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电子商务

（英文版·第4版）

THOMSON
COURSE TECHNOLOGY

FOURTH ANNUAL EDITION

Electronic Commerce

Gary P. Schneider

Excellence in Information Systems

（美） **Gary P. Schneider** 著
圣迭戈大学

机械工业出版社
China Machine Press

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凡购本书，如有倒页、脱页、缺页，由本社发行部调换

出版者的话

文艺复兴以降，源远流长的科学精神和逐步形成的学术规范，使西方国家在自然科学的各个领域取得了垄断性的优势；也正是这样的传统，使美国在信息技术发展的六十多年间名家辈出、独领风骚。在商业化的进程中，美国的产业界与教育界越来越紧密地结合，计算机学科中的许多泰山北斗同时身处科研和教学的最前线，由此而产生的经典科学著作，不仅擘划了研究的范畴，还揭橥了学术的源变，既遵循学术规范，又自有学者个性，其价值并不会因年月的流逝而减退。

近年，在全球信息化大潮的推动下，我国的计算机产业发展迅猛，对专业人才的需求日益迫切。这对计算机教育界和出版界都既是机遇，也是挑战；而专业教材的建设在教育战略上显得举足轻重。在我国信息技术发展时间较短、从业人员较少的现状下，美国等发达国家在其计算机科学发展的几十年间积淀的经典教材仍有许多值得借鉴之处。因此，引进一批国外优秀计算机教材将对我国计算机教育事业的发展起积极的推动作用，也是与世界接轨、建设真正的世界一流大学的必由之路。

机械工业出版社华章图文信息有限公司较早意识到"出版要为教育服务"。自1998年开始，华章公司就将工作重点放在了遴选、移译国外优秀教材上。经过几年的不懈努力，我们与Prentice Hall，Addison-Wesley，McGraw-Hill，Morgan Kaufmann等世界著名出版公司建立了良好的合作关系，从它们现有的数百种教材中甄选出Tanenbaum，Stroustrup，Kernighan，Jim Gray等大师名家的一批经典作品，以"计算机科学丛书"为总称出版，供读者学习、研究及庋藏。大理石纹理的封面，也正体现了这套丛书的品位和格调。

"计算机科学丛书"的出版工作得到了国内外学者的鼎力襄助，国内的专家不仅提供了中肯的选题指导，还不辞劳苦地担任了翻译和审校的工作；而原书的作者也相当关注其作品在中国的传播，有的还专诚为其书的中译本作序。迄今，"计算机科学丛书"已经出版了近百个品种，这些书籍在读者中树立了良好的口碑，并被许多高校采用为正式教材和参考书籍，为进一步推广与发展打下了坚实的基础。

随着学科建设的初步完善和教材改革的逐渐深化，教育界对国外计算机教材的需求和应用都步入一个新的阶段。为此，华章公司将加大引进教材的力度，在"华章教育"的总规划之下出版三个系列的计算机教材：除"计算机科学丛书"之外，对影印版的教材，则单独开辟出"经典原版书库"；同时，引进全美通行的教学辅导书"Schaum's Outlines"系列组成"全美经典学习指导系列"。为了保证这三套丛书的权威性，同时也为了更好地为学校和老师们服务，华章公司聘请了中国科学院、北京大学、清华大学、国防科技大学、复旦大学、上海交通大学、南京大学、浙江大学、中国科技大学、哈尔滨工业大学、西安交通大学、中国人民大学、北京航空航天大学、北京邮电大学、中山大学、解放军理工大学、郑州大学、湖北工学院、中国国家信息安全测评认证中心等国内重点大学和科研机构在计算机的各个领域的著名学者组成"专

家指导委员会"，为我们提供选题意见和出版监督。

这三套丛书是响应教育部提出的使用外版教材的号召，为国内高校的计算机及相关专业的教学度身订造的。其中许多教材均已为M. I. T.，Stanford，U.C. Berkeley，C. M. U. 等世界名牌大学所采用。不仅涵盖了程序设计、数据结构、操作系统、计算机体系结构、数据库、编译原理、软件工程、图形学、通信与网络、离散数学等国内大学计算机专业普遍开设的核心课程，而且各具特色——有的出自语言设计者之手、有的历经三十年而不衰、有的已被全世界的几百所高校采用。在这些圆熟通博的名师大作的指引之下，读者必将在计算机科学的宫殿中由登堂而入室。

