunications carriers support differential pricing to maintain a stable Internet; opposed by Net neutrality groups pushing non-discriminatory pricing.

### Society

- The mobile, "always on" culture in business and family life continues to grow.
- Congress considers legislation to regulate the use of personal information for behavioral tracking and targeting consumers online.
- European countries adopt "right to be forgotten" laws.
- States heat up the pursuit of taxes on Internet sales by Amazon and others.
- Intellectual property issues remain a source of conflict with significant movement toward resolution in some areas, such as Google's deals with Hollywood and the publishing industry, and Apple's and Amazon's deals with e-book and magazine publishers.
- P2P piracy traffic declines as paid streaming music and video gains ground, although digital piracy of online content remains a significant threat to Hollywood and the music industry.
- Governments around the world increase surveillance of Internet users and Web sites in response to national security threats; Google continues to tussle with China and other countries over censorship and security issues.
- Venture capital investing in e-commerce explodes for social, mobile, and local software applications. Crowdfunding becomes a new source of funding for e-commerce start-ups.

### WELCOME TO E-COMMERCE 2015

Since it began in 1995, electronic commerce has grown in the United States from a standing start to a \$470 billion retail, travel, and media business and a \$5.7 trillion business-to-business juggernaut, bringing about enormous change in business firms, markets, and consumer behavior. Economies and business firms around the globe are being similarly affected. During this relatively short time, e-commerce has itself been transformed from its origin as a mechanism for online retail sales into something much broader. Today, e-commerce has become the platform for media and new, unique services and capabilities that aren't found in the physical world. There is no physical world counterpart to Facebook, Twittler, Google search, or a host of other recent online innovations from Pinterest and iTunes to Tumblr. Welcome to the new e-commerce!

E-commerce is projected to continue growing at double-digit rates over the next five years, remaining the fastest growing form of commerce. Just as automobiles, airplanes, and electronics defined the twentieth century, so will e-commerce of all kinds define business and society in the twenty-first century. The rapid movement toward an e-commerce economy and society is being led by both established business firms such as Walmart, Ford, IBM, Macy's, and General Electric, and pure online firms such as Google, Amazon, Apple, Facebook, Yahoo, Twitter, and YouTube. Students of business and information technology need a thorough grounding in e-commerce in order to be effective and successful managers in the next decade.

While firms such as Facebook, Tumblr, YouTube, Twitter, Pinterest, and Uber have grown explosively in the last two years and grab our attention, the traditional forms of retail e-commerce and services also remain vital and have proven to be more resilient than traditional retail channels in facing the economic recession. The experience of these firms from 1995 to the present is also a focus of this book. The defining characteristic of these firms is that they are profitable, sustainable, efficient, and innovative, with powerful brand names. Many of these now-experienced retail and service firms, such as eBay, Amazon, E\*Trade, Priceline, and Expedia, are survivors of the first era of e-commerce, from 1995 to spring 2000. These surviving firms have evolved their business models, integrated their online and offline operations, and changed their revenue models to become profitable. Understanding how these online businesses succeeded will help students to manage their own firms in the current omni-channel business environment.

It would be foolish to ignore the lessons learned in the early period of e-commerce. Like so many technology revolutions in the past-automobiles, electricity, telephones, television, and biotechnology-there was an explosion of entrepreneurial efforts, followed by consolidation. By 2005, the survivors of the early period were moving to establish profitable businesses while maintaining rapid growth in revenues. In 2014, e-commerce is in the midst of a new period of explosive entrepreneurial activity focusing on social networks and the mobile platform created by smartphones and tablet computers. These technologies and social behaviors are bringing about extraordinary changes to our personal lives, markets, industries, individual businesses, and society as a whole. In 2013–2014, the stock values of Apple, Google, and Amazon hit new highs, along with many start-ups. E-commerce is generating thousands of new jobs in all fields from marketing to management, entrepreneurial studies, and information systems. Today, e-commerce has moved into the mainstream life of established businesses that have the market brands and financial muscle required for the long-term deployment of e-commerce technologies and methods. If you are working in an established business, chances are the firm's e-commerce capabilities and Web presence are important factors for its success. If you want to start a new business, chances are very good that the knowledge you learn in this book will be very helpful.

### **BUSINESS. TECHNOLOGY. SOCIETY.**

We believe that in order for business and technology students to really understand e-commerce, they must understand the relationships among e-commerce business concerns, Internet technology, and the social and legal context of e-commerce. These three themes permeate all aspects of e-commerce, and therefore, in each chapter, we present material that explores the business, technological, and social aspects of that chapter's main topic.

Given the continued growth and diffusion of e-commerce, all students—regardless of their major discipline—must also understand the basic economic and business forces driving e-commerce. E-commerce has created new digital markets where prices are more transparent, markets are global, and trading is highly efficient, though not perfect. E-commerce has a direct impact on a firm's relationship with suppliers, customers, competitors, and partners, as well as how firms market products, advertise, and use brands. Whether you are interested in marketing and sales, design, production, finance, information systems, or logistics, you will need to know how e-commerce technologies can be used to reduce supply chain costs, increase production efficiency, and tighten the relationship with customers. This text is written to help you understand the fundamental business issues in e-commerce.

We spend a considerable amount of effort analyzing the business models and strategies of "pure-play" online companies and established businesses now employing "bricks-and-clicks" business models. We explore why e-commerce firms fail and the strategic, financial, marketing, and organizational challenges they face. We also discuss how e-commerce firms learned from the mistakes of early firms, and how established firms are using e-commerce to succeed. Above all, we attempt to bring a strong sense of business realism and sensitivity to the often exaggerated descriptions of e-commerce. As founders of a dot.com company and participants in the e-commerce revolution, we have learned that the "e" in e-commerce does not stand for "easy."

The Web and mobile platform have caused a major revolution in marketing and advertising in the United States. We spend two chapters discussing online marketing and advertising. Chapter 6 discusses "traditional" online marketing formats like search engine marketing, display advertising, and e-mail, as well as various Internet marketing technologies underlying those efforts, and metrics for measuring marketing success. Chapter 7 provides an in-depth examination of social, mobile, and local marketing, which relies on mobile devices and social networks.

E-commerce is driven by Internet technology. Internet technology, and information technology in general, is perhaps the star of the show. Without the Internet, e-commerce would be virtually nonexistent. Accordingly, we provide three chapters specifically on the Internet and e-commerce technology, and in every chapter we provide continuing coverage by illustrating how the topic of the chapter is being shaped by new information technologies. For instance, Internet technology drives developments in security and payment systems, marketing strategies and advertising, financial applications, media distribution, business-to-business trade, and retail e-commerce. We discuss the rapid growth of the mobile platform, the emergence of cloud computing, new open source software tools and applications that enable Web 2.0, and new types of Internet-based information systems that support digital business-to-business markets.

