<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>xiii</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>xviii</td>
</tr>
<tr>
<td><strong>Nothing New under the Sun?</strong></td>
<td>1</td>
</tr>
<tr>
<td>What's New in the &quot;New&quot; Economy</td>
<td>3</td>
</tr>
<tr>
<td>E-Commerce</td>
<td>3</td>
</tr>
<tr>
<td>E-Media</td>
<td>5</td>
</tr>
<tr>
<td>E-Markets</td>
<td>6</td>
</tr>
<tr>
<td>The Luxury of Focusing on Customers</td>
<td>7</td>
</tr>
<tr>
<td>The Importance of Customers</td>
<td>8</td>
</tr>
<tr>
<td>The Role of Data Mining</td>
<td>8</td>
</tr>
<tr>
<td>Bringing It Together</td>
<td>9</td>
</tr>
<tr>
<td>The Role of Marketing</td>
<td>10</td>
</tr>
<tr>
<td>Brands</td>
<td>10</td>
</tr>
<tr>
<td>Brands and Advertising</td>
<td>12</td>
</tr>
<tr>
<td>Advertising Is Changing</td>
<td>13</td>
</tr>
<tr>
<td>Targeted Marketing</td>
<td>13</td>
</tr>
</tbody>
</table>
Beyond Targeted Marketing
  Defining Customer Value
  Real-Time Considerations
  Understanding Customers and Business Processes
  Experimental Design for Marketing
  Lessons Learned

2 Approaches to Mining the Web
  The Web, from the Perspective of Data Mining
  Mining Structure
    Global Structure
    Local Structure
  Mining Usage Patterns
    Clickstream Analysis
    Web Logs
    Application Logs
    Usage Mining to Improve Site Usability
  Mining Content
    Information Retrieval
    Classification Based on Content
    Extracting Information from Free Text
  Lessons Learned

3 Online Retailing: Selling Things That Get Delivered in a Truck
  Retailing
    Intermediaries Exist for a Reason
    Managing Supply Chain and Inventory
  Catalogs and Web Sites
    A Bit of History
    And Now
    Why Catalogs Are Relevant to E-Commerce
    Similarities between Catalogs and Web Sites
    Differences between Catalogs and Web Sites
  Retail Customers on the Web
    From Visitors to Customers
    Anatomy of a Purchase
4 Digital Content: Selling Things That Get Delivered through the Ether

What Can Be Delivered as Bits?
Delivering Music
The Web as Radio
The Web as Jukebox
The Web as Music Store
The Web as Swap Meet
The Web as Open Mike Night
Delivering Video
Pornography's Leading Role
Delivering Information
Businesses Based on Information Retrieval
Making Recommendations
Collaborative Filtering
Delivering Interactive Entertainment
Lessons Learned

5 Selling Eyes to Advertisers

Advertising Business Models
Publishers
Advertisers
Ad Brokers
Ad Creators
The Technology of Online Advertising
Frames and Windows
Cookies
Basics of Online Advertising 133
  Matching Publishers and Advertisers 133
  What Is a Click Worth? 137
  Microconversion Rates 138
Finding the Right Audience 139
  How Fit Are Your Readers? 140
The Business of Providing Space for Advertising 140
Measuring the Fitness of One Reader 141
Measuring Fitness for Groups of Readers 143
Tracking User Behavior 146
  Invisible Tracking Devices 147
  Tracking Email Readers 149
Attracting Eyeballs 149
  E-Media 150
  Portals 151
  Directories and Services 153
Lessons Learned 153

6 Marketplaces: Connecting Sellers and Buyers 155
  History of Free Markets 156
    The Free Market and Its Simplifying Assumptions 157
Commodities Exchanges 158
  The Minneapolis Grain Exchange 159
Data Mining Opportunity: Forecasting Prices 163
Other Relevant Historical Models 168
The Electronic Marketplace 168
  Many-to-Many, Cross-Industry Public Exchanges 171
  Data Mining Opportunities for a Many-to-Many Exchange 175
  Many-to-Many, Single-Industry Public Exchanges 178
  Many-to-Few Public Exchanges 182
  Private Marketplaces 184
Lessons Learned 187

7 How Much Are Your Customers Worth? 189
  The Basics of Calculating Customer Value 190
  Myths of Using Customer Value 191
8 Knowing When to Worry: Hazard Functions and Survival Analysis in Marketing

Customer Retention
  What a Retention Curve Tells Us
  Looking at Retention as Decay

Hazard Functions
  The Basic Idea
  Applying Hazard Functions
  The Importance of Censoring
9 Cohort Analysis: Using Cohorts to Track Customers

A Simple Example

Background

Approach to Problem

Results

Summary of Approach

Memory-Based Reasoning

How Close Is Close?

Combination Function

Choosing Fields for Distance

Cells and Cohorts

Initial Customer Behavior

Important Attributes of Customers

Putting Them Together

Using Cohorts to Evaluate and Plan Marketing Efforts

Defining the Cohort

Using the Cohort to Understand Retention

Quantifying Retention Benefits

Incorporating Customer Value
Lessons Learned

10 Using Marketing Tests to Understand Customers
The Science of Marketing
   Marketing Science... An Oxymoron?
   Marketing and the Scientific Method
How Big Is Big Enough?
   A Marketing Example
   What Do We Really, Really Want
   Confidence in Response Rate
   How Big Should the Sample Be?
   The End Result
When Does It Make a Difference?
   Customer Segmentation
   Example Using Groups
   A Caveat about Comparing Many Different Groups
Factors in Designing a Marketing Test
   The Situation
   Proposed Test
   Improved Test
   Analyzing the Results
   Guidelines for Designing a Comparative Test
Which Factors Are Important? Comparing the Results from Tests
   What If It Doesn’t Work?
   Setting Up a Marketing Intervention
   Is Acquisition Source an Important Factor?
   Is Tenure at Acceptance an Important Factor?
   Using the Results
   Guidelines on Using Chi-Square
Lessons Learned

11 Live (and Test) and Learn
How Does Data Mining Contribute to Learning?
   Building a Data Mining Group
   Potential Low-Hanging Fruit
Solving the Problem 315
Data Mining to the Rescue 316
Willingness to Learn 317
Market Segmentation 318
The Market Research Approach 319
The Challenge of Finding the Segments in the Database 325
The Advantage of Operational Segments 327
An Approach for Developing Operational Segments 327
Planning to Learn 333
Learning Is an Ongoing Process 333
Customers as an Ongoing Process 334
Plan to Analyze in Advance 336
Learning and Memory 337
Requirement 1: Creating Customer Signatures 337
Requirement 2: Creating Signatures in the Past 338
Requirement 3: Drilling Down to Detail 339
Requirement 4: Keeping Track of Customers over Time 340
Requirement 5: Keeping Track of Campaigns over Time 340
Lessons Learned 342

Index 343