

Contents

PART 1

1 THE REVOLUTION IS JUST BEGINNING

2

Learning Objectives 2

Pinterest: A Picture Is Worth A Thousand Words 3

1.1 *E-commerce: The Revolution Is Just Beginning* 5

The First 30 Seconds 7

What Is E-commerce? 7

Why Study E-commerce? 8

Eight Unique Features of E-commerce Technology 8

Ubiquity 8

Global Reach 9

Universal Standards 10

Richness 10

Interactivity 10

Information Density 11

Personalization/Customization 11

Social Technology: User Content Generation and Social Networking 11

Web 2.0: Play My Version 11

Types of E-commerce 13

Business-to-Consumer (B2C) E-commerce 13

Business-to-Business (B2B) E-commerce 14

Consumer-to-Consumer (C2C) E-commerce 14

Social E-commerce 14

Mobile E-commerce (M-commerce) 15

Local E-commerce 15

Growth of the Internet and the Web 15

1.2 *E-commerce: A Brief History* 17

E-commerce 1995–2000: Invention 18

	E-commerce 2001–2006: Consolidation	20
	E-commerce 2007–Present: Reinvention	20
	<i>Insight on Business: Is the Party Already Over?</i>	22
1.3	<i>Understanding E-commerce: Organizing Themes</i>	23
	Technology: Infrastructure	23
	Business: Basic Concepts	24
	Society: Taming the Juggernaut	24
	<i>Insight on Society: Facebook and the Age of Privacy</i>	25
	Academic Disciplines Concerned with E-commerce	27
	Technical Approaches	27
	Behavioral Approaches	27
1.4	<i>Case Study: The Pirate Bay: The World’s Most Resilient Copyright Infringer?</i>	28
1.5	<i>Review</i>	30
	Key Concepts	30
	Questions	32
	Projects	32

	Learning Objectives	34
	<i>Tweet Tweet: What’s Your Business Model?</i>	35
2.1	<i>E-commerce Business Models</i>	37
	Introduction	37
	Eight Key Elements of a Business Model	37
	Value Proposition	37
	Revenue Model	38
	Market Opportunity	40
	Competitive Environment	40
	Competitive Advantage	41
	Market Strategy	41
	Organizational Development	42
	Management Team	42
2.2	<i>Major Business-to-Consumer (B2C) Business Models</i>	42
	<i>Insight on Business: Is Groupon’s Business Model Sustainable?</i>	44
	E-tailer	45
	Community Provider	45
	Content Provider	45
	Portal	46

Transaction Broker	46
<i>Insight on Technology: Battle of the Titans: Music in the Cloud</i>	47
Market Creator	48
Service Provider	48
2.3 Major Business-to-Business (B2B) Business Models	49
E-distributor	49
E-procurement	50
Exchanges	50
Industry Consortia	50
Private Industrial Networks	51
2.4 E-commerce Enablers	51
2.5 How the Internet and the Web Change Business: Strategy, Structure, and Process	51
Industry Structure	53
Industry Value Chains	54
Firm Value Chains	55
Firm Value Webs	56
Business Strategy	57
2.6 Case Study: Pandora and the Freemium Business Model	60
2.7 Review	63
Key Concepts	63
Questions	65
Projects	65

PART 2

Learning Objectives	68
<i>Google Glass: Augment My Reality</i>	69
3.1 The Internet: Technology Background	71
The Evolution of the Internet: 1961—the Present	72
The Internet: Key Technology Concepts	73
Packet Switching	73
Transmission Control Protocol/Internet Protocol (TCP/IP)	74
IP Addresses	76
Domain Names, DNS, and URLs	76

