Marketing of High-Technology Products and Innovations

Jakki Mohr

University of Montana

Sanjit Sengupta

San Francisco State University

Stanley Slater

Colorado State University



CONTENTS

Preface xv		
Acknowledgments xxiii		
About the Authors xxv		
CHAPTER 1 Introduction to the World of High-Technology Marketing		
The Lexicon of Marketing 5		
Strategic Activities and Decisions 6		
Functional Activities and Decisions 7		
Tactical Activities and Decisions 8		
Defining High Technology 9		
Government-Based Classifications 9		
Common Characteristics of High-Tech Environmen	ts 11	
Types of Innovation 24		
The Contingency Model for High-Tech Marketing 3	1	
Framework for High-Technology Marketing Decision	ons 33	
Summary 34		
Glossary 35		
Appendix 1.A High-Technology Industry Classifications 41		
Appendix 1.B Outline for a Marketing Plan 43		
CHAPTER 2 Strategic Market Planning in High-Tech Firms	15	
Competitive Advantage: The Objective of Marketing		
Strategy 48		
Resources and Competencies 48		
Key Strategy Decisions 54		
Strategy Types 61		
Product Leader (Prospector) 61		
Fast Follower (Analyzer) 64		
Customer Intimate (Differentiated Defender) 65		
Operationally Excellent (Low-Cost Defender) 65		
A Cautionary Note 66		
Strategy Creation: Approaches and Structures 66		
Emergent versus Formal Planning 67		
Market-Focused Organizational Structure 68		
Marketing Performance Measurement 70		
Summary 72		
Glossary 74		

1

Appendix 2.A Funding and Resource Considerations for Small High-Tech Start-Ups 78

Funding a High-Tech Start-Up 78 Utilizing Other Resources 79

CHAPTER 3 Culture and Climate Considerations for High-Tech Companies 81

Facilitators of a Culture of Innovativeness 84

Top Management Attention 86

Creative Destruction 86

Managers' Willingness to Cannibalize 87

Product Champions 87

Skunk Works 87

Learning Orientation 88

Unlearning 89

Corporate Imagination 89

Expeditionary Marketing 90

Risk Tolerance 91

Compensation for Innovation 91

Other Facilitators of Innovativeness 93

Obstacles to Maintaining a Culture of Innovativeness 93

Core Rigidities 93

The Innovator's Dilemma 94

Summary 96 Glossary 98

CHAPTER 4 Market Orientation and Cross-Functional (Marketing–R&D) Interaction 102

What It Means to Be Market Oriented 104

The Effect of Market Orientation on Company

Performance 105

Dimensions of a Market Orientation 106

Becoming Market Oriented: Facilitating

Conditions 114

Cross-Functional Interaction: New Product Development Teams and Marketing–R&D Interaction 117

Cross-Functional Teamwork in Product Development 117

R&D-Marketing Interaction 121

Summary 131

Glossary 133

Appendix 4.A What Does It Take to Become Customer Focused and Market Oriented? 137

	Contents
CHAPTER 5	Partnerships, Alliances, and Customer Relationships 139
	Partnerships and Strategic Alliances 143
	Types of Partnerships 143
	Reasons for Partnering 146
	Risks of Partnering 151
	Factors Contributing to Partnership Success 153
	Outsourcing: High Risk/High Opportunity Vertical Partnerships 159
	More Outsourcing Terminology 160
	Reasons for Outsourcing 162
	But Does It Work? Problems and Risks in Outsourcing 164
	A Contingency Approach to Managing Outsourcing for Success 166
	The Future of Outsourcing 168
	Open Innovation Networks and Alliances for New Product Development 168
	Open Innovation Networks 169
	New Product Alliances 169
	Customer Relationship Marketing/Management 171
	Step 1: Identify High-Potential Customers 173
	Step 2: Develop a Customer Acquisition Strategy 175
	Step 3: Develop the Customer Portfolio Management
	Strategy 176
	Customer Relationship Management Software 178
	Summary 180
	Glossary 182
CHAPTER 6	Marketing Research in High-Tech Markets 188
	Gathering Information: High-Tech Marketing Research Tools 190
	Concept Testing 192
	Conjoint Analysis 192
	Customer Visit Programs 194
	Empathic Design 196
	Lead Users 199
	Quality Function Deployment 201
	Prototype Testing 205
	Beta Version Testing 205
	Customer-Driven Innovation 206
	Biomimicry 211
	The Biomimicry Process 211
	Biomimicry Benefits 215