E-commerce is not only about business and technology, however. The third part of the equation for understanding e-commerce is society. E-commerce and Internet technologies have important social consequences that business leaders can ignore only at their peril. E-commerce has challenged our concepts of privacy, intellectual property, and even our ideas about national sovereignty and governance. Google, Facebook, Apple, Amazon, and assorted advertising networks maintain profiles on millions of shoppers and consumers worldwide. The proliferation of illegally copied music and videos on the Internet, and the growth of social network sites often based on displaying copyrighted materials without permission, are challenging the intellectual property rights of record labels, Hollywood studios, and artists. And many countries—including the United States—are demanding to control the content of Web sites displayed within their borders for political and social reasons. Tax authorities in the United States and Europe are demanding that e-commerce sites pay sales taxes just like ordinary brick and mortar stores on Main Street. As a result of these challenges to existing institutions, e-commerce and the Internet are the subject of increasing investigation, litigation, and legislation. Business leaders need to understand these societal developments, and they cannot afford to assume any longer that the Internet is borderless, beyond social control and regulation, or a place where market efficiency is the only consideration. In addition to an entire chapter devoted to the social and legal implications of e-commerce, each chapter contains material highlighting the social implications of e-commerce.

### FEATURES AND COVERAGE

**Strong Conceptual Foundation** The book emphasizes the three major driving forces behind e-commerce: business development and strategy, technological innovations, and social controversies and impacts. Each of these driving forces is represented in every chapter, and together they provide a strong and coherent conceptual framework for understanding e-commerce. We analyze e-commerce, digital markets, and e-business firms just as we would ordinary businesses and markets using concepts from economics, marketing, finance, sociology, philosophy, and information systems. We strive to maintain a critical perspective on e-commerce and avoid industry hyperbole.

Some of the important concepts from economics and marketing that we use to explore e-commerce are transaction cost, network externalities, information asymmetry, social networks, perfect digital markets, segmentation, price dispersion, targeting, and positioning. Important concepts from the study of information systems and technologies play an important role in the book, including Internet standards and protocols, client/server computing, multi-tier server systems, cloud computing, mobile platform and wireless technologies, and public key encryption, among many others. From the literature on ethics and society, we use important concepts such as intellectual property, privacy, information rights and rights management, governance, public health, and welfare.

From the literature on business, we use concepts such as business process design, return on investment, strategic advantage, industry competitive environment, oligopoly, and monopoly. We also provide a basic understanding of finance and accounting issues, and extend this through an "E-commerce in Action" case that critically examines the financial statements of Amazon. One of the witticisms that emerged from the early years of e-commerce and that still seems apt is the notion that e-commerce changes everything except the rules of business. Businesses still need to make a profit in order to survive in the long term.

**Currency** Important new developments happen almost every day in e-commerce and the Internet. We try to capture as many of these important new developments as possible in each annual edition. You will not find a more current book for a course offered for the 2015 academic year. Many other texts are already six months to a year out of date before they even reach the printer. This text, in contrast, reflects extensive research through October 2014, just weeks before the book hits the press.

**Real-World Business Firm Focus and Cases** From Akamai Technologies to Google, Microsoft, Apple, and Amazon, to Facebook, Twitter, and Tumblr, to Netflix, Pandora, and Elemica, this book contains hundreds of real-company examples and over 60 more extensive cases that place coverage in the context of actual e-commerce businesses. You'll find these examples in each chapter, as well as in special features such as chapter-opening, chapter-closing, and "Insight on" cases. The book takes a realistic look at the world of e-commerce, describing what's working and what isn't, rather than presenting a rose-colored or purely "academic" viewpoint.

**In-depth Coverage of Marketing and Advertising** The text includes two chapters on marketing and advertising, both traditional online marketing and social, mobile, and local marketing. Marketing concepts, including market segmentation, personalization, click-stream analysis, bundling of digital goods, long-tail marketing, and dynamic pricing, are used throughout the text.

**In-depth Coverage of B2B E-commerce** We devote an entire chapter to an examination of B2B e-commerce. In writing this chapter, we developed a unique and easily understood classification schema to help students understand this complex arena of e-commerce. This chapter covers four types of Net marketplaces (e-distributors, e-procurement companies, exchanges, and industry consortia) as well as the development of private industrial networks and collaborative commerce.

**Current and Future Technology Coverage** Internet and related information technologies continue to change rapidly. The most important changes for e-commerce include dramatic price reductions in e-commerce infrastructure (making it much less expensive to develop a sophisticated e-commerce presence), the explosive growth in the mobile platform such as iPhones, iPads, tablet computers, and expansion in the development of social technologies, which are the foundation of online social networks. What was once a shortage of telecommunications capacity has now turned into a surplus, PC prices have continued to fall, smartphone and tablet sales have soared, Internet high-speed broadband connections are now typical and are continuing to show double-digit growth, and wireless technologies such as Wi-Fi and cellular broadband are transforming how, when, and where people access the Internet. While we thoroughly discuss the current Internet environment, we devote considerable attention to describing Web 2.0 and emerging technologies and applications such as the Internet of Things, advanced network infrastructure, fiber optics, wireless Web and 4G technologies, Wi-Fi, IP multicasting, and future guaranteed service levels.

**Up-to-Date Coverage of the Research Literature** This text is well grounded in the e-commerce research literature. We have sought to include, where appropriate, references and analysis of the latest e-commerce research findings, as well as many classic articles, in all of our chapters. We have drawn especially on the disciplines of economics, marketing, and information systems and technologies, as well as law journals and broader social science research journals including sociology and psychology.

We do not use references to Wikipedia in this text, for a variety of reasons. Most colleges do not consider Wikipedia a legitimate or acceptable source for academic research and instruct their students not to cite it. Material found on Wikipedia may be out of date, lack coverage, lack critical perspective, and cannot necessarily be trusted. Our references are to respected academic journals; industry sources such as eMarketer, comScore, Hitwise, Nielsen, and Gartner; newspapers such as the *New York Times* and *Wall Street Journal*; and industry publications such as *Computerworld* and *Information-Week*, among others. Figures and tables sourced to "authors' estimates" reflect analysis of data from the U.S. Department of Commerce, estimates from various research firms, historical trends, revenues of major online retailers, consumer online buying trends, and economic conditions.

**Special Attention to the Social and Legal Aspects of E-commerce** We have paid special attention throughout the book to the social and legal context of e-commerce. Chapter 8 is devoted to a thorough exploration of four ethical dimensions of e-commerce: information privacy, intellectual property, governance, and protecting public welfare on the Internet. We have included an analysis of the latest Federal Trade Commission and other regulatory and nonprofit research reports, and their likely impact on the e-commerce environment.

A major theme throughout this chapter, and the remainder of the book, is the impact of social, mobile, and local commerce on how consumers use the Internet.

Writing That's Fun to Read Unlike some textbooks, we've been told by many students that this book is actually fun to read and easy to understand. This is not a book written by committee—you won't find a dozen different people listed as authors, co-authors, and contributors on the title page. We have a consistent voice and perspective that carries through the entire text and we believe the book is the better for it.

### **OVERVIEW OF THE BOOK**

The book is organized into four parts.

Part 1, "Introduction to E-commerce," provides an introduction to the major themes of the book. Chapter 1 defines e-commerce, distinguishes between e-commerce and e-business, and defines the different types of e-commerce. Chapter 2 introduces and defines the concepts of business model and revenue model, describes the major e-commerce business and revenue models for both B2C and B2B firms, and introduces the basic business concepts required throughout the text for understanding e-commerce firms including industry structure, value chains, and firm strategy.