Client/Server Computing	77
The New Client: the Mobile Platform	79
The Internet “Cloud Computing” Model: Software and Hardware as a Service	80
Other Internet Protocols and Utility Programs	81
Internet Protocols: HTTP, E-mail Protocols, FTP, Telnet, and SSL/TLS	82
Utility Programs: Ping and Tracert	83
3.2 <i>The Internet Today</i>	83
The Internet Backbone	85
Internet Exchange Points	86
Campus Area Networks	87
Internet Service Providers	88
Intranets and Extranets	90
Who Governs the Internet?	90
3.3 <i>The Future Internet Infrastructure</i>	91
Limitations of the Current Internet	91
The Internet2® Project	92
The First Mile and the Last Mile	93
Fiber Optics and the Bandwidth Explosion in the First Mile	93
The Last Mile: Mobile Internet Access	94
The Future Internet	96
The Internet of Things	96
3.4 <i>The Web</i>	97
Hypertext	98
Markup Languages	99
HyperText Markup Language (HTML)	99
<i>Insight on Technology: Is HTML5 Ready for Prime Time?</i>	100
eXtensible Markup Language (XML)	101
Web Servers and Clients	102
Web Browsers	104
3.5 <i>The Internet and the Web: Features and Services</i>	104
E-mail	104
Instant Messaging	104
Search Engines	105
Online Forums and Chat	105
Streaming Media	106
Cookies	107
Web 2.0 Features and Services	107
Online Social Networks	107
Blogs	107
Really Simple Syndication (RSS)	108

Podcasting	108
Wikis	108
Music and Video Services	108
Internet Telephony	109
Intelligent Personal Assistants	109

3.6	<i>Mobile Apps: The Next Big Thing Is Here</i>	109
	Platforms for Mobile Application Development	110
	App Marketplaces	110
	<i>Insight on Business: Apps For Everything: The App Ecosystem</i>	111

3.7	<i>Case Study: Akamai Technologies: Attempting to Keep Supply Ahead of Demand</i>	112
-----	-----------------------------------------------------------------------------------	-----

3.8	<i>Review</i>	115
	Key Concepts	115
	Questions	118
	Projects	119

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

120

	Learning Objectives	120
	<i>Tommy Hilfiger Replatforms</i>	121
4.1	<i>Imagine Your E-commerce Presence</i>	123
	What's the Idea? (The Visioning Process)	123
	Where's the Money: Business and Revenue Model	123
	Who and Where Is the Target Audience	124
	What Is the Ballpark? Characterize the Marketplace	124
	Where's the Content Coming From?	125
	Know Yourself: Conduct a SWOT analysis	126
	Develop an E-commerce Presence Map	127
	Develop a Timeline: Milestones	128
	How Much Will This Cost?	128
4.2	<i>Building an E-commerce Presence: A Systematic Approach</i>	129
	Pieces of the Site-building Puzzle	130
	Planning: the Systems Development Life Cycle	130
	Systems Analysis/Planning: Identify Business Objectives, System Functionality, and Information Requirements	131
	System Design: Hardware and Software Platforms	132
	Building the System: In-house Versus Outsourcing	133
	Build Your Own versus Outsourcing	133
	Host Your Own versus Outsourcing	136

Testing the System	136
<i>Insight on Business: Curly Hair and Appillionaires</i>	137
Implementation and Maintenance	138
4.3 <i>Choosing Software and Hardware</i>	138
Simple Versus Multi-tiered Web Site Architecture	138
Web Server Software	139
Site Management Tools	139
Dynamic Page Generation Tools	140
Application Servers	141
E-commerce Merchant Server Software Functionality	142
Online Catalog	143
Shopping Cart	143
Credit Card Processing	143
Merchant Server Software Packages (E-commerce Suites)	143
Web Services and Open Source Options	144
The Hardware Platform	145
Right-Sizing Your Hardware Platform: The Demand Side	145
Right-Sizing Your Hardware Platform: the Supply Side	145
4.4 <i>Other E-Commerce Site Tools</i>	146
Web Site Design: Basic Business Considerations	146
Tools for Web Site Optimization	147
Tools for Interactivity and Active Content	148
Common Gateway Interface (CGI)	148
Active Server Pages (ASP)	149
Java, Java Server Pages (JSP), and JavaScript	149
Web 2.0 Design Elements	150
4.5 <i>Developing a Mobile Web Site and Building Mobile Applications</i>	150
Planning and Building a Mobile Web Presence	151
Mobile Web Presence: Design Considerations	152
Mobile Web Presence: Performance and Cost Considerations	153
<i>Insight on Technology: Building a Mobile Presence</i>	155
4.6 <i>Case Study: Orbitz Charts Its Mobile Trajectory</i>	156
4.7 <i>Review</i>	158
Key Concepts	158
Questions	160
Projects	161