权威的作者、经典的教材、一流的译者、严格的审校、精细的编辑，这些因素使我们的图书有了质量的保证，但我们的目标是尽善尽美，而反馈的意见正是我们达到这一终极目标的重要帮助。教材的出版只是我们的后续服务的起点。华章公司欢迎老师和读者对我们的工作提出建议或给予指正，我们的联系方法如下：

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（按姓氏笔画顺序）

Electronic Commerce, Fourth Annual Edition provides complete coverage of the key business and technology elements of electronic commerce. The book does not assume that readers have any previous electronic commerce knowledge or experience.

In 1998, having spent several years doing electronic commerce research, consulting, and corporate training, I began developing both an undergraduate business school course and an MBA-level course in electronic commerce. Although I had used a variety of books and other materials in my corporate training work, I was concerned that those materials would not work well in university courses because they were written at widely varying levels and did not have the pedagogic organization and features, such as review questions, that are so important to students.

After searching for a textbook that offered balanced coverage of both the business and technology elements of electronic commerce, I concluded that no such book existed. The first edition of *Electronic Commerce* was written to fill that void. In the second, third, and now, in this fourth edition, I have worked to improve the book and keep it current with the rapid changes in this dynamic field. The fourth edition features the addition of a comprehensive case to each chapter. Many instructors like to use cases to reinforce key learning objectives and my hope is that the cases I have written will help them accomplish that reinforcement.

Electronic Commerce, Fourth Annual Edition introduces readers to both the theory and practice of conducting business over the Internet and World Wide Web. In the third edition, the chapters were rearranged and one new chapter was added. The fourth edition follows that format with chapters organized into four sections: an introduction, business strategies, technologies, and an integration.

Introduction

The book's first section includes two chapters. Chapter 1, "Introduction to Electronic Commerce," defines electronic commerce and describes how companies use it to create new products and services and improve many other standard business activities. Chapter 1 also describes the history of the Internet and the Web, provides an overview of the economic structures in which businesses operate, and describes how electronic commerce fits into those structures. Two themes are introduced in this chapter that recur throughout later chapters: examining a firm's value chain can suggest opportunities for electronic commerce initiatives, and reductions in transaction costs are important elements of many electronic commerce initiatives.

Chapter 2, "Technology Infrastructure: The Internet and the World Wide Web," introduces the technologies used to conduct business online, including topics such as Internet infrastructure, protocols, and packet-switched networks. Chapter 2 also describes the markup languages used on the Web (HTML and XML) and discusses Internet connection options and tradeoffs.

Business Strategies for Electronic Commerce

The second section of the book includes five chapters that describe the business strategies that companies and other organizations are using to do business online. Chapter 3, "Selling on the Web: Revenue Models, and Building a Web Presence," describes revenue models that companies are using on the Web and explains how some companies have changed their revenue models as the Web has matured. The chapter also describes how firms that understand the nature of communication on the Web can identify and reach the largest possible number of qualified customers.

Chapter 4, "Marketing on the Web," provides an introduction to Internet marketing. It includes coverage of market segmentation, technology-enabled customer relationship management, rational branding, viral marketing, and permission marketing. The chapter also explains how some businesses on the Web share and transfer brand benefits through affiliate marketing and cooperative efforts among brand owners.

Chapter 5, "Business-to-Business Strategies: From Electronic Data Interchange to lectronic Commerce," explores the variety of methods that companies are using to improve their purchasing and logistics primary activities with Internet and Web technologies. Chapter 5 also provides an overview of EDI and explores how the Internet now provides an inexpensive EDI communications channel that allows smaller businesses to reap EDI's benefits. Chapter 5 also explains how the Internet and the Web have become an important force driving the adoption of supply chain management techniques in a variety of industries.