Part 2, "Technology Infrastructure for E-commerce," focuses on the technology infrastructure that forms the foundation for all e-commerce. Chapter 3 traces the historical development of the Internet I and thoroughly describes how today's Internet works. A major focus of this chapter is mobile technology, Web 2.0 applications, and the near-term future Internet that is now under development and will shape the future of e-commerce. Chapter 4 builds on the Internet chapter by focusing on the steps managers need to follow in order to build an e-commerce presence. This e-commerce infrastructure chapter covers the process that should be followed in building an e-commerce presence; the major decisions regarding outsourcing site development and/or hosting; how to choose software, hardware, and other tools that can improve Web site perfor-

mance, and issues involved in developing a mobile Web site and mobile applications. Chapter 5 focuses on e-commerce security and payments, building on the e-commerce infrastructure discussion of the previous chapter by describing the ways security can be provided over the Internet. This chapter defines digital information security, describes the major threats to security, and then discusses both the technology and policy solutions available to business managers seeking to secure their firm's sites. This chapter concludes with a section on e-commerce payment systems. We identify the various types of online payment systems (credit cards, stored value payment systems such as PayPal, digital wallets such as Google Wallet, and others), and the development of mobile payment systems such as Apple Pay.

Part 3, "Business Concepts and Social Issues," focuses directly on the business concepts and social-legal issues that surround the development of e-commerce. Chapter 6 focuses on e-commerce consumer behavior, the Internet audience, and introduces the student to the basics of online marketing and branding, including traditional online marketing technologies and marketing strategies. Topics include the Web site as a marketing platform, search engine marketing and advertising, display ad marketing, e-mail campaigns, affiliate and lead generation marketing programs, multichannel marketing, and various customer retention strategies such as personalization (including interestbased advertising, also known as behavioral targeting) and customer service tools. The chapter also covers other marketing strategies such as pricing and long-tail marketing. Internet marketing technologies (Web transaction logs, tracking files, data mining, and Big Data) and marketing automation and CRM systems are also explored. The chapter concludes with a section on understanding the costs and benefits of various types of online marketing, including a new section on Web analytics software. Chapter 7 is devoted to an in-depth analysis of social, mobile, and local marketing. Topics include Facebook, Twitter, and Pinterest marketing platforms, the evolution of mobile marketing and the growing use of geo-aware technologies to support proximity marketing.

Part 4, "E-commerce in Action," focuses on real-world e-commerce experiences in retail and services, online media, auctions, portals, and social networks, and businessto-business e-commerce. These chapters take a sector approach rather than the conceptual approach used in the earlier chapters. E-commerce is different in each of these sectors. Chapter 9 takes a close look at the experience of firms in the retail marketplace for both goods and services, as well as new shared economy companies such as Uber and Airbnb. Chapter 9 also includes an "E-commerce in Action" case that provides a detailed analysis of the business strategies and financial operating results of Amazon, which can be used as a model to analyze other e-commerce firms. Chapter 10 explores the world of online content and digital media and examines the enormous changes in online publishing and entertainment industries that have occurred over the last two years, including streaming movies, e-books, and online newspapers and magazines. Chapter 11 explores the online world of social networks, auctions, and portals. Chapter 12 concentrates on the world of B2B e-commerce, describing both Net marketplaces and the less-heralded, but very large arena of private industrial networks and the movement toward collaborative commerce.

### PEDAGOGY AND CHAPTER OUTLINE

The book's pedagogy emphasizes student cognitive awareness and the ability to analyze, synthesize, and evaluate e-commerce businesses. While there is a strong data and concep-

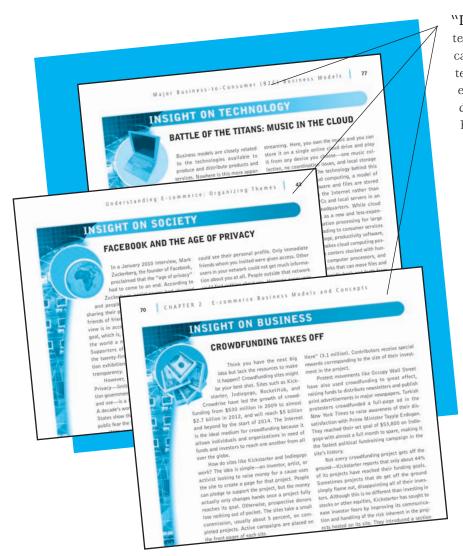
tual foundation to the book, we seek to engage student interest with lively writing about e-commerce businesses and the transformation of business models at traditional firms.

Each chapter contains a number of elements designed to make learning easy as well as interesting.

**Learning Objectives** A list of learning objectives that highlights the key concepts in the chapter guides student study.

**Chapter-Opening Cases** Each chapter opens with a story about a leading e-commerce company that relates the key objectives of the chapter to a real-life e-commerce business venture.





"Insight on" Cases Each chapter contains three real-world cases illustrating the themes of technology, business, and society. These cases take an indepth look at relevant topics to help describe and analyze the full breadth of the field of e-commerce. The cases probe such issues as the ability of governments to regulate Internet content, how to design Web sites for accessibility, the challenges faced by luxury marketers in online marketing, and smartphone security.

> Margin Glossary Throughout the text, key terms and their definitions appear in the text margin where they are first introduced.

**Real-Company Examples** Drawn from actual e-commerce ventures, well over 100 pertinent examples are used throughout the text to illustrate concepts.



Preface

Case Study / 99

miu

PANDORA

Chapter-Closing Case Studies Each chapter concludes with a robust case study based on a real-world organization. These cases help students synthesize chapter concepts and apply this knowledge to concrete problems and scenarios such as evaluating Pandora's freemium business model, ExchangeHunterJumper's efforts to build a brand, and the fairness of the Google Books settlement.

**Chapter-Ending Pedagogy** Each chapter contains extensive end-of-chapter materials designed to reinforce the learning objectives of the chapter.

**Key Concepts** Keyed to the learning objectives, Key Concepts present the key points of the chapter to aid student study.

**Review Questions** Thought-provoking questions prompt students to demonstrate their comprehension and

apply chapter concepts to management problem solving.

**Projects** At the end of each chapter are a number of projects that encourage students to apply chapter concepts and to use higher level evaluation skills. Many make use of the Internet and require students to present their findings in an oral or electronic presentation or written report. For instance, students are asked to evaluate publicly available information about a company's financials at the SEC

Web site, assess payment system options for companies across international boundaries, or search for the top 10 cookies on their own computer and the sites they are from.

Web Resources Web resources that can extend students' knowledge of each chapter with projects, exercises, and additional content are available at www.azimuth-interactive.com/ecommercelle. The Web site contains the following content provided by the authors:

- Additional projects, exercises, and tutorials
- · Information on how to build a business plan and revenue models
- Essays on careers in e-commerce



### **INSTRUCTOR RESOURCES**

At the Instructor Resource Center, www.pearsonhighered.com/irc, instructors can easily register to gain access to a variety of instructor resources available with this text in downloadable format. If assistance is needed, our dedicated technical support team is ready to help with the media supplements that accompany this text. Visit http://247.pearsoned.com for answers to frequently asked questions and toll-free user support phone numbers.