Learning Objectives	162
<i>Cyberwar: MAD 2.0</i>	163
5.1 The E-commerce Security Environment	165
The Scope of the Problem	165
What Is Good E-commerce Security?	167
Dimensions of E-commerce Security	167
5.2 Security Threats in the E-commerce Environment	169
Malicious Code	170
Potentially Unwanted Programs (PUPs)	172
Phishing and Identity Theft	172
Hacking, Cybervandalism, Hacktivism, and Data Breaches	174
Credit Card Fraud/Theft	174
Spoofing (Pharming) and Spam (Junk) Web Sites	175
Denial of Service (DOS) and Distributed Denial of Service (DDOS) Attacks	175
Sniffing	176
Insider Attacks	176
Poorly Designed Server and Client Software	177
Social Network Security Issues	177
Mobile Platform Security Issues	178
Cloud Security Issues	178
<i>Insight on Technology: Think Your Smartphone Is Secure?</i>	179
5.3 Technology Solutions	180
Protecting Internet Communications	180
Encryption	180
Symmetric Key Encryption	182
Public Key Encryption	182
Public Key Encryption Using Digital Signatures and Hash Digests	183
Digital Certificates and Public Key Infrastructure (PKI)	186
Limitations to Encryption Solutions	186
Securing Channels of Communication	187
Secure Sockets Layer (SSL) and Transport Layer Security (TLS)	187
<i>Insight on Society: Web Dogs and Anonymity: Identity 2.0</i>	188
Virtual Private Networks (VPNs)	190
Protecting Networks	190
Firewalls	190
Protecting Servers and Clients	191
Operating System Security Enhancements	191

5.4	<i>E-commerce Payment Systems</i>	191
	Online Credit Card Transactions	192
	Limitations of Online Credit Card Payment Systems	194
	Alternative Online Payment Systems	194
	Mobile Payment Systems: Your Smartphone Wallet	195
	Digital Cash and Virtual Currencies	195
5.5	<i>Electronic Billing Presentment and Payment</i>	196
	Market Size and Growth	196
5.6	<i>Case Study: Online Payment Marketplace: Goat Rodeo</i>	198
5.7	<i>Review</i>	201
	Key Concepts	201
	Questions	203
	Projects	204

PART 3

	Learning Objectives	206
	<i>Facebook: Does Social Marketing Work?</i>	207
6.1	<i>Consumers Online: the Internet Audience and Consumer Behavior</i>	209
	Internet Traffic Patterns: the Online Consumer Profile	209
	Intensity and Scope of Usage	210
	Demographics and Access	210
	Type of Internet Connection: Broadband and Mobile Impacts	212
	Media Choices and Multitasking: The Internet versus Other Media Channels	212
	Profiles of Online Consumers	212
	The Online Purchasing Decision	213
	Shoppers: Browsers and Buyers	216
	What Consumers Shop for and Buy Online	217
	Intentional Acts: How Shoppers Find Vendors Online	217
	Why More People Don't Shop Online	218
6.2	<i>Digital Commerce Marketing and Advertising Strategies and Tools</i>	218

The Web Site as a Marketing Platform: Establishing the Customer Relationship	219
Online Marketing and Advertising Tools	220
Search Engine Marketing and Advertising	221
Display Ad Marketing	225
E-mail Marketing	228
Affiliate Marketing	229
Lead Generation Marketing	230
Sponsorship Marketing	230
Social Marketing and Advertising: Sharing and Engaging	230
Blog Marketing and Advertising	232
Game Advertising	233
Viral Marketing	233
Mobile and Local Marketing and Advertising	234
Mobile Marketing and Advertising	234
App Marketing	235
<i>Insight on Business: Mobile Marketing: Land Rover Seeks Engagement on the Small Screen</i>	236
Local Marketing: The Social-Mobile-Local Nexus	237
Multi-Channel Marketing: Integrating Online and Offline Marketing	237
Long Tail Marketing	241
<i>Insight on Technology: The Long Tail: Big Hits and Big Misses</i>	242
6.3 Understanding the Costs and Benefits of Online Marketing Communications	243
Online Marketing Metrics: Lexicon	243
How Well Does Online Advertising Work?	246
The Costs of Online Advertising	249
6.4 Case Study: Instant Ads: Real-Time Marketing on Exchanges	252
6.5 Review	254
Key Concepts	254
Questions	256
Projects	257

