CONTENTS

Preface

PART ONE

INTEGRATING TECHNOLOGY AND STRATEGY: A GENERAL MANAGEMENT PERSPECTIVE

TECHNOLOGICAL INNOVATION 13

CASE 1-1
Elio Engineering, Inc. 13

READING 1-1
Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing, and Public Policy 32

CASE 1-2
Advent Corporation 49

READING 1-2
How to Put Technology into Corporate Planning 62

READING 1-3
The Core Competence of the Corporation 66

TECHNOLOGICAL INNOVATION AND STRATEGY 78

CASE 1-3
Pixim (A): August 2001 78

READING 1-4
Management Criteria for Effective Innovation 97

CASE 1-4
Matrix Semiconductor Inc.: Tackling Challenges of Strategic Dimensions 105

CASE 1-5
StubHub (A): January 2004 121

READING 1-5
Defining the Minimum Winning Game in High-Technology Ventures 140

READING 1-6
Assessing Your Organization's Capabilities: Resources, Processes, and Priorities 153

CASE 1-6
Electronic Arts in 1995 164

CASE 1-7
Electronic Arts in 2002 180

CASE 1-8
Electronic Arts in 2005: The Next Generation of Convergence 199

READING 1-7
The Art of High-Technology Management 226
# DESIGN AND IMPLEMENTATION OF TECHNOLOGY STRATEGY: AN EVOLUTIONARY PERSPECTIVE

## TECHNOLOGICAL EVOLUTION

<table>
<thead>
<tr>
<th>Reading</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-1</td>
<td>Patterns of Industrial Innovation</td>
<td>253</td>
</tr>
<tr>
<td>11-2</td>
<td>Exploring the Limits of the Technology S-Curve. Part I: Component Technologies</td>
<td>259</td>
</tr>
<tr>
<td>11-3</td>
<td>Exploring the Limits of the Technology S-Curve. Part II: Architectural Technologies</td>
<td>278</td>
</tr>
<tr>
<td>11-4</td>
<td>How Can We Beat Our Most Powerful Competitors</td>
<td>310</td>
</tr>
<tr>
<td>11-5</td>
<td>Customer Power, Strategic Investment, and the Failure of Leading Firms</td>
<td>330</td>
</tr>
<tr>
<td>11-6</td>
<td>Making SMaL Big: SMaL Camera Technologies</td>
<td>350</td>
</tr>
<tr>
<td>11-7</td>
<td>Disruption, Disintegration and the Dissipation of Differentiability</td>
<td>363</td>
</tr>
</tbody>
</table>

## INDUSTRY CONTEXT

<table>
<thead>
<tr>
<th>Case</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-4</td>
<td>The U.S. Telecommunications Industry: 1996-1999</td>
<td>388</td>
</tr>
<tr>
<td>11-5</td>
<td>Slouching Toward Broadband: Revisited in 2005</td>
<td>403</td>
</tr>
<tr>
<td>11-6</td>
<td>SAP America</td>
<td>415</td>
</tr>
<tr>
<td>11-7</td>
<td>Crossing the Chasm—and Beyond</td>
<td>429</td>
</tr>
<tr>
<td>11-8</td>
<td>Competing Technologies: An Overview</td>
<td>435</td>
</tr>
<tr>
<td>11-10</td>
<td>Note on New Drug Development in the United States</td>
<td>465</td>
</tr>
<tr>
<td>11-11</td>
<td>Gunfire at Sea: A case Study of Innovation</td>
<td>486</td>
</tr>
<tr>
<td>11-12</td>
<td>Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms</td>
<td>496</td>
</tr>
<tr>
<td>11-13</td>
<td>Hewlett-Packard: The Flight of the Kittyhawk</td>
<td>509</td>
</tr>
<tr>
<td>11-14</td>
<td>Intel Corporation: The DRAM Decision</td>
<td>521</td>
</tr>
<tr>
<td>11-15</td>
<td>Intraorganizational Ecology of Strategy Making and Organizational Adaptation: Theory and Field Research</td>
<td>544</td>
</tr>
<tr>
<td>11-16</td>
<td>Strategic Dissonance</td>
<td>563</td>
</tr>
</tbody>
</table>

## ORGANIZATIONAL CONTEXT

<table>
<thead>
<tr>
<th>Reading</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-11</td>
<td>Gunfire at Sea: A case Study of Innovation</td>
<td>486</td>
</tr>
<tr>
<td>11-12</td>
<td>Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms</td>
<td>496</td>
</tr>
<tr>
<td>11-13</td>
<td>Hewlett-Packard: The Flight of the Kittyhawk</td>
<td>509</td>
</tr>
<tr>
<td>11-14</td>
<td>Intel Corporation: The DRAM Decision</td>
<td>521</td>
</tr>
<tr>
<td>11-15</td>
<td>Intraorganizational Ecology of Strategy Making and Organizational Adaptation: Theory and Field Research</td>
<td>544</td>
</tr>
<tr>
<td>11-16</td>
<td>Strategic Dissonance</td>
<td>563</td>
</tr>
</tbody>
</table>