The following supplements are available with this text:

- Instructor's Resource Manual
- Test Bank
- TestGen<sup>®</sup> Computerized Test Bank
- PowerPoint Presentation
- **Learning Tracks** These additional essays, created by the authors, provide instructors and students with more in-depth content on selected topics in e-commerce.

### Chapter 1

- 1.1 Global E-commerce Europe
- 1.2 Global E-commerce Latin America
- 1.3 Global E-commerce China

### Chapter 6

6.1 Basic Marketing Concepts

6.2 Consumer Behavior: Cultural, Social, and Psychological Background Factors

6.3 Social Media Marketing-Blogging

### Chapter 7

Social Media Marketing: Facebook Social Media Marketing: Twitter

• Video Cases The authors have created a collection of video case studies that integrate short videos, supporting case study material, and case study questions. Video cases can be used in class to promote discussion or as written assignments.

### Chapter 1

1.1 The Future of E-commerce

### Chapter 2

2.1 Deals Galore at Groupon2.2 Angel Investing

### Chapter 3

3.1 Google Data Center Efficiency Best Practices

3.2 NBA: Competing on Global Delivery

### Chapter 4

4.1 ESPN Goes to eXtreme Scale

4.2 Data Warehousing at REI: Understanding the Customer

## Chapter 55.1 Cyberespionage: The Chinese Threat5.2 Stuxnet and Cyberwarfare5.3 IBM Zone Trusted Information Channel (ZTIC)5.4 Open ID and Web Security

### Chapter 6

6.1 Nielsen Online Campaign Ratings

### Chapter 7

7.1 The Power of LikeChapter 88.1 Facebook Privacy8.2 What Net Neutrality Means for You8.3 Lawrence Lessig on Net Neutrality

### Chapter 9

9.1 Etsy: A Marketplace and a Community

Chapter 10 10.1 YouTube's 7th Birthday

### Chapter 11

11.1 Mint Returns for Goodwill's eBay Auctions of Thrift-Store Finds

### Chapter 12

12.1 Ford AutoXchange B2B Marketplace12.2 Flextronics Uses Elementum's Cloud-based Mobile Supply Chain Apps

### ACKNOWLEDGMENTS

Pearson Education sought the advice of many excellent reviewers, all of whom strongly influenced the organization and substance of this book. The following individuals provided extremely useful evaluations of this and previous editions of the text:

Deniz Aksen, Koç University (Istanbul) Carrie Andersen, Madison Area Technical College Christine Barnes, Lakeland Community College Dr. Shirley A. Becker, Northern Arizona University Prasad Bingi, Indiana-Purdue University, Fort Wavne Joanna Broder, Pima Community College James Buchan, College of the Ozarks Ashley Bush, Florida State University Cliff Butler, North Seattle Community College Adnan Chawdhry, California University of Pennsylvania Mark Choman, Luzerne City Community College Andrew Ciganek, Jacksonville State University Daniel Connolly, University of Denver Tom Critzer, Miami University Dursan Delen, Oklahoma State University Abhijit Deshmukh, University of Massachusetts Brian L. Dos Santos, University of Louisville Robert Drevs, University of Notre Dame Akram El-Tannir, Hariri Canadian University, Lebanon Kimberly Furumo, University of Hawaii at Hilo John H. Gerdes, University of California, Riverside Philip Gordon, University of California at Berkeley Allan Greenberg, Brooklyn College Bin Gu, University of Texas at Austin Norman Hahn, Thomas Nelson Community College

Peter Haried, University of Wisconsin- La Crosse Sherri Harms, University of Nebraska at Kearnev Sharon Heckel, St. Charles Community College David Hite, Virginia Intermont College Gus Jabbour, George Mason University Kevin Jetton, Texas State University, San Marcos Ellen Kraft, Georgian Court University Gilliean Lee, Lander University Zoonky Lee, University of Nebraska, Lincoln Andre Lemaylleux, Boston University, Brussels Haim Levkowitz, University of Massachusetts, Lowell Yair Levy, Nova Southeastern University Richard Lucic, Duke University John Mendonca, Purdue University Dr. Abdulrahman Mirza, DePaul University Barbara Ozog, Benedictine University Kent Palmer, MacMurray College Karen Palumbo, University of St. Francis James Pauer, Lorain County Community College Wayne Pauli, Dakota State University Sam Perez, Mesa Community College Jamie Pinchot, Thiel College Kai Pommerenke, University of California at Santa Cruz Barry Quinn, University of Ulster, Northern Ireland Michelle Ramim, Nova Southeastern University Jay Rhee, San Jose State University Jorge Romero, Towson University John Sagi, Anne Arundel Community College

Patricia Sendall, Merrimack College	And Michael Van Hilst, Nova
Dr. Carlos Serrao, ISCTE/DCTI, Portugal	Southeastern University
Neerja Sethi, Nanyang Business School, Singapore	Mary Vitrano, Palm Beach Community College
Amber Settle, DePaul CTI	Andrea Wachter, Point Park University
Vivek Shah, Texas State University-San Marcos	Catherine Wallace, Massey University, New Zealand
Wei Shi, Santa Clara University	Biao Wang, Boston University
Seung Jae Shin, Mississippi State University	Haibo Wang, Texas A&M International University
Sumit Sircar, University of Texas at	Harry Washington, Lincoln University
Arlington	Rolf Wigand, University of Arkansas at
Hongjun Song, University of Memphis	Little Rock
Pamela Specht, University of Nebraska at Omaha	Erin Wilkinson, Johnson & Wales University
Esther Swilley, Kansas State University	Alice Wilson, Cedar Crest College
Tony Townsend, Iowa State University	Dezhi Wu, Southern Utah University
Bill Troy, University of New Hampshire	Gene Yelle, SUNY Institute of Technology
Susan VandeVen, Southern Polytechnic	David Zolzer, Northwestern State
State University	University
Hiep Van Dong, Madison Area Technical	
College	

We would like to thank eMarketer, Inc. and David Iankelevich for their permission to include data and figures from their research reports in our text. eMarketer is one of the leading independent sources for statistics, trend data, and original analysis covering many topics related to the Internet, e-business, and emerging technologies. eMarketer aggregates e-business data from multiple sources worldwide.

In addition, we would like to thank all those at Pearson who have worked so hard to make sure this book is the very best it can be. We want to thank Nicole Sam, Acquisitions Editor of the Pearson MIS list, and Karalyn Holland, Project Manager, for their support; Judy Leale for overseeing production of this project; and DePinho Design for the outstanding cover design. Very special thanks to Megan Miller, Will Anderson, and Robin Pickering at Azimuth Interactive, Inc., for all their hard work on the production of, and supplements for, this book.

A special thanks also to Susan Hartman, Executive Editor for the first and second editions and to Frank Ruggirello, Publisher at Addison-Wesley when we began this project, and now Vice President and Editorial Director at Benjamin-Cummings.