Forecasting in High-Tech Markets 217
Forecasting Methods 217
Other Considerations in Forecasting 220

Summary 221 Glossary 222

CHAPTER 7 Understanding High-Tech Customers 227

Customer Purchase Decisions 232

Problem Recognition 232

Information Search 232

Evaluate Alternatives 232

Purchase Decision 235

Postpurchase Evaluation 235

Adoption and Diffusion of Innovations 236

Factors Affecting Adoption of Innovation 236

Categories of Adopters 239

Crossing the Chasm 242

Early-Market Strategies: Marketing to the Visionaries 242

The Chasm 243

Crossing the Chasm: A Beachhead and a Whole Product

Solution 243

Inside the Tornado 247

The Choice of Customer Target Market: Segmentation, Targeting, and Positioning 249

Step 1: Divide Possible Customers into Groups 250

Step 2: Profile the Customers in Each Segment 251

Step 3: Evaluate and Select a Target Market 251

Step 4: Positioning the Product within the Segment 253

Customer Strategies to Avoid Obsolescence: Implications for Upgrades and Migration Paths 257

Customer Migration Decisions 258

Marketers' Migration Options 259

Consumers' Paradoxical Relationships with Technology and Unintended Consequences 260

Marketing Implications of Consumers' Paradoxical Relationship with Technology 263

Summary 264 Glossary 266

CHAPTER 8 Technology and Product Management 269

Technology Mapping 273

The "What-to-Sell" Decision 277

Possible Options 278

What Decision Makes Sense? 278

Technology Transfer Considerations 281

	Contents xi
	Product Architecture: Modularity, Platforms, and Derivatives 282
	Modularity 282
	Platforms and Derivatives 283
	Customizing Complex Products 286
	A Cautionary Note on Issues Related to "Killing" New Product Development 287
	The Role of Product Management in the High-Technology Company 288
	Developing Services as Part of the High-Technology Product Strategy 288
	Unique Characteristics of Services: Implications for High-Tech Marketing 293
	Intellectual Property Considerations 293
	Types of Intellectual Property Protection 295
	Rationale for Protection of Intellectual Property 296
	Managing Intellectual Property 301
	Summary 302
	Glossary 304
Appendix 8.A	Details on the Patenting Process 307
	Types of Patent Applications 308
	International Patent Protection 309
	Online Resources for Intellectual Property 314
Chapter 9	Distribution Channels and Supply Chain Management in High-Tech Markets 315
	Issues in Distribution Channel Design and Management 320
	Channel Structure 321
	Channel Management 329
	Channel Performance 330
	Managing Hybrid Channels: Effective Multi-Channel Marketing 330
	Step 1: Gather Market Data 331
	Step 2: Work toward Harmonization Following Contingency Theory 331
	Additional Considerations: Channel Relationship Quality, CRM, Compensation, and Communication 333
	Emerging Considerations in Distribution Channels 334
	Distribution for "Digital" Goods: The Long Tail 334
	Understanding Gray Markets 335
	Black Markets, Piracy, and Restricted Exports 338
	Unique Distribution Requirements for Developing (BOP) Markets 338
	Supply Chain Management 339
	Matching Supply Chain Strategies to Uncertainty 341
	Supply Chain Management Technologies 342

Outsourcing 344 The "Greening" of the Supply Chain 345 Summary 345 Glossary 347

CHAPTER 10 Pricing Considerations in High-Tech Markets 352 The High-Tech Pricing Environment 354 The 3 C's of Pricing 355