## STRATEGIC ACTION

<table>
<thead>
<tr>
<th>Reading</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-15</td>
<td>Strategic Intent</td>
<td>577</td>
</tr>
<tr>
<td>11-16</td>
<td>Infosys Consulting in 2006: Leading the Next Generation of Business and Information Technology Consulting</td>
<td>589</td>
</tr>
</tbody>
</table>
CASE 11-12
Inside Microsoft: The Untold Story of How the Internet Forced Bill Gates to Reverse Course 608

CASE 11-13
Intel Corporation: Strategy for the 1990s 612

READING 11-16
Let Chaos Reign, Then Rein in Chaos—Repeatedly: Managing Strategic Dynamics for Corporate Longevity 623

CASE 11-14
Charles Schwab & Co., Inc., in 1999 637

CASE 11-15
The Charles Schwab Corporation in 2007: Fixing and Redefining the Core Business 664

CASE 11-16
HP and Compaq Combined: In search of Scale and Scope 668

READING 11-17
Managing the Strategic Dynamics of Acquisition Integration: Lessons from HP and Compaq 688

PART THREE
ENACTMENT OF TECHNOLOGY STRATEGY-DEVELOPING A FIRM'S INNOVATIVE CAPABILITIES

INTERNAL AND EXTERNAL SOURCES OF TECHNOLOGY 719

READING III-1
Capturing the Returns from Research 719

READING III-2
The Lab That Ran Away from Xerox 725

READING III-3
Perfecting Cross-Pollination 728

READING III-4
Transforming Invention into Innovation: The Conceptualization Stage 730

READING III-5
The Transfer of Technology from Research to Development 738

READING III-6
Absorptive Capacity: A New Perspective on Learning and Innovation 746

CASE III-1
NEC: A New R&D Site in Princeton 762

CASE III-2
Cisco Systems, Inc.: Acquisition Integration for Manufacturing 775

READING III-7
Making Sense of Corporate Venture Capital 792

LINKING NEW TECHNOLOGY AND NOVEL CUSTOMER NEEDS 799

READING III-8
Note on Lead User Research 799

CASE III-3
What's the BIG Idea? 806

READING III-9
Eager Sellers and Stony Buyers: Understanding the Psychology of New-Product Adoption 822

CASE III-4
GolfLogix: Measuring the Game of Golf 829

READING III-10
Innovation Killers 855

INTERNAL CORPORATE VENTURING 878

CASE III-5
Pitney Bowes Inc. 878

CASE III-6
Cisco Systems, Inc.: Implementing ERP 889

CASE III-7
R. R. Donnelley & Sons: The Digital Division 901

CASE III-8
Intel Corporation: The Hood River Project 914

CASE III-9
3M Optical Systems: Managing Corporate Entrepreneurship 936
# CONTENTS

**READING 111-12**  
At 3M, a Struggle Between Efficiency and Creativity  
949

**READING 111-13**  
Managing the Internal Corporate Venturing Process: Some Recommendations for Practice  
955

**READING 111-14**  
Managing Internal Corporate Venturing Cycles  
965

**READING 111-15**  
Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change  
974

## PART FOUR

**ENACTMENT OF TECHNOLOGY STRATEGY-CREATING AND IMPLEMENTING A DEVELOPMENT STRATEGY**

**NEW PRODUCT DEVELOPMENT**  
1007

**READING IV-1**  
Communication Between Engineering and Production: A Critical Factor  
1007

**CASE IV-1**  
Vitreon Corporation: The Hyalite Project  
1013

**READING IV-2**  
The New Product Learning Cycle  
1025

**CASE IV-2**  
Eli Lilly and Company: Drug Development Strategy (A)  
1038

**READING IV-3**  
Organizing and Leading "Heavyweight" Development Teams  
1053

**READING IV-4**  
Finding the Right Job for Your Product  
1064

**BUILDING COMPETENCE/CAPABILITIES THROUGH NEW PRODUCT DEVELOPMENT**  
1077

**READING IV-5**  
Creating Project Plans to Focus Product Development  
1091

**CASE IV-4**  
Genentech—Capacity Planning  
1101

**READING IV-6**  
The New Product Development Map  
1119

**READING IV-7**  
Accelerating the Design-Build-Test Cycle for Effective New Product Development  
1128

## PART FIVE

**CONCLUSION: INNOVATION CHALLENGES IN ESTABLISHED FIRMS**

**READING V-1**  
Building a Learning Organization  
1193

**CASE V-1**  
1140

**CASE V-2**  
SAP AG in 2006: Driving Corporate Transformation  
1160

**READING V-1**  
Building a Learning Organization  
1193

**CASE V-2**  
The Power of Strategic Integration  
1205

**CASE V-3**  
Nike's Global Women's Fitness Business: Driving Strategic Integration  
1213

Credits  
1235

Index  
1238