Finally, last but not least, we would like to thank our family and friends, without whose support this book would not have been possible.

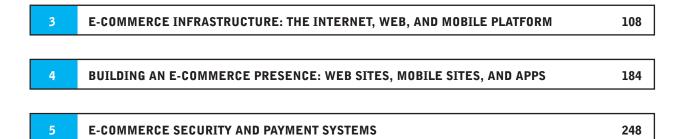
Kenneth C. Laudon Carol Guercio Traver This page intentionally left blank

## Brief Contents

### **PART 1 Introduction to E-commerce**

1	THE REVOLUTION IS JUST BEGINNING	2
2	F-COMMERCE BUSINESS MODELS AND CONCEPTS	54

## **PART 2 Technology Infrastructure for E-commerce**



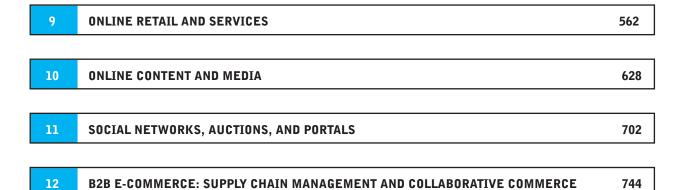
## PART 3 Business Concepts and Social Issues



7	SOCIAL, MOBILE, AND LOCAL MARKETING	416
---	-------------------------------------	-----

8 ETHICAL, SOCIAL, AND POLITICAL IS	SUES IN E-COMMERCE
-------------------------------------	--------------------

## **PART 4 E-commerce in Action**



### Contents

## **PART 1 Introduction to E-commerce**

Learning Objectives 2

Pinterest: A Picture Is Worth a Thousand Words 3

1.1	<i>E-commerce: The Revolution Is Just Beginning</i> 6
	The First 30 Seconds 8
	What Is E-commerce? 9
	The Difference Between E-commerce and E-business 9
	Why Study E-commerce? 10
	Eight Unique Features of E-commerce Technology 11
	Ubiquity 12
	Global Reach 12
	Universal Standards 13
	Richness 13
	Interactivity 13
	Information Density 14
	Personalization/Customization 14
	Social Technology: User Content Generation and Social Networking 14
	Web 2.0: Play My Version 16
	Types of E-commerce 17
	Business-to-Consumer (B2C) E-commerce 17
	Business-to-Business (B2B) E-commerce 18
	Consumer-to-Consumer (C2C) E-commerce 18
	Mobile E-commerce (M-commerce) 19
	Social E-commerce 19
	Local E-commerce 20

2

	Growth of the Internet, Web, and Mobile Platform 21
	Insight on Technology: Will Apps Make the Web Irrelevant? 24
	Origins and Growth of E-commerce 26
1.2	<i>E-commerce: A Brief History</i> 26
	E-commerce 1995–2000: Invention 27
	E-commerce 2001–2006: Consolidation 30
	E-commerce 2007–Present: Reinvention 31
	Assessing E-commerce: Successes, Surprises, and Failures 31
	Insight on Business: Start-Up Boot Camp 32
	Predictions for the Future: More Surprises 36
1.3	Understanding E-commerce: Organizing Themes 39
	Technology: Infrastructure 39
	Business: Basic Concepts 40
	Society: Taming the Juggernaut 40
	Insight on Society: Facebook and the Age of Privacy 42
	Academic Disciplines Concerned with E-commerce 44
	Technical Approaches 44
	Behavioral Approaches 44
1.4	Case Study: The Pirate Bay: Searching for a Safe Haven

1.5Review49Key Concepts49Questions51Projects52References52

### E-COMMERCE BUSINESS MODELS AND CONCEPTS

Learning Objectives 54

*Tweet Tweet: Twitter's Business Model* 55

2.1 E-commerce Business Models 58
Introduction 58
Eight Key Elements of a Business Model 58
Value Proposition 59
Revenue Model 60
Insight on Society: Foursquare: Check Your Privacy at the Door 62
Market Opportunity 64

54

Competitive Environment 64 Competitive Advantage 65 Market Strategy 67 Organizational Development 67 Management Team 68 Raising Capital 68 Insight on Business: Crowdfunding Takes Off 70 Categorizing E-commerce Business Models: Some Difficulties 72 2.2Major Business-to-Consumer (B2C) Business Models 74 E-tailer 74 Community Provider 74 Content Provider 76 Portal 77 Insight on Technology: Battle of the Titans: Music in the Cloud 78 Transaction Broker 80 Market Creator 81 Service Provider 82 2.3Major Business-to-Business (B2B) Business Models 83 E-distributor 84 E-procurement 84 Exchanges 84 Industry Consortia 85 Private Industrial Networks 85 2.4How E-commerce Changes Business: Strategy, Structure, and Process 86 Industry Structure 86 Industry Value Chains 90 Firm Value Chains 91 Firm Value Webs 91 **Business Strategy** 92 E-commerce Technology and Business Model Disruption 96 Case Study: Freemium Takes Pandora Public 2.599 2.6Review 103 Key Concepts 103 Questions 104

Projects 105 References 105 3

## PART 2 Technology Infrastructure for E-commerce

### E-COMMERCE INFRASTRUCTURE: THE INTERNET, WEB, AND MOBILE PLATFORM

108

Learning Objectives 108

Google Glass: Augment My Reality 109 The Internet: Technology Background 3.1 112The Evolution of the Internet: 1961-The Present 114 The Internet: Key Technology Concepts 115 Packet Switching 115 Transmission Control Protocol/Internet Protocol (TCP/IP) 120 **IP** Addresses 120 Domain Names, DNS, and URLs 122 Client/Server Computing 122 The New Client: The Mobile Platform 125 The Internet "Cloud Computing" Model: Hardware and Software as a Service 125 Other Internet Protocols and Utility Programs 127 3.2The Internet Today 129The Internet Backbone 131 Internet Exchange Points 132 Campus Area Networks 132 Internet Service Providers 132 135 Intranets Who Governs the Internet? 136 The Future Internet Infrastructure 3.3 138 Limitations of the Current Internet 138 Insight on Society: Government Regulation and Surveillance of the Internet 139 The Internet2<sup>®</sup> Project 142 The First Mile and the Last Mile 143 Fiber Optics and the Bandwidth Explosion in the First Mile 144 The Last Mile: Mobile Internet Access 144 Internet Access Drones 148 The Future Internet 149 Latency Solutions 149 Guaranteed Service Levels and Lower Error Rates 149

Declining Costs 149

	The Internet of Things 150
3.4	The Web151Hypertext153Markup Languages155HyperTextMarkup Language (HTML)155eXtensibleMarkup Language (XML)156Insight on Technology: Is HTML5 Ready for Prime Time?157Web Servers and Clients159Web Browsers161
3.5	The Internet and the Web: Features and Services       161         E-mail       161         Instant Messaging       162         Search Engines       162         Online Forums       165         Streaming Media       165         Cookies       166         Web 2.0 Features and Services       166         Online Social Networks       166         Blogs       167         Podcasting       167         Wikis       168         Music and Video Services       168         Internet Telephony       169         Video Conferencing, Video Chatting, and Telepresence       170         Online Software and Web Services: Web Apps, Widgets, and Gadgets       170         Intelligent Personal Assistants       170
3.6	Mobile Apps: The Next Big Thing Is Here171Platforms for Mobile Application Development172App Marketplaces172Insight on Business: Apps for Everything: The App Ecosystem173
3.7	Case Study: Akamai Technologies: Attempting to Keep Supply Ahead of Demand 175
3.8	Review179Key Concepts179Questions180Projects180References181