Costs 356

Competition 357

Customers 357

Consolidating the 3 C's into a Successful Strategy 359

Customer-Oriented Pricing 360

Steps in Customer-Oriented Pricing 360

Implications of Customer-Oriented Pricing 362

Pricing of After-Sales Service 363

The Technology Paradox 366

Solutions to the Technology (Pricing) Paradox 366

Additional Pricing Considerations 368

Outright Sale of Know-How versus Licensing Agreements 369

Usage Restrictions 369

Price Promotions 370

Summary 370

Glossary 371

CHAPTER 11 Marketing Communication Tools for High-Tech Markets 374 Advertising and Promotion Mix: Integrated Marketing Communications 375

Media Advertising 376

Public Relations/Publicity 377

Direct Mail 379

Trade Shows, Seminars, and Training 379

Catalogs, Literature, and Manuals 379

Telemarketing 380

Personal Selling 380

Internet Advertising and Promotion 380

Display Ads 380

Search Ads 382

Pricing Models for Online Advertising 383

Web 2.0 Technologies 385

Web 3.0 Technologies 386

Viral Marketing 387

Mobile Advertising 388

Marketing in Virtual Reality Environments 389

Dealing with Disruption 390

The Website's Part in Advertising and Promotion Strategy 390

Website Design 393
Building Site Traffic 395
Evaluating Website Effectiveness 395

Summary 397 Glossary 398

Appendix 11.A Web Analytics: Monitoring the Traffic at a Website 401

Uses of Web Analytics 401 Limitations of Web Analytics 401 New Techniques in Web Analytics: Site Overlays and Geo-Mapping 402 Web 2.0 Considerations 402

Chapter 12 Strategic Considerations in Marketing Communications 404 Branding in High-Tech Markets 405

What Is a Brand? 406
The Benefits and Risks of Branding Strategies 407
Developing a Strong Brand 409
Ingredient Branding 415
Branding for Small Business 416

New Product Pre-Announcements 419

Advantages and Objectives of Pre-Announcements 420 Disadvantages of Pre-Announcements 421 Tactical Considerations in the Pre-Announcement Decision 422

Summary 423 Glossary 424

Chapter 13 Strategic Considerations for the Triple Bottom Line in High-Tech Companies 427

Corporate Social Responsibility 433

Debates over and Criticisms of CSR 433
Desired Outcomes from CSR 435
CSR Domains: People and Planet 436
Models of and Approaches to CSR 439
Measuring the Outcomes and Effectiveness of CSR Initiatives 441
Best-Practices CSR for High-Tech Companies 445

Serving Base-of-the-Pyramid Markets: Corporate Social Responsibility and Social Entrepreneurship 448

Domains for Intervention 450

Criticisms of BOP Strategies 458

Business Models and Approaches to Solving BOP Problems: Enlightened CSR and Social Entrepreneurship 452

Ongoing Challenges and Keys to Success for BOP Strategies 456

The Digital Divide 459

Solutions to Bridging the Digital Divide 460

Responding to the Risks and Opportunities of Global Climate Change 464

The Kyoto Protocol 465

Best-Practices Environmental Strategy: A Four-Step

Approach 466

Natural Capitalism 469

Challenges for Environmentally Responsible

Business Practices 470

A Framework for Navigating Ethical Controversies 470

Summary 472

Glossary 474

Appendix 13.A Application of a Framework to Address Ethical Controversies: Merck, Ivermectin, and River Blindness 480

Step 1: Identify All Stakeholders Who Are Affected by the

Decision 480

Step 2: For Each Stakeholder Group, Identify Its Needs and

Concerns 480

Step 3: Prioritize the Stakeholder Groups and Perspectives 481

Step 4: Make and Implement a Decision 482

Epilogue: The Gift of Sight 482

MINI-CASES 484

Is There More to Skype Than Hype? 484

The Future of TiVo? 489

Charting a New Course for Xerox: Strategic Marketing

Planning 493

Environmental Systems Research Institute (ESRI) 496

Vision of the Future: Airbus 380 or Boeing 787 Dreamliner? 500

Goomzee Mobile Marketing 502

SELCO-India: Lighting the Base of the Pyramid 513

Author Index 517

Subject Index 525