Learning Objectives 258

Internet Free Speech: Who Decides? 259

7.1 Understanding Ethical, Social, and Political Issues in E-commerce 261

A Model for Organizing the Issues 261

7.2	<i>Privacy and Information Rights</i>	265
	Information Collected at E-commerce Sites	267
	Social Networks and Privacy	267
	Mobile and Location-Based Privacy Issues	269
	Profiling and Behavioral Targeting	269
	The Internet and Government Invasions of Privacy: E-commerce Surveillance	271
	Legal Protections	272
	Informed Consent	272
	The Federal Trade Commission's Fair Information Practices Principles	274
	The European Data Protection Directive	276
	Private Industry Self-Regulation	277
	Technological Solutions	278
7.3	<i>Intellectual Property Rights</i>	278
	Types of Intellectual Property Protection	279
	Copyright: the Problem of Perfect Copies and Encryption	279
	Fair Use Doctrine	280
	The Digital Millennium Copyright Act of 1998	281
	Patents: Business Methods and Processes	283
	E-commerce Patents	283
	Trademarks: Online Infringement and Dilution	284
	Trademarks and the Internet	286
	Cybersquatting and Brandjacking	286
	Cyberpiracy	287
	Metatagging	287
	Keywording	288
	Linking	288
	Framing	289
7.4	<i>Governance</i>	289
	Who Governs the Internet and E-commerce?	289
	Can the Internet Be Controlled?	291
	Public Government and Law	292
	Taxation	292
	Net Neutrality	293
	<i>Insight on Business: Internet Sales Tax Battle</i>	294
7.5	<i>Public Safety and Welfare</i>	295
	Protecting Children	296
	Cigarettes, Gambling, and Drugs: Is the Web Really Borderless?	297

7.6 *Case Study: The Google Books Settlement: Is It Fair?* 300

7.7 *Review* 304

 Key Concepts 304

 Questions 307

 Projects 307

PART 4

8 ONLINE RETAIL AND SERVICES

310

 Learning Objectives 310

Blue Nile Sparkles for Your Cleopatra 311

8.1 *Online Retail* 314

 Online Retailing 315

 E-commerce Retail: The Vision 315

 The Online Retail Sector Today 316

 Multi-Channel Integration 318

8.2 *Online Retail Business Models* 319

 Virtual Merchants 320

 Multi-Channel Merchants: Bricks-and-Clicks 320

 Catalog Merchants 321

 Manufacturer-Direct 322

 Common Themes in Online Retailing 323

Insight on Technology: Using the Web to Shop 'Till You Drop 325

8.3 *Online Services* 324

8.4 *Online Financial Services* 326

 Online Financial Consumer Behavior 327

 Online Banking and Brokerage 327

 Multi-Channel vs. Pure Online Financial Services Firms 329

 Financial Portals and Account Aggregators 329

 Online Mortgage and Lending Services 330

 Online Insurance Services 330

 Online Real Estate Services 331

8.5 *Online Travel Services* 332

Why Are Online Travel Services So Popular?	332
The Online Travel Market	333
Online Travel Industry Dynamics	333
<i>Insight on Society: Phony Reviews</i>	335
8.6 Online Career Services	336
It's Just Information: the Ideal Web Business?	336
8.7 Case Study: OpenTable: Your Reservation Is Waiting	338
8.8 Review	340
Key Concepts	340
Questions	344
Projects	344

ONLINE CONTENT AND MEDIA

346

Learning Objectives	346
<i>YouTube and the Emerging Internet Broadcasting System (IBS)</i>	347
9.1 Online Content	349
Content Audience and Market: Where Are the Eyeballs and the Money?	350
Media Utilization	350
Internet and Traditional Media: Cannibalization versus Complementarity	351
Media Revenues	351
Three Revenue Models for Digital Content Delivery: Subscription, A La Carte, and Advertising-Supported (Free and Freemium)	351
Online Content Consumption	352
Free or Fee: Attitudes About Paying for Content and the Tolerance for Advertising	355
Digital Rights Management (DRM) and Walled Gardens	355
9.2 The Online Publishing Industry	356
Online Newspapers	356
Audience Size and Growth	357
Newspaper Business Models	358
E-Books and Online Book Publishing	359
<i>Insight on Society: Can Apps and Video Save Newspapers?</i>	360
Amazon and Apple: The New Digital Media Ecosystems	361
What Are the Challenges of the Digital E-Book Platform?	362
Interactive Books: Converging Technologies	363
Magazines Rebound on the Tablet Platform	363

