# CONTENTS

## CHAPTER 1 Introduction 1

*Technology Strategy: A Vignette* 2  
Introduction 3  
What Is Technological Innovation? 4  
  - Defining Technology 4  
  - Defining Innovation 5  
  - Defining Technological Innovation 6  
Why Technological Innovation Is Important 7  
Getting Down to Business: Remembering Process Development 8  
Why Technology Strategy? 9  
  - Purpose of the Book 10  
  - Approach to Technology Strategy 10  
  - Technology Strategy in Start-ups and Large, Established Firms 11  
A Preview of the Chapters 12  
  - Understanding Technological Change 12  
  - Coming Up with Innovations 13  
  - Benefiting from Innovation 13  
  - Formulating Technology Strategy 14  
Discussion Questions 14  
Key Terms 14  
Notes 15

## SECTION A: "UNDERSTANDING TECHNOLOGICAL CHANGE" 16

## CHAPTER 2 Technology Evolution 16

*Technology Evolution: A Vignette* 17  
Introduction 18  
Evolutionary Patterns of Development 18  
Radical and Incremental Technological Change 21  
Technology S-Curves 22  
  - Shifting S-Curves 23  
  - Who Shifts the S-Curve? 25  
  - Using S-Curves as a Management Tool 27  
The Abernathy-Utterback Model 29  
  - The Nature of Innovation and Competition 29  
  - New Firm Performance 31  
  - Number of Firms in the Industry 31  
  - Limitations to the Model 32  
Getting Down to Business: The History of Electric Vehicles 33
CHAPTER 3 Technology Adoption and Diffusion 45

Technology Adoption and Diffusion: A Vignette 46

Introduction 47

Distribution of Adopters 47

Groups of Adopters 49

S-Curves of Adopters 50

Crossing the Chasm 52

Identifying the Take-Off Stage 53

How to Cross the Chasm 53

Choosing the Customer 54

Beachhead Strategy 55

Market Dynamics 56

Forecasting Demand 56

Information Diffusion Models 57

How Not to Do It 58

The Bass Model 59

Getting Down to Business: Diffusion of MP3 Players 60

The Delphi Technique 61

Product Diffusion Models 62

The Importance of Complementary Technologies 63

Substitution 64

Discussion Questions 67

Key Terms 68

Putting Ideas into Practice 68

Notes 69

CHAPTER 4 Sources of Innovation 71

Technological Opportunities: A Vignette 72

Introduction 72

Sources of Opportunities 73

Technological Change 73

Political and Regulatory Change 76

Social and Demographic Change 77

Combination 78

Locus of Innovation 79

Research and Development 83

Types of R&D 83

Why Firms Invest in R&D 84

Costs of R&D 86

Linking Research and Development 87
CHAPTER 9 Trade Secrets, Trademarks, and Copyrights

Software Copyrights: A Vignette

Introduction

Secrecy
- When Does Secrecy Work?
- Trade Secrecy
- Secrecy as a Strategy
- Nondisclosure Agreements
- Noncompete Agreements
- Ownership of Intellectual Property

Getting Down to Business: Using Nondisclosure and Noncompete Agreements

Copyrights
- What Can Be Copyrighted?
- Who Gets a Copyright and How Do They Get It?
- Enforcement Through Litigation
- Recent Developments to Strengthen Copyrights

Trademarks
- What Can Be Trademarked?
- Obtaining a Trademark
- Enforcing a Trademark
- Domain Names

International Issues in Intellectual Property
- Differences in Intellectual Property Regimes
- International Agreements on Intellectual Property

Discussion Questions

Key Terms

Putting Ideas into Practice

Notes

CHAPTER 10 Capturing Value from Innovation

Lead Time: A Vignette

Introduction

Appropriability Mechanisms
- Controlling Key Resources
- Establishing a Reputation
- Obtaining Architectural Control
- Exploiting Economies of Scale