### BUILDING AN E-COMMERCE PRESENCE: WEB SITES, MOBILE SITES, AND APPS

184

Learning Objectives 184

USA Today Redesigns 185

4.1	Imagine Your E-commerce Presence188What's the Idea? (The Visioning Process)188Where's the Money: Business and Revenue188Who and Where Is the Target Audience189What Is the Ballpark? Characterize the Marketplace189Where's the Content Coming From?190Know Yourself: Conduct a SWOT Analysis191Develop an E-commerce Presence Map192How Much Will This Cost?193
4.2	Building an E-commerce Presence: A Systematic Approach       194         Planning: The Systems Development Life Cycle       196         Systems Analysis/Planning: Identify Business Objectives, System Functionality, and Information Requirements       196         System Design: Hardware and Software Platforms       198         Building the System: In-house Versus Outsourcing       198         Build Your Own versus Outsourcing       198         Host Your Own versus Outsourcing       202         Insight on Business: Weebly Makes Creating Web Sites Easy       203         Testing the System       205         Implementation and Maintenance       205         Factors in Optimizing Web Site Performance       206
4.3	Choosing Software207Simple Versus Multi-Tiered Web Site Architecture207Web Server Software208Site Management Tools210Dynamic Page Generation Tools212Application Servers213E-commerce Merchant Server Software Functionality214Online Catalog214Shopping Cart215Credit Card Processing215Merchant Server Software Packages (E-commerce Software Platforms)215Choosing an E-commerce Software Platform217

4.4	Choosing Hardware 218
	Right-sizing Your Hardware Platform: The Demand Side 218
	Right-sizing Your Hardware Platform: The Supply Side 221
4.5	Other E-commerce Site Tools 223
	Web Site Design: Basic Business Considerations 223
	Tools for Web Site Optimization 224
	Tools for Interactivity and Active Content 225
	Common Gateway Interface (CGI) 225
	Active Server Pages (ASP and ASP.NET) 226
	Java, Java Server Pages (JSP), and JavaScript 226
	ActiveX and VBScript 227
	ColdFusion 227
	PHP, Ruby on Rails (RoR), and Django 227
	Web 2.0 Design Elements 228
	Personalization Tools 229
	The Information Policy Set 229
	Insight on Society: Designing for Accessibility 230
4.6	Developing a Mobile Web Site and Building Mobile Applications 232
	Planning and Building a Mobile Presence 233
	Mobile Presence: Design Considerations 234
	Cross-platform Mobile App Development Tools 236
	Mobile Presence: Performance and Cost Considerations 236
	Insight on Technology: Building a Mobile Presence 237
4.7	Case Study: Orbitz Charts Its Mobile Trajectory 240
4.8	Review 244

Key Concepts244Questions246Projects246References247

#### 5

### **E-COMMERCE SECURITY AND PAYMENT SYSTEMS**

Learning Objectives 248

### Cyberwar: MAD 2.0 249

- 5.1 The E-commerce Security Environment 252
  - The Scope of the Problem 253

The Underground Economy Marketplace: The Value of Stolen Information 254

	What Is Good E-commerce Security? 256
	Dimensions of E-commerce Security 257
	The Tension Between Security and Other Values 258
	Ease of Use 258
	Public Safety and the Criminal Uses of the Internet 259
5.2	Security Threats in the E-commerce Environment 260
	Malicious Code 261
	Potentially Unwanted Programs (PUPs) 264
	Phishing 266
	Hacking, Cybervandalism, and Hacktivism 267
	Data Breaches 268
	Insight on Business: Hackers Infiltrate Target 269
	Credit Card Fraud/Theft 271
	Identity Fraud 272
	Spoofing, Pharming, and Spam (Junk) Web Sites 272
	Denial of Service (DOS) and Distributed Denial of Service (DDOS) Attacks 273
	Sniffing 274
	Insider Attacks 274
	Poorly Designed Software 275
	Social Network Security Issues 276
	Mobile Platform Security Issues 276
	Insight on Technology: Think Your Smartphone Is Secure? 278
	Cloud Security Issues 280
5.3	Technology Solutions 280
	Protecting Internet Communications 280
	Encryption 281
	Symmetric Key Cryptography 282
	Public Key Cryptography 283
	Public Key Cryptography Using Digital Signatures and Hash Digests 284
	Digital Envelopes 287
	Digital Certificates and Public Key Infrastructure (PKI) 288
	Limitations to Encryption Solutions 289
	Securing Channels of Communication 290
	Secure Sockets Layer (SSL) and Transport Layer Security (TLS) 290
	Virtual Private Networks (VPNs) 292
	Wireless (Wi-Fi) Networks 292
	Protecting Networks 292
	Firewalls 293
	Proxy Servers 293
	Intrusion Detection and Prevention Systems 295

326

Protecting Servers and Clients 295 Operating System Security Enhancements 295 Anti-Virus Software 295

## 5.4 Management Policies, Business Procedures, and Public Laws 296 A Security Plan: Management Policies 296 The Role of Laws and Public Policy 298 Private and Private-Public Cooperation Efforts 299 Government Policies and Controls on Encryption Software 301

# 5.5 E-commerce Payment Systems 301 Online Credit Card Transactions 303 Credit Card E-commerce Enablers 305 Limitations of Online Credit Card Payment Systems 305 Alternative Online Payment Systems 305 Mobile Payment Systems: Your Smartphone Wallet 307 Digital Cash and Virtual Currencies 308

## 5.6Electronic Billing Presentment and Payment308Insight on Society: Bitcoin309Market Size and Growth311EBPP Business Models311

- 5.7 Case Study: The Mobile Payment Marketplace: Goat Rodeo
- 5.8 Review 319 Key Concepts 319 Questions 321 Projects 322 References 322

### **PART 3 Business Concepts and Social Issues**

	6	E-COMMERCE M	ARKETING AND ADVERTISING CO	NCEPTS
	Le	earning Objectives	326	
	Video Ad	s: Shoot, Click, Buy	327	
6.1 Consumers Online: The Internet Audience and Consumer Behavior 330				
	In	ternet Traffic Pattern	as: The Online Consumer Profile	330