Chapter 6, "Web Auctions, Virtual Communities, and Web Portals," outlines how companies now use the Web to do things that they have never done before, such as operating auction sites, creating virtual communities, and serving as Web portals. The chapter describes how firms are using Web auction sites to sell goods to their customers and generate advertising revenue. The chapter explains how businesses are creating virtual communities with their customers and suppliers. The chapter describes how some of the major Web search engine and Web directory sites evolved into Web portals and discusses some of the challenges these sites face now that advertising revenue has declined.

Chapter 7, "The Environment of Electronic Commerce: International, Legal, Ethical, and Tax Issues," discusses the challenges posed to businesses by differing language, culture, laws, and infrastructure when they conduct electronic commerce across international borders. The chapter notes that variations and inadequacies in the infrastructure that supports the Internet worldwide can make it challenging to conduct electronic commerce in certain countries. The chapter also explains that the large number of government units that have jurisdiction and power to tax makes it essential that companies doing business on the Web understand the potential liabilities of doing business with customers in those jurisdictions.

Technologies for Electronic Commerce

The third section of the book includes five chapters that describe the technologies of electronic commerce and explain how they work.Chapter 8, "Web Server Hardware and Software," describes the computers, operating systems, e-mail systems, utility programs, and Web server software that organizations use in the operation of their electronic commerce Web sites. Web site hosting options are also discussed in this chapter.

Chapter 9, "Electronic Commerce Software," describes the basic functions that all electronic commerce Web sites must accomplish and explains the various software options available to companies of various sizes. This chapter includes a completely new overview of Web services, a set of technologies that could become an important electronic commerce infrastructure element in the near future.

Chapter 10, "Security Threats to Electronic Commerce," discusses threats to the security of electronic commerce activities including threats to intellectual property rights, client computers, communications channels, and Web servers. The role of industry organizations in promoting computer, network, and Internet security is also outlined.

Chapter 11, "Implementing Electronic Commerce Security," describes security threat countermeasures that organizations can use to combat the threats presented in Chapter 10. The chapter emphasizes the importance of a written security policy and explains how encryption and digital certificates work.

Chapter 12, "Payment Systems for Electronic Commerce," presents a discussion of electronic payment systems, including electronic cash, electronic wallets, stored-value cards, credit cards, debit cards, and charge cards. The chapter describes how payment systems operate, including approval of transactions and disbursements to merchants.

The fourth section of the book includes one chapter that integrates the business and technology strategies used in electronic commerce. Chapter 13, "Planning for Electronic Commerce," presents an overview of key elements that are typically included in business plans for electronic commerce implementations. These elements include the setting of objectives and estimated costs and benefits of the project. The chapter describes outsourcing strategies used in electronic commerce and covers the use of project management as a formal way to plan and control specific tasks and resources used in electronic commerce projects. This chapter also includes a discussion of staffing strategies and describes the critical staffing areas of business management, application specialists, customer service staff, systems administration, network operations staff, and database administration.

FEATURES

The fourth annual edition of *Electronic Commerce* includes a number of features and offers additional resources designed to help readers understand electronic commerce. These features and resources include:

- **Business Case Approach** The introduction to each chapter includes a real business case that provides a unifying theme for the chapter. The case provides a backdrop for the material described in the chapter. Each case has been chosen carefully to illustrate the role and use of electronic commerce.

- **Learning From Failures** Not all electronic commerce initiatives have been successful. Each chapter in the book includes a short summary of an electronic commerce failure related to the content of that chapter. We all learn from our mistakes—this feature is designed to help readers understand the missteps of electronic commerce pioneers who learned their lessons the hard way.

- **Summaries** Each chapter concludes with a Summary that concisely recaps the most important concepts in the chapter.

- **Online Companion** The Online Companion is a set of Web pages maintained by the publisher for readers of this book. The Online Companion complements the book and contains links to Web sites referred to in the book and to other online resources that further illustrate the concepts presented. The Web is constantly changing and the Online Companion is continually monitored and updated for those changes so that its links continue to lead to useful Web resources for each chapter. You can find the Online Companion for this book at *http://www.course.com/downloads/sites/ecommerce4/* or by visiting Course Technology's Web site at *www.course.com/* and searching on *Electronic Commerce*.