9.3	<i>The Online Entertainment Industry</i>	364
	Online Entertainment Audience Size and Growth	366
	Television and Premium Video	367
	Movies	368
	Music	371
	<i>Insight on Technology: Hollywood and the Internet: Let's Cut a Deal</i>	372
	Games	373
9.4	<i>Case Study: Zynga Bets on Online Games</i>	376
9.5	<i>Review</i>	378
	Key Concepts	378
	Questions	380
	Projects	380

SOCIAL NETWORKS, AUCTIONS, AND PORTALS

382

	Learning Objectives	382
	<i>Social Network Fever Spreads to the Professions</i>	383
10.1	<i>Social Networks and Online Communities</i>	385
	What Is an Online Social Network?	386
	The Growth of Social Networks and Online Communities	386
	Turning Social Networks into Businesses	388
	Types of Social Networks and Their Business Models	388
	Social Network Features and Technologies	389
	The Future of Social Networks	389
	<i>Insight on Technology: FaceBook Has Friends</i>	391
10.2	<i>Online Auctions</i>	392
	Defining and Measuring the Growth of Auctions and Dynamic Pricing	392
	Risks and Costs of Auctions for Consumers and Businesses	393
	Market-Maker Benefits: Auctions as an E-commerce Business Model	393
	Why Are Auctions So Popular? Benefits and Costs of Auctions	394
	Benefits of Auctions	394
	Types and Examples of Auctions	395
	When to Use Auctions (and for What) in Business	397
	Auction Prices: Are They the Lowest?	398
	When Auction Markets Fail: Fraud and Abuse in Auctions	399
10.3	<i>E-commerce Portals</i>	400
	The Growth and Evolution of Portals	400
	Types of Portals: General-purpose and Vertical Market	401
	<i>Insight on Business: The Transformation of AOL</i>	402

Portal Business Models	403
10.4 Case Study: eBay Evolves	405
10.5 Review	407
Key Concepts	407
Questions	410
Projects	410

B2B E-COMMERCE: SUPPLY CHAIN MANAGEMENT AND COLLABORATIVE COMMERCE	412
---------------------------------------------------------------------------	------------

Learning Objectives	412
<i>Volkswagen Builds Its B2B Platform</i>	413
11.1 B2B E-commerce and Supply Chain Management	415
Defining and Measuring the Growth of B2b Commerce	416
The Evolution of B2B Commerce	416
The Growth of B2B E-commerce 2000–2016	417
Potential Benefits and Challenges of B2B E-commerce	418
The Procurement Process and the Supply Chain	419
Types of Procurement	419
<i>Insight on Society: Where's My iPad? Supply Chain Risk and Vulnerability</i>	420
Trends in Supply Chain Management and Collaborative Commerce	422
Just-in-Time and Lean Production	423
Supply Chain Simplification	423
Supply Chain Black Swans: Adaptive Supply Chains	423
Accountable Supply Chains: Labor Standards	424
Sustainable Supply Chains: Lean, Mean and Green	426
Electronic Data Interchange (EDI)	426
Supply Chain Management Systems: Mobile B2B in Your Palm	427
Collaborative Commerce	429
Social Networks and B2B: The Extended Social Enterprise	430
Main Types of Internet-based B2B Commerce	430
11.2 Net Marketplaces	431
Types of Net Marketplaces	431
E-distributors	432
E-procurement	433
Exchanges	435
Industry Consortia	436
11.3 Private Industrial Networks	438
What Are Private Industrial Networks?	438
Private Industrial Networks and Collaborative Commerce	439

11.4 Case Study: Elemica: Cooperation, Collaboration, and Community 442

11.5 Review 444

Key Concepts 444

Questions 447

Projects 448

Index I-1

References and Credits RC-1