Intensity and Scope of Usage 331

Demographics and Access 332 Type of Internet Connection: Broadband and Mobile Impacts 333 Community Effects: Social Contagion in Social Networks 333 Consumer Behavior Models 334 Profiles of Online Consumers 334 The Online Purchasing Decision 335 Shoppers: Browsers and Buyers 338 What Consumers Shop for and Buy Online 339 Intentional Acts: How Shoppers Find Vendors Online 339 Why More People Don't Shop Online 340 Trust, Utility, and Opportunism in Online Markets 340 6.2Digital Commerce Marketing and Advertising Strategies and Tools 341 Strategic Issues and Questions 341 The Web Site as a Marketing Platform: Establishing the Customer Relationship 343 Traditional Online Marketing and Advertising Tools 344 Search Engine Marketing and Advertising 346 Display Ad Marketing 350 E-mail Marketing 357 Affiliate Marketing 359 Viral Marketing 360 Lead Generation Marketing 360 Social, Mobile, and Local Marketing and Advertising 361 Social Marketing and Advertising 361 Mobile Marketing and Advertising 362 Local Marketing: The Social-Mobile-Local Nexus 363 Multi-channel Marketing: Integrating Online and Offline Marketing 364 Other Online Marketing Strategies 365 Customer Retention Strategies 365 Insight on Business: Are the Very Rich Different from You and Me? 366 **Pricing Strategies** 373 Long Tail Marketing 379 Insight on Technology: The Long Tail: Big Hits and Big Misses 380 Internet Marketing Technologies 6.3 382 The Revolution in Internet Marketing Technologies 382 Web Transaction Logs 382 Supplementing the Logs: Tracking Files 384 Databases, Data Warehouses, Data Mining, and Big Data 385 Insight on Society: Every Move You Take, Every Click You Make, We'll Be Tracking You 386

Databases 388
Data Warehouses and Data Mining 388
Hadoop and the Challenge of Big Data 390
Marketing Automation and Customer Relationship Management (CRM) Systems 391
Understanding the Costs and Benefits of Online Marketing Communications 393
Online Marketing Metrics: Lexicon 393
How Well Does Online Advertising Work? 397

The Costs of Online Advertising 399

Web Analytics: Software for Measuring Online Marketing Results 401

- 6.5 Case Study: Programmatic Advertising: Real-Time Marketing 404
- 6.6 Review 408

6.4

Key Concepts408Questions410Projects410References411

### 7 SOCIAL, MOBILE, AND LOCAL MARKETING

Learning Objectives 416

Facebook: Putting Social Marketing to Work 417

```
7.1 Introduction to Social, Mobile, and Local Marketing 420
From Eyeballs to Conversations 420
From the Desktop to the Smartphone and Tablet 420
The Social, Mobile, Local Nexus 422
```

7.2 Social Marketing 423

Social Marketing Players 423 The Social Marketing Process 424 Facebook Marketing 426 Basic Facebook Features 426 Facebook Marketing Tools 426 Starting a Facebook Marketing Campaign 430 Measuring Facebook Marketing Results 432 Twitter Marketing 434 Basic Twitter Features 434 Insight on Technology: Fairmont Hotels: Using Google Analytics to Optimize Social

and Mobile Marketing 435 Twitter Marketing Tools 437 Starting a Twitter Marketing Campaign 439 Measuring Twitter Marketing Results 440 Pinterest Marketing 441 **Basic Pinterest Features** 442 Pinterest Marketing Tools 442 Starting a Pinterest Marketing Campaign 445 Measuring Pinterest Marketing Results 447 The Downside of Social Marketing 448 7.3 Mobile Marketing 448 Overview: M-commerce Today 448 Insight on Society: Marketing to Children of the Web in the Age of Social Networks 449 How People Actually Use Mobile Devices 452 In-App Experiences and In-App Ads 453 How the Multi-Screen Environment Changes the Marketing Funnel 455 **Basic Mobile Marketing Features** 455 The Technology: Basic Mobile Device Features 456 Mobile Marketing Tools: Ad Formats 458 Starting a Mobile Marketing Campaign 459 Insight on Business: Mobile Marketing: Land Rover Seeks Engagement on the Small Screen 460 Measuring Mobile Marketing Results 463 7.4 Local and Location-Based Mobile Marketing 464 The Growth of Local Marketing 464 The Growth of Location-Based (Local) Mobile Marketing 465 Location-Based Marketing Platforms 466 Location-Based Mobile Marketing: The Technologies 467 Why Is Local Mobile Attractive to Marketers? 469 Location-Based Marketing Tools 469 A New Lexicon: Location-Based Digital Marketing Features 469 Proximity Marketing with Beacons 470 Starting a Location-Based Marketing Campaign 471 Measuring Location-Based Marketing Results 472 Case Study: ExchangeHunterJumper.com: Building a Brand with Social 7.5 Marketing 4737.6 Review 479 **Key Concepts** 479

Questions 481

Projects 482 References 482

8	ETHICAL, SOCIAL, AND POLITICAL ISSUES IN E-COMMERCE	484
	Learning Objectives 484	
The R	ight to Be Forgotten: Europe Leads on Web Privacy 485	
8.1	Understanding Ethical, Social, and Political Issues in E-commerce488A Model for Organizing the Issues489Basic Ethical Concepts: Responsibility, Accountability, and Liability491Analyzing Ethical Dilemmas493Candidate Ethical Principles494	
8.2	Privacy and Information Rights495Information Collected at E-commerce Sites496Social Networks and Privacy498Mobile and Location-Based Privacy Issues499Profiling and Behavioral Targeting500The Internet and Government Invasions of Privacy: E-commerceSurveillance502Legal Protections505Informed Consent and Notice506The Federal Trade Commission's Fair Information Practices Principles509The European Data Protection Directive513Private Industry Self-Regulation514Privacy Advocacy Groups516The Emerging Privacy Protection Business516Technological Solutions517	
8.3	Intellectual Property Rights518Types of Intellectual Property Protection519Copyright: the Problem of Perfect Copies and Encryption519Look and Feel520Fair Use Doctrine520The Digital Millennium Copyright Act of 1998521Patents: Business Methods and Processes524E-commerce Patents525Insight on Technology: Theft and Innovation: The Patent Trial of the Century526Trademarks: Online Infringement and Dilution531Trademarks and the Internet531	

Cybersquatting and Brandjacking 532 Cyberpiracy 533 Metatagging 534 Keywording 535 Linking 535 Framing 536 Challenge: Balancing the Protection of Property with Other Values 536 Governance 537 8.4 Can the Internet Be Controlled? 537 Taxation 538 Insight on Business: Internet Sales Tax Battle 540 Net Neutrality 542 8.5 Public Safety and Welfare 544 Protecting Children 545 Cigarettes, Gambling, and Drugs: Is the Web Really Borderless? 546 Insight on Society: The Internet Drug Bazaar 547 8.6 Case Study: The Google Books Settlement: Is It Fair? 550 8.7 Review 555 **Key Concepts** 555 557 Questions Projects 558 References 558

## PART 4 E-commerce in Action

### ONLINE RETAIL AND SERVICES

9

Learning Objectives 562 Blue Nile Sparkles for Your Cleopatra 563 9.1 The Online Retail Sector 567 The Retail Industry 568 Online Retailing 569 E-commerce Retail: The Vision 569 The Online Retail Sector Today 570