- **Online Companion References in Text** Throughout each chapter, there are Online Companion References that indicate the name of a link included in the Online Companion. Text set in bold, sans-serif letters

("**Metabot Pro**") indicates a like-named link in the Online Companion. The links in the Online Companion are organized under chapter and subchapter headings that correspond to those in the book. The Online Companion also contains many supplemental links to help students explore beyond the book's content.

- **Review Questions and Exercises** Every chapter concludes with meaningful review materials including both conceptual discussion questions and hands-on exercises. The review questions are ideal for use as the basis for class discussions or as written homework assignments. The exercises give students hands-on experiences that yield a computer output or a written report.

- **Cases** Each chapter includes a comprehensive case that illustrates key learning objectives from that chapter. The cases offer students a rich environment in which they can apply what they have learned from reading the book and provide a motivation for doing further research on the topics.

- **For Further Study and Research** Each chapter concludes with a comprehensive list of the resources that were consulted during the writing of the chapter. These references to publications in academic journals, books, and the IT industry and business press provide a sound starting point for readers who want to learn more about the topics contained in the chapter.

TEACHING TOOLS

When this book is used in an academic setting, instructors may obtain the following teaching tools from Course Technology:

- **Instructor's Manual** The Instructor's Manual has been carefully prepared and tested to ensure its accuracy and dependability. The Instructor's Manual is available through the Course Technology Faculty Online Companion on the World Wide Web (call your customer service representative for the exact URL and to obtain your username and password).

- **ExamView** This textbook is accompanied by ExamView, a powerful testing software package that allows instructors to create and administer printed, computer (LAN-based), and Internet exams. ExamView includes hundreds of questions that correspond to the topics covered in this text, enabling students to generate detailed study guides that include page references for further review. The computer-based and Internet testing components allow students to take exams at their computers, and also save the instructor time by grading each exam automatically.

- **Classroom Presentations** Microsoft PowerPoint presentations are available for each chapter of this book to assist instructors in classroom lectures or to make available to students. The Classroom Presentations are included on the Instructor's CD.

substantial work on the Online Companion, and Anthony Coury, who applied his considerable legal knowledge to reviewing Chapter 7 and suggesting many improvements. Other students who provided valuable assistance and suggestions include Maximiliano Altieri, Adrian Boyce, Karl Flaig, Kathy Glaser, Emilie Johnson Hersh, Chad McManamy, Dan Mulligan, Firat Ozkan, Suzanne Phillips, Susan Soelaiman, Carolyn Sturz, and Leila Worthy.

Finally, I want to express my deep appreciation for the support and encouragement of my wife, Cathy Cosby, and our children, Ben, Annie, and Maggie. Without their support and patience, writing this book would not have been possible.

DEDICATION

To Cathy, Ben, Annie, and Maggie

ABOUT THE AUTHOR

Gary Schneider is the Clarence L. Steber Professor of Accounting and Information Systems at the University of San Diego, where he teaches courses in electronic commerce, database design, supply chain management, and management accounting. He has won several teaching awards and has served as academic director of the school's graduate programs in electronic commerce and information systems. Gary has published more than 35 books and 70 research papers on a variety of accounting, information systems, and management topics. His books have been translated into Chinese, French, Italian, and Korean. Gary's research has been funded by the Irvine Foundation and the U.S. Office of Naval Research. His work has appeared in the *Journal of Information Systems*, *Interfaces*, and the *Information Systems Audit & Control Journal*. He has served as editor of the *Accounting Systems and Technology Reporter*, as associate editor of the *Journal of Global Information Management*, and on the editorial boards of the *Journal of Information Systems*, the *Journal of Electronic Commerce in Organizations*, the *Journal of Database Management*, and the *Information Systems Audit & Control Journal*. Gary has lectured on electronic commerce topics at universities and businesses in the United States, Europe, South America, and Asia. He has provided consulting and training services to a number of major clients, including Gartner, Gateway, Honeywell, and Qualcomm. In 1999, he was named a Fellow of the Gartner Institute. Gary is a licensed CPA in Ohio, where he practiced public accounting for 14 years. He holds a Ph.D. in accounting information systems from the University of Tennessee, an M.B.A. in accounting from Xavier University, and a B.A. in economics from the University of Cincinnati.

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