9.2	Analyzing the Via	bility of Online Firms	574
	Strategic Analysis	574	
	Financial Analysis	575	

E-commerce in Action: E-tailing Business Models 9.3 577 Virtual Merchants 577 Amazon 578 The Vision 578 Business Model 579 Financial Analysis 582 Strategic Analysis-Business Strategy 584 Strategic Analysis-Competition 585 Strategic Analysis-Technology 586 Strategic Analysis-Social and Legal Challenges 586 Future Prospects 586 Omni-Channel Merchants: Bricks-and-Clicks 587 Catalog Merchants 588 Manufacturer-Direct 589 Common Themes in Online Retailing 591 The Service Sector: Offline and Online 593 9.4 Insight on Technology: Big Data and Predictive Marketing

**Online Financial Services** 9.5 596 Online Financial Consumer Behavior 596 Online Banking and Brokerage 597 Multi-Channel vs. Pure Online Financial Services Firms 598 Financial Portals and Account Aggregators 599 Online Mortgage and Lending Services 599 **Online Insurance Services** 600 Online Real Estate Services 601

- 9.6 Online Travel Services 603
  Why Are Online Travel Services So Popular? 604
  The Online Travel Market 604
  Online Travel Industry Dynamics 605
  Insight on Society: Phony Reviews 607
- 9.7 Online Career Services 609
  It's Just Information: The Ideal Web Business? 609
  Online Recruitment Industry Trends 611
- 9.8 Sharing Economy Companies 613 Insight on Business : Uber Revs Up 615

### 9.9 Case Study: OpenTable: Your Reservation Is Waiting 618

628

9.10 Review 623 Key Concepts 623 Questions 625 Projects 626 References 626

### 10 ONLINE CONTENT AND MEDIA

Learning Objectives 628

### The Emerging Internet Broadcasting System (IBS) 629

10.1 Online Content 633 Content Audience and Market: Where Are the Eyeballs and the Money? 635 Media Utilization: A Converging Digital Stream 635 Internet and Traditional Media: Cannibalization versus Complementarity 636 Media Revenues 636 Three Revenue Models for Digital Content Delivery: Subscription, A La Carte, and Advertising-Supported (Free and Freemium) 637 **Online Content Consumption** 638 Free or Fee: Attitudes About Paying for Content and the Tolerance for Advertising 639 Digital Rights Management (DRM) and Walled Gardens 641 Media Industry Structure 642 Media Convergence: Technology, Content, and Industry Structure 643 Technological Convergence 643 Content Convergence 643 Industry Structure Convergence 644 Making a Profit with Online Content: From Free to Fee 646 10.2 The Online Publishing Industry 647 **Online** Newspapers 647 Newspapers: Searching for a Digital Business Model 647 From Print-centric to Digital First: The Evolution of Newspaper Online Business Models, 1995-2014 649 Assets: Newspaper Audience Size and Growth 652 Challenge: Digital Ad Revenue 653 Strength: Content Is King 653 Challenge: Finding a Revenue Model 655 Challenge: Growth of Pure Digital Competitors 656

	Can Newspapers Survive Digital Disruption? 658
	Magazines Rebound on the Tablet Platform 659
	Insight on Society: Vox: The All-Digital News Site 660
	E-Books and Online Book Publishing 664
	Insight on Business: Digital Newsstands Grow 665
	Amazon and Apple: The New Digital Media Ecosystems 668
	E-Book Business Models 670
	The Challenges of the Digital E-Book Platform 672
	Interactive Books: Converging Technologies 673
10.3	The Online Entertainment Industry 674
	Online Entertainment Audience Size and Growth 676
	Television and Premium Video 677
	Movies 679
	Music 683
	Insight on Technology: Hollywood and the Internet: Let's Cut a Deal 684
	Games 690
10.4	Case Study: Netflix: How Does This Movie End? 693
10.5	Review 697
	Key Concepts 697
	Questions 698
	Projects 699
	References 699

### **11** SOCIAL NETWORKS, AUCTIONS, AND PORTALS

Learning Objectives 702

Social Network Fever: Spreads to the Professions 703

705 11.1 Social Networks and Online Communities What Is an Online Social Network? 707 The Growth of Social Networks and Online Communities 707 Insight on Technology: The Appification of Facebook 710 Turning Social Networks into Businesses 712 Types of Social Networks and Their Business Models 714 Insight on Society: The Dark Side of Social Networks 715 Social Network Features and Technologies 718 The Future of Social Networks 719

11.2 Online Auctions 720

Benefits and Costs of Auctions 721	
Benefits of Auctions 721	
Risks and Costs of Auctions 722	
Auctions as an E-commerce Business Model 723	
Types and Examples of Auctions 723	
When to Use Auctions (and for What) in Business 724	
Auction Prices: Are They the Lowest? 726	
Consumer Trust in Auctions 727	
When Auction Markets Fail: Fraud and Abuse in Auctions 7	27
11.3 <i>E-commerce Portals</i> 728 The Growth and Evolution of Portals 729	
Types of Portals: General-Purpose and Vertical Market 730	
Portal Business Models 734	
11.4 Case Study: eBay Evolves 736	
11.5 Review 740	
Key Concepts 740	
Questions 742	
Projects 742	
References 742	

### **12** B2B E-COMMERCE: SUPPLY CHAIN MANAGEMENT AND COLLABORATIVE COMMERCE 744

Learning Objectives 744

Volkswagen Builds Its B2B Platform

12.1 An Overview of B2B E-commerce 749 Some Basic Definitions 750 The Evolution of B2B E-commerce 750 The Growth of B2B E-commerce 753 Potential Benefits and Challenges of B2B E-commerce 754 12.2 The Procurement Process and Supply Chains 755 Steps in the Procurement Process 755 Insight on Society: Where's My iPad? Supply Chain Risk and Vulnerability 756 Types of Procurement 758 Multi-Tier Supply Chains 759 Visibility and Other Concepts in Supply Chain Management 760 The Role of Existing Legacy Computer Systems and Enterprise Systems in Supply Chains 760

12.3	Trends in Supply Chain Management and Collaborative Commerce 761
	Just-in-Time and Lean Production 762
	Supply Chain Simplification 762
	Supply Chain Black Swans: Adaptive Supply Chains 762
	Accountable Supply Chains: Labor Standards 764
	Sustainable Supply Chains: Lean, Mean, and Green 765
	Electronic Data Interchange (EDI) 766
	Mobile B2B 768
	B2B in the Cloud 769
	Insight on Technology: Your Shoes Are in the Cloud 771
	Supply Chain Management Systems 772
	Collaborative Commerce 774
	Collaboration 2.0: Cloud, Web, Social, and Mobile 775
	Social Networks and B2B: The Extended Social Enterprise 776
12.4	Net Marketplaces 777
	Characteristics of Net Marketplaces 777
	Types of Net Marketplaces 778
	E-distributors 779
	E-procurement 780
	Exchanges 782
	Industry Consortia 784
12.5	Private Industrial Networks 786
	Objectives of Private Industrial Networks 787
	Private Industrial Networks and Collaborative Commerce 788
	Insight on Business: Walmart Develops a Private Industrial Network
	Implementation Barriers 792
12.6	Case Study: Elemica: Cooperation, Collaboration, and
	Community 793
12.7	Review 799
	Key Concepts 799
	Questions 801
	Projects 802
	References 802
Index	2 I-1
Credi	ts C-1

This page intentionally left blank



## Introduction to E-commerce